

पत्रांक: 2160/सा0प्र0/सि0वि0वि0/2020

दिनांक: 30/04/2020

सेवा में,

प्रबन्धक/प्राचार्य

समस्त सम्बद्ध महाविद्यालय

सिद्धार्थ विश्वविद्यालय, कपिलवस्तु, सिद्धार्थनगर।

**विषय-** विश्वविद्यालय परिसर एवं समस्त सम्बद्ध महाविद्यालयों में न्यूनतम समान पाठ्यक्रम सत्र 2020-21 से लागू किये जाने के सम्बन्ध में।

**महोदय,**

उपर्युक्त विषयक शासन के पत्र संख्या- 615/सत्तर-1-2020-16(26)/2011 दिनांक 20 अप्रैल, 2020 का सन्दर्भ ग्रहण करने का कष्ट करें, जिसके द्वारा राज्य विश्वविद्यालयों में न्यूनतम समान पाठ्यक्रम लागू किये जाने के सम्बन्ध में तत्कालीन कुलपति बुन्देलखण्ड विश्वविद्यालय, झांसी सम्प्रति कुलपति, सिद्धार्थ विश्वविद्यालय कपिलवस्तु, सिद्धार्थनगर की अध्यक्षता में शासन द्वारा एक समिति गठित की गई थी। जिसकी संस्तुतियां दिनांक 18.11.2019 शासन द्वारा (पाठ्यक्रम सहित) प्रेषित की गई है, जिसे इसी सत्र से लागू किया जाना है।

उक्त के क्रम में समिति द्वारा निर्मित न्यूनतम समान पाठ्यक्रम सत्र 2020-21 के प्रथम वर्ष से लागू किये जाने के सम्बन्ध में निर्धारित प्रक्रिया का पालन करते हुए विद्या परिषद् एवं कार्यपरिषद् की बैठक अतिशीघ्र आहूत कर अनुमोदनोपरान्त पाठ्यक्रम इसी सत्र से प्रभावी किये जाने की कार्यवाही की जायेगी।

मा0 कुलपति जी के आदेशानुसार सिद्धार्थ विश्वविद्यालय परिसर एवं सम्बद्ध समस्त महाविद्यालयों को सूचित किया जाता है कि पाठ्यक्रम विश्वविद्यालय की वेबसाइट ([www.suksn.edu.in](http://www.suksn.edu.in)) पर उपलब्ध है। कृपया अपने महाविद्यालय में संचालित विषयों के पाठ्यक्रमों से सम्बन्धित शिक्षकों एवं छात्र-छात्राओं को इससे अवगत कराने का कष्ट करें।

**संलग्नक-यथोपरि।**

भवदीय



कुलसचिव

सिद्धार्थ विश्वविद्यालय, कपिलवस्तु,  
सिद्धार्थनगर।

दिनांक 30/04/2020

पत्रांक: 2160/सा0प्र0/सि0वि0वि0/2020

**प्रतिलिपि-निम्नलिखित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।**

- 1-विशेष सचिव, उच्चशिक्षा अनुभाग-1, उ0प्र0 शासन, लखनऊ।
- 2-अपर सचिव, उत्तर प्रदेश राज्य उच्च शिक्षा परिषद्, लखनऊ।
- 3-परीक्षा नियंत्रक, सिद्धार्थ विश्वविद्यालय, कपिलवस्तु, सिद्धार्थनगर।
- 4-विभागाध्यक्ष- वाणिज्य, प्रभारी-अर्थशास्त्र एवं हिन्दी विभाग।
- 5-निजी सचिव, कुलपति, मा0 कुलपति जी के अवलोकनार्थ।
- 6-कोडिंग प्रभारीको इस आशय से कि उपरोक्त सूचना को विश्वविद्यालय के वेबसाइट तथा कालेज लॉगिन पर अपलोड कराना सुनिश्चित कराये।
- 7-सम्बन्धित पत्रावली।



कुलसचिव

सिद्धार्थ विश्वविद्यालय, कपिलवस्तु,  
सिद्धार्थनगर।

न्यूनतम समान पाठ्यक्रम (Common Minimum Curriculum) स्नातक स्तर पर लागू किये जाने के सम्बन्ध में शासन द्वारा गठित समिति के आवंटित पाठ्यक्रमों का विवरण:-

क्र. स.	विश्वविद्यालय का नाम	विषय	क्रमांक
1.	दीनदयाल उपाध्याय गोरखपुर विश्वविद्यालय, गोरखपुर।	हिन्दी	1
		संस्कृत	2
		उर्दू	3
		भूगोल	4
		दर्शनशास्त्र	5
		इतिहास (मध्यकालीन/आधुनिक)	6
		विधि	7
		मनोविज्ञान	8
		Defence and Strategic Studies	9
2.	डॉ० भीमराव आम्बेडकर विश्वविद्यालय, आगरा।	गृह विज्ञान	10
		कृषि	11
		सांख्यिकी	12
		ललितकला	13
3.	लखनऊ विश्वविद्यालय, लखनऊ।	वनस्पति विज्ञान	14
		प्राणि विज्ञान	15
		रसायन विज्ञान	16
		भौतिकी	17
		गणित	18
		अंत्रोपोलॉजी	19
		कम्प्यूटर साइंस	20
		भूगर्भ विज्ञान	21
4.	चौधरी चरण सिंह विश्वविद्यालय, मेरठ।	राजनीति शास्त्र	22
		प्राचीन भारतीय इतिहास पुरातत्व एवं संस्कृति	23
5.	महात्मा ज्योतिबाफुले रुहेलखण्ड विश्वविद्यालय, बरेली।	अर्थशास्त्र	24
		शिक्षाशास्त्र	25
6.	छत्रपति शाहू जी महाराज विश्वविद्यालय, कानपुर।	अंग्रेजी	26
7.	बुन्देलखण्ड विश्वविद्यालय, झाँसी।	बी०एस०सी० (भूगर्भ विज्ञान)	27
8.	महात्मा गाँधी काशी विद्यापीठ, वाराणसी।	समाजशास्त्र	28
		समाज कार्य,	29
		वाणिज्य	30
		शारीरिक शिक्षा	31

## अधिगम उपलब्धि (Learning Outcome)

### 1. कौशल-विकास :

विज्ञानअथवासमाज-विज्ञान के विषयों से किंचित भिन्न प्रकृति का विषय होने के कारण हिंदी साहित्य के पाठ्यक्रम में कौशल-विकास का सन्दर्भ भी पृथक है। मनुष्य की चेतना और संवेदना के परिष्कार तथा विकास में साहित्य के अध्ययन और अध्यापन की भूमिका का गम्भीर महत्व है। सामाजिक-सांस्कृतिक परिस्थितियों की चुनौतियों और कठिनाइयों में मनुष्य के जीवन-कौशल अर्थात् विवेक, व्यावहारिकता और साहसके विकास तथा उसके लिए अनेक मार्ग दर्शक मूल्यों, विचारों और भावनाओं के अपरिहार्य स्रोत के रूप में यह पाठ-सामग्री उपयोगी प्रमाणित होगी। इस दृष्टि से देखें, तो हिंदी साहित्य का यह समग्र पाठ्यक्रम ही एक प्रकार से मनुष्य के कौशल-विकास की व्यापक परियोजना का एक उपयोगी माध्यम है। प्रयोजन मूलक हिंदी का पाठ्यक्रम आज के नये सन्दर्भों में कौशल-विकास की आवश्यकता के अनुसार निर्मित किया गया है।

### 2. संग्रह-निर्माण :

एकांकी और निबन्ध के संग्रह-निर्माण अपेक्षित

(क) बी.ए. भाग-एक के लिए मध्यकालीन कविता, एकांकी और निबन्ध के संग्रह-निर्माण अपेक्षित

(ख) बी.ए. भाग-दो के लिए आधुनिक कविता और कहानी-साहित्य के संग्रह-निर्माण अपेक्षित

3. सभी प्रश्नपत्र 80 अंकोंके सैद्धान्तिक/आलोचनात्मक प्रश्न तथा 20 अंकोंके सतत मूल्यांकन में विभक्त होंगे।

\*बी.ए. भाग-एक :

● प्रथम प्रश्नपत्र : मध्यकालीन कविता [व्याख्या एवं आलोचना के प्रश्न] 80+20=100

● द्वितीय प्रश्नपत्र : नाटक, निबन्ध एवं प्रकीर्ण गद्य-विधाएं [व्याख्या एवं आलोचना के प्रश्न]  
80+20=100

\*बी.ए. भाग-दो :

● प्रथम प्रश्नपत्र : आधुनिक कविता [व्याख्या एवं आलोचना के प्रश्न] 80+20=100

● द्वितीय प्रश्नपत्र : कथा साहित्य [व्याख्या एवं आलोचना के प्रश्न] 80+20=100

\*बी.ए. भाग-तीन :

● प्रथम प्रश्नपत्र : हिंदी साहित्य का इतिहास [आलोचना के प्रश्न] 80+20=100

● द्वितीय प्रश्नपत्र : साहित्यशास्त्र एवं हिंदी आलोचना [आलोचना के प्रश्न] 80+20=100

● तृतीय प्रश्नपत्र : हिंदी भाषा एवं प्रयोजनमूलक हिंदी [आलोचना के प्रश्न] 80+20=100

# बी0ए0 भाग एक

प्रथम प्रश्नपत्र : मध्यकालीन कविता

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

व्याख्या एवं आलोचना (सिद्धान्त)

पूर्णांक – 80

समय— 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और दो लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं एक लघु उत्तरीय प्रश्न का उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 10 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रत्येक इकाई से व्याख्या के दो अवतरण होंगे, जिनमें से एक का चयन करना होगा। प्रत्येक व्याख्या 06 अंक की होगी। चार इकाइयों से कुल 4 व्याख्या करनी होगी।
4. प्रश्नपत्र के तीन खण्ड होंगे—

क. 04 व्याख्या (प्रत्येक इकाई से एक)

= 4 X 6 = 24 अंक (प्रत्येक के लिए शब्द सीमा 150)

ख. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 10 X 4 = 40 अंक (प्रत्येक के लिए शब्द सीमा 500)

ग. 04 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 4 X 4 = 16 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	<ul style="list-style-type: none"><li>● कबीरदास : गुरुदेव कौ अंग, प्रेम विरह कौ अंग (कबीर ग्रन्थावली—सं० श्याम सुन्दर दास) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – भक्ति भावना, समाज—दर्शन, रहस्यवाद, काव्य सौन्दर्य</li><li>● मलिक मुहम्मद जायसी : नागमती वियोग खण्ड (जायसी ग्रन्थावली—सं० रामचन्द्र शुक्ल) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – सौन्दर्य वर्णन, प्रेम वर्णन, विरह वर्णन, रहस्यवाद, काव्य सौन्दर्य</li></ul>
दो	<ul style="list-style-type: none"><li>● सूरदास : भ्रमरगीतसार – सं० आचार्य रामचन्द्र शुक्ल (आरम्भ के 25 पद) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – सूरदास का श्रृंगार वर्णन, वात्सल्य वर्णन, सौन्दर्य वर्णन, भ्रमरगीत का काव्य सौन्दर्य, भक्ति भावना</li><li>● तुलसीदास : रामचरित मानस (अयोध्याकाण्ड दोहा सं० 51 से 100 तक) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – तुलसीदास का काव्य सौन्दर्य, समन्वय—भावना, लोकमंगल, मार्मिक प्रसंगों का महत्त्व, भक्ति—भावना</li></ul>
तीन	<ul style="list-style-type: none"><li>● मीराबाई : डॉ० विश्वनाथ त्रिपाठीकी पुस्तक 'मीरा का काव्य' में संकलित आरम्भिक कुल 15 पद व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – मीराबाई का काव्य—सौन्दर्य, प्रेम और विरह, स्त्री—सन्दर्भ</li><li>● घनानंद : आनन्दघन – डॉ० रामदेव शुक्ल, वाणी प्रकाशन, नयी दिल्ली (आरम्भ के 15 छंद) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – प्रेम और विरह, काव्य सौन्दर्य, काव्य भाषा</li></ul>



<b>चार</b>	<ul style="list-style-type: none"> <li>● <b>केशवदास</b> : संक्षिप्त रामचन्द्रिका – सं० रामचन्द्र तिवारी (अयोध्याकाण्ड, प्रारम्भिक 10 छंद) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – केशवदास का काव्य सौन्दर्य, संवाद योजना, केशव का आचार्यत्व</li> <li>● <b>बिहारी</b> : बिहारी रत्नाकर, सं० जगन्नाथ दास रत्नाकर(प्रारम्भ के 20 दोहे) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – काव्य सौन्दर्य, श्रृंगार, भक्ति एवं नीति तत्व, रीतिसिद्ध कवि बिहारी</li> <li>● <b>भूषण</b> : भूषण ग्रन्थावली – सं० विश्वनाथ प्रसाद मिश्र– वाणी प्रकाशन, नयी दिल्ली, संस्करण 2012 छंद संख्या– 1, 2, 15, 48, 50, 53, 55, 61, 65, 76, 81, 83, 92, 93, 113, 172, 174, 182, 195, 200– कुल 20 छंद व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – रीतिसिद्ध काव्यधारा का वैशिष्ट्य, भूषण में वीर रस की अभिव्यक्ति, राष्ट्रीय चेतना, काव्य शिल्प।</li> </ul>
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सतत् मूल्यांकन :

पूर्णांक – 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—

1. आन्तरिक मूल्यांकन— 10 अंक(मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

सन्दर्भ—ग्रन्थ / सहायक ग्रन्थ :

1. बच्चन सिंह, 2005, रीतिकालीन कवियों की प्रेम—व्यंजना, लोकभारती, इलाहाबाद
2. रामचन्द्र शुक्ल, 1945, हिन्दी साहित्य का इतिहास, नागरी प्रचारिणी सभा, काशी
3. रामचन्द्र तिवारी, 1997, मध्ययुगीन काव्य साधना, भवदीय प्रकाशन, अयोध्या।
4. विजय देव नारायण साही, 1983, जायसी, हिन्दुस्तानी एकेडमी, इलाहाबाद।
5. शिवकुमार मिश्र, 1999, भक्ति आन्दोलन और भक्ति काव्य, अभिव्यक्ति प्रकाशन, इलाहाबाद।
6. हजारी प्रसाद द्विवेदी, 1971, कबीर, राज कमल प्रकाशन, नई दिल्ली।
7. हजारी प्रसाद द्विवेदी, 1948, हिन्दी साहित्य की भूमिका, हिन्दी ग्रंथ रत्नाकर कार्यालय, बंबई।

द्वितीय प्रश्नपत्र : नाटक, निबन्ध एवं प्रकीर्ण गद्य-विद्यार्ण

पूर्णांक - 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

व्याख्या एवं आलोचना (सिद्धान्त)

पूर्णांक - 80

समय- 3 घण्टा

निर्देश-

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और दो लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं एक लघु उत्तरीय प्रश्न का उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 10 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रत्येक इकाई से व्याख्या के दो अवतरण होंगे, जिनमें से एक का चयन करना होगा। प्रत्येक व्याख्या 06 अंक की होगी। चार इकाइयों से कुल 4 व्याख्या करनी होगी।
4. प्रश्नपत्र के तीन खण्ड होंगे-

- क. 04 व्याख्या (प्रत्येक इकाई से एक) = 4 X 6 = 24 अंक (प्रत्येक के लिए शब्द सीमा 150)  
 ख. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 10 X 4 = 40 अंक (प्रत्येक के लिए शब्द सीमा 500)  
 ग. 04 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 4 X 4 = 16 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	<ul style="list-style-type: none"> <li>● नाटक : ध्रुवस्वामिनी (जयशंकर प्रसाद) अथवा कोणार्क(जगदीश चन्द्र माथुर) व्याख्या - उपर्युक्त कृतियों से आलोचना -नाट्यकला, इतिहास, कल्पना और आधुनिक संवेदना, चरित्र-विन्यास, प्रासंगिकता</li> </ul>
दो	<ul style="list-style-type: none"> <li>● एकांकी: कौमुदी महोत्सव (राम कुमार वर्मा), लक्ष्मी का स्वागत (उपेन्द्रनाथ अशक), परिचय (लक्ष्मी नारायण लाल), सीमारेखा (विष्णु प्रभाकर) व्याख्या - उपर्युक्त पाठ्य विषय से आलोचना - एकांकी कला की दृष्टि से मूल्यांकन, प्रासंगिकता और महत्व</li> </ul>
तीन	<ul style="list-style-type: none"> <li>● निबन्ध :करुणा (आचार्य रामचन्द्र शुक्ल), अशोक के फूल (हजारी प्रसाद द्विवेदी), तमाल के झरोखे से (विद्यानिवास मिश्र), प्रिया नीलकंठी (कुबेरनाथ राय) व्याख्या - उपर्युक्त पाठ्य विषय से आलोचना -निबन्ध कला की दृष्टि से मूल्यांकन एवं प्रतिपाद्य</li> </ul>
चार	<ul style="list-style-type: none"> <li>● प्रकीर्ण गद्य-विद्यार्ण :प्रकीर्णिका - सं० बालकृष्ण राव, श्रीराम शर्मा- जीवनी: प्रेमचंद-लमही में जन्म एवं अन्तिम बीमारी (अमृत राय), आत्मकथा- अपनी खबर- (पाण्डेय बेचन शर्मा 'उग्र'), डायरी- प्रवास की डायरी से (हरिवंश राय बच्चन), संस्मरण- तीस बरस का साथी-(राम विलास शर्मा), रेखाचित्र- गिल्लू (महादेवी शर्मा), आलोचना -जीवनी, आत्मकथा, संस्मरण, रेखाचित्र, यात्रा-वृत्तांत विधा की प्रकृति एवं विशेषताओं के आधार पर संकलित रचनाओं की समीक्षा।</li> </ul>

सतत् मूल्यांकन :

पूर्णांक - 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है-

1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

**सन्दर्भ-ग्रन्थ / सहायक ग्रन्थ :**

1. गिरीश रस्तोगी, 1990, समकालीन हिन्दी नाटक की संकल्प-चेतना, हरियाणा साहित्य अकादमी, चण्डीगढ़।
2. बच्चन सिंह, 1989, हिन्दी नाटक, राधाकृष्ण प्रकाशन, दिल्ली।
3. रामचन्द्र तिवारी, 2007, हिन्दी निबन्ध और निबन्धकर, विश्वविद्यालय प्रकाशन, वाराणसी।
4. रामचन्द्र तिवारी, 1992, हिन्दी का गद्य-साहित्य, विश्वविद्यालय प्रकाशन, वाराणसी।
5. रामचन्द्र शुक्ल, 1945, हिन्दी साहित्य का इतिहास, नागरी प्रचारिणी सभा, काशी
6. सिद्धनाथ कुमार, 1978, प्रसाद के नाटक, अनुमप प्रकाशन, पटना।

# बी0ए0 भाग दो

## प्रथम प्रश्नपत्र : आधुनिक कविता

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

### व्याख्या एवं आलोचना (सिद्धान्त)

पूर्णांक – 80

समय— 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और दो लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं एक लघु उत्तरीय प्रश्न का उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 10 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रत्येक इकाई से व्याख्या के दो अवतरण होंगे, जिनमें से एक का चयन करना होगा। प्रत्येक व्याख्या 06 अंक की होगी। चार इकाइयों से कुल 4 व्याख्या करनी होगी।
4. प्रश्नपत्र के तीन खण्ड होंगे—  
क. 04 व्याख्या (प्रत्येक इकाई से एक) = 4 X 6 = 24 अंक (प्रत्येक के लिए शब्द सीमा 150)  
ख. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 10 X 4 = 40 अंक (प्रत्येक के लिए शब्द सीमा 500)  
ग. 04 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 4 X 4 = 16 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	<ul style="list-style-type: none"><li>● मैथिलीशरण गुप्त :साकेत (अष्टम सर्ग) व्याख्या – 'यह सच है तो अब लौट चलो तुम घर को' से लेकर 'इस कारण वह कुछ खेद मानता है कब?' पंक्ति तक। आलोचना –कैकेयी का विरह वर्णन, अष्टम सर्ग का काव्य-सौन्दर्य</li><li>● जयशंकर प्रसाद : कामायनी (श्रद्धा सर्ग) व्याख्या – उपर्युक्त पाठ से आलोचना –छायावादी काव्यप्रवृत्तियां एवं कामायनी, श्रद्धा सर्ग का काव्य-सौन्दर्य</li></ul>
दो	<ul style="list-style-type: none"><li>● सुभित्रानंदन पंत :पल्लव, प्रथम रश्मि, मौन निमंत्रण, द्रुत झरोजगत के जीर्ण पत्र व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना –पंत का प्रकृति वर्णन एवं सौन्दर्य दृष्टि, काव्य-सौन्दर्य, संकलित कविताओं का छायावादी काव्य-तत्त्वों के आधार पर मूल्यांकन</li><li>● सूर्यकांत त्रिपाठी 'निराला' :वर दे वीणावादिनी वर दे, भारति जय विजय करे, संध्या सुन्दरी, तोड़ती पत्थर व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना –निराला की प्रगतिशील चेतना, सौन्दर्य-दृष्टि, काव्य-सौन्दर्य, संकलित कविताओं का महत्व</li></ul>
तीन	<ul style="list-style-type: none"><li>● अज्ञेय :अच्छा खण्डित सत्य, नदी के द्वीप, दूर्वाचल व्याख्या – उपर्युक्त पाठसे आलोचना –प्रयोगवाद और अज्ञेय, काव्य-सौन्दर्य, संकलित कविताओं का महत्व</li><li>● मुक्तिबोध :विचार आते हैं, मैं उनका ही होता, भूल-गलती व्याख्या – उपर्युक्त पाठ से आलोचना –मुक्तिबोध की जनपक्षधरता, प्रगतिवाद और मुक्तिबोध, काव्य-सौन्दर्य, संकलित</li></ul>

	कविताओं का महत्व
चार	<ul style="list-style-type: none"> <li>● रामधारी सिंह दिनकर :कुरुक्षेत्र(प्रथम सर्ग) व्याख्या – उपर्युक्त पाठसे आलोचना –कुरुक्षेत्र का महत्व, परम्परा और आधुनिकता, काव्य-सौन्दर्य</li> <li>● नागार्जुन :अकाल और उसके बाद, बादल को घिरते देखा है व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना –नागार्जुन की जनवादी चेतना, काव्य-सौन्दर्य, संकलित कविताओं का महत्व</li> </ul>

सतत् मूल्यांकन :

पूर्णांक – 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—

1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

सन्दर्भ-ग्रन्थ / सहायक ग्रन्थ :

1. नागेन्द्र, 1976, हिन्दी साहित्य का इतिहास, नेशनल पब्लिशिंग हाउस, नई दिल्ली।
2. नामवर सिंह, 1955, छायावाद, राजकमल प्रकाशन, नई दिल्ली।
3. बच्चन सिंह, 1996, हिन्दी साहित्य का दूसरा इतिहास, राधाकृष्ण प्रकाशन, नई दिल्ली।
4. रामचन्द्र शुक्ल, 1945, हिन्दी साहित्य का इतिहास, नागरी प्रचारणी सभा, काशी।
5. राम दरश मिश्र, 1986, आधुनिक हिन्दी कविता : सर्जनात्मक संदर्भ, इन्द्रप्रस्थ प्रकाशन, दिल्ली।
6. रामस्वरूप चतुर्वेदी, 1986, हिन्दी साहित्य और संवेदना का विकास, लोकभारती प्रकाशन, इलाहाबाद।

## द्वितीय प्रश्नपत्र : कथा साहित्य

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

### व्याख्या एवं आलोचना (सिद्धान्त)

पूर्णांक – 80

समय— 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और दो लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं एक लघु उत्तरीय प्रश्न का उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 10 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रत्येक इकाई से व्याख्या के दो अवतरण होंगे, जिनमें से एक का चयन करना होगा। प्रत्येक व्याख्या 06 अंक की होगी। चार इकाइयों से कुल 4 व्याख्या करनी होगी।
4. प्रश्नपत्र के तीन खण्ड होंगे—

- क. 04 व्याख्या (प्रत्येक इकाई से एक) = 4 X 6 = 24 अंक (प्रत्येक के लिए शब्द सीमा 150)  
ख. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 10 X 4 = 40 अंक (प्रत्येक के लिए शब्द सीमा 500)  
ग. 04 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 4 X 4 = 16 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	● उपन्यास : कर्मभूमि – प्रेमचन्द व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – उपन्यास की संवेदना एवं शिल्प, स्वाधीनता, मुक्ति का सन्दर्भ और कर्मभूमि का महत्व, उपन्यास-कला के तत्वों की दृष्टि से समीक्षा
दो	● उपन्यास : मानस का हंस (संक्षिप्त संस्करण)– अमृत लाल नागर व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – ऐतिहासिक एवं जीवनीपरक उपन्यास: स्वरूप और विकास, ऐतिहासिक एवं जीवनीपरक उपन्यास की दृष्टि में 'मानस का हंस' का विवेचन।
तीन	● कहानी : उसने कहा था (चन्द्रधर शर्मा 'गुलेरी'), गुंडा (जयशंकर प्रसाद), पूस की रात (प्रेमचन्द), परदा (यशपाल), कर्मनाशा की हार (शिव प्रसाद सिंह) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – कहानी कला की दृष्टि से विवेचना, संकलित कहानियों की संवेदना एवं महत्व
चार	● कहानी : रोज (अज्ञेय), लालपान की बेगम (फणीश्वरनाथ 'रेणु'), पहाड़ (निर्मल वर्मा), दिल्ली में एक मौत (कमलेश्वर), वापसी (उषा प्रियंवदा) व्याख्या – उपर्युक्त पाठ्य विषय से आलोचना – कहानी कला की दृष्टि से विवेचना, संकलित कहानियों की संवेदना एवं महत्व

सतत् मूल्यांकन :

पूर्णांक – 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—



1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

**सन्दर्भ-ग्रन्थ / सहायक ग्रन्थ :**

1. चन्द्रकान्त वांदिबडेकर, 1993, उपन्यास : स्थिति और गति, वाणी प्रकाशन, नई दिल्ली।
2. परमानन्द श्रीवास्तव, 2012, कहानी की रचना प्रक्रिया, लोकभारती प्रकाशन, इलाहाबाद।
3. मधुरेश, 2001, हिन्दी कहानी का विकास, सुमित प्रकाशन, इलाहाबाद।
4. राजेन्द्र यादव, 1998, उपन्यास : स्वरूप और संवेदना, वाणी प्रकाशन, नई दिल्ली।
5. रामचन्द्र तिवारी, 1992, हिन्दी का गद्य-साहित्य, विश्वविद्यालय प्रकाशन, वाराणसी।
6. राम विलास शर्मा, 1999, कथा विवेचना और गद्यशिल्प, वाणी प्रकाशन, नई दिल्ली।

## बी0ए0 भाग तीन

### प्रथम प्रश्नपत्र : हिन्दी साहित्य का इतिहास

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित हैं।

#### आलोचनात्मक(सिद्धान्त)

पूर्णांक – 80

समय— 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और चार लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं दो लघु उत्तरीय प्रश्नोंका उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 12 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रश्नपत्र के दो खण्ड होंगे—  
क. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक)= 4 X 12 =48 अंक (प्रत्येक के लिए शब्द सीमा 500)  
ख. 08 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से दो)= 8 X 4 = 32 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	<ul style="list-style-type: none"><li>● साहित्य का इतिहास – हिन्दी साहित्येतिहास—लेखन की परम्परा एवं विकास</li><li>● आदिकाल – नामकरण, काल विभाजन एवं प्रवृत्तियां</li><li>● निर्गुण भक्ति—काव्यधारा— भक्ति आन्दोलन एवं निर्गुण काव्य, ज्ञानाश्रयी शाखा का महत्व, कबीरदास की भूमिका, प्रेमाश्रयी शाखा का महत्व, अवदान, प्रवृत्ति एवं मलिक मुहम्मद जायसी की भूमिका</li></ul>
दो	<ul style="list-style-type: none"><li>● सगुण भक्ति—काव्यधारा – भक्ति आन्दोलन एवं सगुण काव्य, रामभक्ति शाखा का महत्व, अवदान, प्रवृत्ति एवं गोस्वामी तुलसीदास की भूमिका, कृष्णभक्ति काव्यधारा का महत्व, अवदान, प्रवृत्ति एवं सूरदास की भूमिका</li><li>● रीतिकाव्य – नामकरण, प्रवृत्ति एवं परिप्रेक्ष्य, रीतिबद्ध, रीतिसिद्ध एवं रीतिमुक्त काव्यधारा की विशेषताएं</li></ul>
तीन	<ul style="list-style-type: none"><li>● आधुनिक काव्य (छायावाद तक)— नामकरण, प्रवृत्तियां, भारतेन्दु युग, हिन्दी नवजागरण एवं भारतेन्दु हरिश्चन्द्र, द्विवेदी युग की प्रवृत्तियां एवं महावीर प्रसाद द्विवेदी का योगदान, छायावाद नामकरण, प्रवृत्तियां एवं अवदान</li></ul>
चार	<ul style="list-style-type: none"><li>● आधुनिक काव्य (छायावादोत्तर) – प्रगतिवाद, प्रयोगवाद, नयी कविता—नामकरण, प्रवृत्तियां एवं महत्व, निबन्ध, नाटक, उपन्यास, कहानी, आलोचना का उद्भव एवं विकास</li></ul>

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—

1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

सन्दर्भ—ग्रन्थ / सहायक ग्रन्थ :

1. नगेन्द्र (सं०), 1976, हिन्दी साहित्य का इतिहास, नेशनल पब्लिशिंग हाउस, नई दिल्ली।
2. बच्चन सिंह, 1996, हिन्दी साहित्य का दूसरा इतिहास, राधाकृष्ण प्रकाशन, नई दिल्ली।
3. रामचन्द्र शुक्ल, 1945, हिन्दी साहित्य का इतिहास, नागरी प्रचारिणी सभा, काशी।
4. रामस्वरूप चतुर्वेदी, 1986, हिन्दी साहित्य और संवेदना का विकास, लोकभारती प्रकाशन, इलाहाबाद।
5. हजारी प्रसाद द्विवेदी, 1948, हिन्दी साहित्य की भूमिका, हिन्दी ग्रन्थ रत्नाकर, बंबई।

## द्वितीय प्रश्नपत्र : साहित्यशास्त्र एवं हिन्दी आलोचना

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

### आलोचनात्मक अध्ययन(सिद्धान्त)

पूर्णांक – 80

समय— 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और चार लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं दो लघु उत्तरीय प्रश्नोंका उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 12 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रश्नपत्र के दो खण्ड होंगे—  
क. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक)= 4 X 12 =48 अंक (प्रत्येक के लिए शब्द सीमा 500)  
ख. 08 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से दो)= 8 X 4 = 32 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	● भारतीय काव्यशास्त्र – काव्य का स्वरूप, काव्यहेतु एवं प्रयोजन, रस-स्वरूप, अवयव, भेद, अलंकार का स्वरूप, भेद एवं महत्त्व, काव्य-गुण, काव्य-दोष, शब्द शक्तियां
दो	● पाश्चात्य काव्यशास्त्र – अनुकृति सिद्धान्त, उदात्तवाद, शास्त्रीयतावाद, स्वच्छन्दतावाद, यथार्थवाद, नयी समीक्षा, कल्पना, बिम्ब और प्रतीक
तीन	● आलोचना—आलोचना का अर्थ एवं स्वरूप, आलोचक के गुण, आलोचक के दायित्व, आलोचना की पद्धतियां
चार	● हिन्दी आलोचना एवं प्रमुख आलोचक—हिन्दी आलोचना का उद्भव और विकास:महावीर प्रसाद द्विवेदी, रामचन्द्र शुक्ल, नन्ददुलारे वाजपेयी, नगेन्द्र, रामविलास शर्मा एवंहजारी प्रसाद द्विवेदी का हिन्दी आलोचना के विकास में योगदान

सतत् मूल्यांकन :

पूर्णांक – 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—

1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

सन्दर्भ-ग्रन्थ / सहायक ग्रन्थ :

1. देवेन्द्र नाथ शर्मा, 2002, पाश्चात्य काव्यशास्त्र, मयूर पेपर बैक्स, नोएडा।
2. नन्दकिशोर नवल, 1981, हिन्दी आलोचना का विकास, राजकमल प्रकाशन, नई दिल्ली।
3. बच्चन सिंह, 1987, भारतीय एवं पाश्चात्य काव्यशास्त्र का तुलनात्मक अध्ययन, हरियाणा साहित्य अकादमी, चण्डीगढ़।
4. भगीरथ मिश्र, 1994, काव्यशास्त्र, विश्वविद्यालय प्रकाशन, वाराणसी।
5. भगीरथ मिश्र, 1988, पाश्चात्य काव्यशास्त्र, विश्वविद्यालय प्रकाशन, वाराणसी।
6. विश्वनाथ त्रिपाठी, 1992, हिन्दी आलोचना, राजकमल प्रकाशन, नई दिल्ली।

तृतीय प्रश्नपत्र : हिन्दी भाषा एवं प्रयोजनमूलक हिन्दी

पूर्णांक – 80 + 20

यह प्रश्नपत्र कुल 100 अंकों का होगा। 80 अंक व्याख्या एवं आलोचना तथा 20 अंक सतत् मूल्यांकन हेतु निर्धारित है।

आलोचनात्मक अध्ययन(सिद्धान्त)

पूर्णांक – 80

समय – 3 घण्टा

निर्देश—

1. यह प्रश्नपत्र चार इकाइयों में विभक्त होगा। प्रत्येक इकाई 20 अंक की होगी।
2. प्रत्येक इकाई से दो दीर्घ उत्तरीय और चार लघु उत्तरीय प्रश्न पूछे जायेंगे, जिनमें से एक दीर्घ उत्तरीय एवं दो लघु उत्तरीय प्रश्नोंका उत्तर लिखना होगा। दीर्घ उत्तरीय प्रश्न 12 अंक का एवं लघु उत्तरीय प्रश्न 04 अंक का होगा।
3. प्रश्नपत्र के दो खण्ड होंगे—  
क. 04 दीर्घ उत्तरीय प्रश्न (प्रत्येक इकाई से एक) = 4 X 12 = 48 अंक (प्रत्येक के लिए शब्द सीमा 500)  
ख. 08 लघु उत्तरीय प्रश्न (प्रत्येक इकाई से दो) = 8 X 4 = 32 अंक (प्रत्येक के लिए शब्द सीमा 100)

यूनिट (इकाई)	पाठ्य विषय
एक	<ul style="list-style-type: none"> <li>● हिन्दी भाषा—हिन्दी शब्द की व्युत्पत्ति, उसका अर्थ विकास, हिन्दी भाषा का विकास, हिन्दी भाषा की सामाजिक—सांस्कृतिक भूमिका</li> <li>● हिन्दी की प्रमुख बोलियां, हिन्दी शब्द—समूह और उसके मूल स्रोत</li> </ul>
दो	<ul style="list-style-type: none"> <li>● हिन्दी ध्वनियों का वर्गीकरण</li> <li>● देवनागरी लिपि, नामकरण, उद्भव और विकास, वैज्ञानिकता, त्रुटियां, सुधार के प्रयत्न</li> </ul>
तीन	<ul style="list-style-type: none"> <li>● प्रयोजन मूलक हिन्दी का अभिप्राय, पत्राचार—कार्यालयी पत्र, व्यावसायिक पत्र, व्यावहारिक पत्र, संक्षेपण, पल्लवन, टिप्पण</li> <li>● पत्रकारिता— पत्रकारिता का स्वरूप और वर्तमान परिदृश्य, समाचार लेखन और शीर्षकीकरण</li> </ul>
चार	<ul style="list-style-type: none"> <li>● प्रमुख जनसंचार माध्यम— प्रेस, रेडियो, टी0वी0, फिल्म एवं इण्टरनेट का संक्षिप्त परिचय एवं जनसंचार में इनकी भूमिका</li> <li>● अनुवाद – स्वरूप एवं प्रक्रिया, कार्यालयी अनुवाद, तकनीकी अनुवाद, साहित्यिक अनुवाद</li> </ul>

सतत् मूल्यांकन :

पूर्णांक – 20 अंक

सतत् मूल्यांकन उपर्युक्त चार इकाइयों पर आधारित होगा, जिसका अंक विभाजन इस प्रकार है—

1. आन्तरिक मूल्यांकन – 10 अंक (मूल्यांकन की अधोलिखित पद्धतियों में से किसी का भी उपयोग किया जा सकता है)
  - वस्तुनिष्ठ प्रश्न अथवा निबन्ध
  - सेमीनार
  - प्रोजेक्ट वर्क
2. उपस्थिति एवं अनुशासन – 10 अंक

सन्दर्भ—ग्रन्थ / सहायक ग्रन्थ :

1. कपिलदेव द्विवेदी, 1980, भाषा—विज्ञान एवं भाषा—शास्त्र, विश्वविद्यालय प्रकाशन, वाराणसी।
2. भोलानाथ तिवारी, 1987, हिन्दी भाषा का इतिहास, वाणी प्रकाशन, नई दिल्ली।
3. विनोद शाही, प्रयोजन मूलक हिन्दी, आधार प्रकाशन, पंचकुला, हरियाणा।
4. सत्य नारायण त्रिपाठी, 1981, हिन्दी भाषा और लिपि का ऐतिहासिक विकास, विश्वविद्यालय प्रकाशन, वाराणसी।

② दीनदयाल उपाध्याय गोरखपुर विश्वविद्यालय, गोरखपुर  
संस्कृत

न्यूनतम सामान्य पाठ्यक्रम प्रस्ताव (त्रिवर्षीय)  
(यू०जी०सी० एवं उ०प्र० शासन द्वारा निर्दिष्ट पाठ्यक्रम समिति)

बी.ए.— प्रथम, द्वितीय एवं तृतीय वर्ष  
उ.प्र. के समस्त विश्वविद्यालयों के लिए  
विषय—संस्कृत



कला संकाय  
संस्कृत एवं प्राकृतभाषा विभाग  
दीनदयाल उपाध्याय गोरखपुर विश्वविद्यालय, गोरखपुर

2018



विषय—संस्कृत, स्नातक पाठ्यक्रम प्रश्न—पत्र विवरण  
बी०ए०—प्रथम, द्वितीय एवं तृतीय वर्ष

<u>बी०ए० प्रथम वर्ष</u>		कुल अंक 200
प्रश्न पत्र — प्रथम	— गद्य, पद्य एवं संस्कृत साहित्य का इतिहास।	80+20* =100
प्रश्न पत्र — द्वितीय	— नाटक, अलंकार, छन्द एवं संस्कृत में अनुवाद।	80+20* =100
<u>बी०ए० द्वितीय वर्ष</u>		कुल अंक 200
प्रश्न पत्र — प्रथम	— वेद एवं उपनिषद् तथा वैदिक साहित्य का इतिहास।	80+20* =100
प्रश्न पत्र — द्वितीय	— व्याकरण, आशुपठन एवं शब्दरूप एवं संस्कृत में निबन्ध।	80+20* =100
<u>बी०ए० तृतीय वर्ष</u>		कुल अंक 300
प्रश्न पत्र — प्रथम	— दर्शन	80+20* =100
प्रश्न पत्र — द्वितीय	— काव्य एवं काव्यशास्त्र	80+20* =100
प्रश्न पत्र — तृतीय	— व्याकरण	80+20* =100

नोट : \*सतत मूल्यांकन

## बी0ए0 प्रथम-उद्देश्य

गद्य, पद्य एवं संस्कृत साहित्य का इतिहास, नाटक, अलंकार एवं छन्द, अनुवार

### ज्ञानात्मक उद्देश्य :

1. प्राथमिक रूप से संस्कृत साहित्य का ज्ञान-बोध कराना।
2. संस्कृत साहित्य के रचनाकार एवं उनके द्वारा प्रणीत ग्रन्थों के विषय में संक्षिप्त परिचय कराना।
3. काव्य के भेदों से छात्रों को परिचित कराना।
4. काव्य में प्रयुक्त छन्द एवं अलंकारों के प्रयोग का ज्ञान कराना।
5. पद्य की छन्दोमयता का परिज्ञान।

### भावात्मक उद्देश्य :

1. संस्कृत पदों की गीतात्मकता का परिचय कराना।
2. सूक्तियों एवं सुभाषित वाक्यों के भावात्मक अर्थों का बोध कराना।
3. नैतिक एवं चारित्रिक उत्कर्ष हेतु ज्ञान साहित्य— अध्ययन से देश, राष्ट्र, व्यक्ति एवं मानव जाति के प्रति प्रेम का उदात्तीकरण।
4. वैयक्तिक एवं सामाजिक कल्याण परक उपदेशों से विद्यार्थियों को परिचित कराना।
5. छात्रों को कर्तव्याकर्तव्य का बोध कराना।

### क्रियात्मक उद्देश्य :

1. अभिनय के चारों तत्त्वों (वाचिक, आङ्गिक, आहार्य एवं सात्विक) से विद्यार्थियों को परिचित कराना।
2. संस्कृत में अनुवाद-कौशल का विकास करना।
3. नवीन एवं विलष्ट पदों की बोधगम्यता हेतु शब्द कोश का परिज्ञान।
4. साहित्य की रचनाओं एवं रचनाकारों को सूचीबद्ध करने की क्षमता उत्पन्न करना।

बी0ए0— भाग एक

प्रथम प्रश्न पत्र—गद्य, पद्य एवं संस्कृत साहित्य का इतिहास

80+20=100

इकाई प्रथम	—	कुमारसम्भवम् (प्रथम सर्ग) सम्पूर्ण (अनुवाद व्याख्या, सूक्तियाँ, सर्ग—सारांश)	20
इकाई द्वितीय	—	किरातार्जुनीयम् (द्वितीय सर्ग) सम्पूर्ण (अनुवाद, व्याख्या, सूक्तियाँ, सर्ग—सारांश)	20
इकाई तृतीय	—क)	शुकनासोपदेशः — (अनुवाद, सूक्तियाँ, सारांश)	20
	—ख)	अपठित अवतरण हिन्दी	
इकाई चतुर्थ	—	संस्कृत साहित्य का परिचयात्मक इतिहास कवि एवं रचनाएँ— कालिदास, भारवि, भास, माघ, बाण, दण्डी, शूद्रक, भवभूति अश्वघोष, सोमदेव, क्षेमेन्द्र, भर्तृहरि, राजशेखर, सुबन्धु, श्रीहर्ष, हर्षदेव, पण्डितराज जगन्नाथ, भट्टनारायण, पण्डिताक्षमाराव, अम्बिकादत्तव्यास एवं विश्वेश्वर पाण्डेय, रामायण, महाभारत, हितोपदेश, पंचतन्त्र, गीतगोविन्द।	20
इकाई पंचम	—	सतत मूल्यांकन	20
		(अ) वस्तुनिष्ठ प्रश्न	(अंक—10)
		(ब) वार्षिक कार्य विवरण	(अंक—5)
		(स) उपस्थिति	(अंक—5)

द्वितीय प्रश्न पत्र—नाटक, अलंकार, छन्द एवं अनुवाद

80+20=100

इकाई प्रथम	—	अभिज्ञानशाकुन्तलम्, प्रथम से चतुर्थ अंक तक	20
इकाई द्वितीय—		अभिज्ञानशाकुन्तलम् (पंचम से सप्तम अंक तक) नाट्य—उक्तियां (परिभाषिक)	20
इकाई तृतीय	—	अलंकार—चन्द्रालोक पंचममयूख से अधोलिखित अलंकार (लक्षण, उदाहरण) छेकानुप्रास, वृत्त्यनुप्रास, लाटानुप्रास, यमक। उपमा, रूपक (भेदरहित), अनन्वय, उपमेयोपमा, परिणाम, उल्लेख, अपह्नुति (भेदरहित), उत्प्रेक्षा, स्मृति, भ्रान्ति, सन्देह, काव्यलिंग, अक्रमातिशयोक्ति, अत्यन्तातिशयोक्ति, चपलातिशयोक्ति, सम्बन्धातिशयोक्ति, तुल्ययोगिता, दीपक, प्रतिवस्तूपमा, दृष्टान्त, निदर्शना, व्यतिरेक, समासोक्ति, भंगश्लेष, अर्थश्लेष, अप्रस्तुतप्रशंसा, अर्थान्तरन्यास, व्याजस्तुति, विरोधाभास, विभावना, विशेषोक्ति, एकावली, कारणमाला, परिसंख्या, मालादीपक।	20
इकाई चतुर्थ	—(क)	छन्द—छन्दोमंजरी से अधोलिखित छन्द अनुष्टुप्, आर्या, वंशस्थ, स्रग्धरा, शार्दूलविक्रीडित, भुजंगप्रयात्, वसन्ततिलका, इन्द्रवज्रा, उपेन्द्रवज्रा, उपजाति, मालिनी, शिखरिणी मन्दाक्रान्ता, द्रुतविलम्बित इत्यादि। —(ख) हिन्दी से संस्कृत में अनुवाद।	20
इकाई पंचम	—	सतत मूल्यांकन (अ) भूमिका निर्वाह — समूह परिचर्चा (अंक—10) (ब) सत्रीय वार्षिक कार्य विवरण (अंक—5) (स) उपस्थिति (अंक—5)	20

## सहायक ग्रन्थ सूची

1. अभिज्ञानशाकुन्तलम् — डॉ० कपिलदेव द्विवेदी प्रकाशक राम नरायण लाल विजयकुमार, इलाहाबाद—1998
2. अभिज्ञानशाकुन्तलम् — डॉ० उमेशचन्द्र पाण्डेय प्राच्य भारतीय संस्थान—2000
3. अभिज्ञानशाकुन्तलम् — डॉ० रमाशंकर त्रिपाठी, विश्वविद्यालय प्रकाशन, निर्णयसागर संस्करण
4. अभिज्ञानशाकुन्तलतम् — डॉ० निरुपण विद्यालङ्कार साहित्य भण्डार—1999
5. अलङ्कार एवं छन्द — डॉ० कपिलदेव द्विवेदी, सम्पादक एवं व्याख्याकार
6. अलङ्कार एवं छन्द — समीर आचार्य प्राच्य भारतीय प्रकाशन, गोरखपुर, प्रथम संस्करण—1996
7. अलङ्कार एवं छन्द — डॉ० उमेशचन्द्र पाण्डेय
8. कादम्बरी (कथामुखम्) — डॉ० देवर्षि सनाढ्य
9. कादम्बरी (कथामुखम्) — प्रो० समीर शर्मा, चौखम्बा वाराणसी
10. कालिदास तथा भवभूति — डॉ० द्विजेन्द्र लाल राय
11. किरातार्जुनीयम् (द्वितीय सर्ग) — कान्ता भाटिया, गोरखपुर—2016
12. किरातार्जुनीयम् (द्वितीय सर्ग) — डॉ० बलवान सिंह यादव, चौखम्बा संस्कृत भवन वाराणसी, संस्करण—2008
13. किरातार्जुनीयम् (द्वितीय सर्ग) — डॉ० मानवती सिंह, विक्रम संवत्—2017, डिस्काउन्ट ग्रुप ऑफ पब्लिकेशन—2016
14. कुमारसम्भवम् (प्रथम सर्ग) — डॉ० उमेशचन्द्र पाण्डेय, प्राच्य भारतीय प्रकाशन—2003
15. कुमारसम्भवम् (प्रथम सर्ग) — श्री कृष्णमणि त्रिपाठी, चौखम्बा वाराणसी
16. कुमारसम्भवम् (प्रथम सर्ग) — डॉ० मानवती सिंह, डिस्काउन्ट ग्रुप ऑफ पब्लिकेशन—2016
17. चन्द्रालोक — डॉ० श्री कृष्णमणि त्रिपाठी, चौखम्बा सुरभारती प्रकाशन—1990
18. चन्द्रालोकसुधा एवं छन्दोमंजरी सुधा — डॉ० गुरुप्रसाद शास्त्री एवं डॉ० विश्वम्भरनाथ त्रिपाठी, विश्वविद्यालय प्रकाशन, वाराणसी

- |   |   |  |
|---|---|--|
| 19. छन्द कोरकम्                             | — | आचार्य विद्यानन्द मुद्गल, चर्चल कुमार जैन, रामपुर<br>उत्तर प्रदेश-1977 |
| 20. छन्दोमंजरी विकास                        | — | हरीशदत्त उपाध्याय  |
| 21. छन्दोलङ्कार सौरभम्                      | — | प्रो० राजेन्द्र मिश्र, अक्षयवट प्रकाश-2002                             |
| 22. प्रौढरचनाकौमुदी                         | — | डॉ० कपिलदेव द्विवेदी   |
| 23. शुकनासोपदेश                             | — | मानवती सिंह, डिस्काउन्ट ग्रुप ऑफ पब्लिकेशन-2016                        |
| 24. शुकनासोपदेश                             | — | रामनाथ शर्मा सुमन, साहित्य भण्डार मेरठ                                 |
| 25. शुकनासोपदेश                             | — | डॉ० महेश कुमार श्रीवास्तव, विश्वविद्यालय प्रकाशन,<br>वाराणसी           |
| 26. शुकनासोपदेश (कादम्बरी)                  | — | डॉ० उमेशचन्द्र पाण्डेय, प्राच्य भारतीय संस्थान,<br>गोरखपुर-2002        |
| 27. संस्कृत वाङ्मय का<br>विवेचनात्मक इतिहास | — | डॉ० सूर्यकान्त   |
| 28. संस्कृत व्याकरण प्रवेशिका               | — | डॉ० बाबूराम सक्सेना  |
| 29. संस्कृत साहित्य का इतिहास               | — | डॉ० बलदेव उपाध्याय, चौखम्बा प्रकाशन                                    |
| 30. संस्कृत साहित्य की<br>रूपरेखा           | — | चन्द्रशेखर पाण्डेय   |
| 31. संस्कृत साहित्य का<br>संक्षिप्त इतिहास  | — | डॉ० उमेशचन्द्र पाण्डेय   |
| 32. संस्कृत साहित्य का<br>संक्षिप्त इतिहास  | — | डॉ० वाचस्पति गैरोला  |
| 33. संस्कृत रचना                            | — | बी०एस० आप्टे, डॉ० उमेशचन्द्र पाण्डेय द्वारा अनुवाद                     |
| 34. संस्कृत सुकवि समीक्षा                   | — | डॉ० बलदेव उपाध्याय, चौखम्बा वाराणसी                                    |
| 35. हायर संस्कृत ग्रामर                     | — | काले   |



## बी०ए० द्वितीय – उद्देश्य

### (1. वेद एवं उपनिषद् 2. व्याकरण, आशुपठन एवं निबन्ध)

#### ज्ञानात्मक उद्देश्य :

1. वैदिक साहित्य एवं वैदिक संस्कृति का ज्ञान प्रदान करना।
2. उपनिषद् का परिचय एवं निहित उपदेशों का ज्ञान कराना।
3. संहिता, सूक्त, ऋषि तथा देवता के परिचय के साथ ही साथ वैदिक मंत्रों के उदात्त, अनुदात्त एवं स्वरित का ज्ञान कराना।
4. व्याकरण के तत्त्वों — माहेश्वर सूत्र, उपसर्ग, प्रकृति-प्रत्यय, स्थान, प्रयत्न, प्रत्याहार, सन्धि समास इत्यादि का ज्ञान कराना।
5. विद्यार्थियों में निबन्ध-लेखन की क्षमता उत्पन्न करना।

#### भावात्मक उद्देश्य :

1. वेद में देव परक स्तुतियों एवं प्रार्थनाओं में निहित भावों का बोध कराना।
2. सूक्तों में वर्णित सामाजिक, भौतिक एवं आध्यात्मिक भावों का बोध कराना।
3. औपनिषदिक कर्म, संयम, भक्ति एवं त्यागमूलक संस्कृति से विद्यार्थियों को परिचित कराना।
4. वर्णोच्चारण की शुद्धता का परिज्ञान कराना।
5. संस्कृति के प्रति अभिरुचि उत्पन्न कराना पद्य कथाओं के द्वारा प्रकृति से तादात्म्यीकरण स्थापित कराना।

#### क्रियात्मक उद्देश्य :

1. स्वर एवं व्यंजन को समझकर पृथक् अर्थावगमन की क्षमता उत्पन्न करना।
2. उपदेशपरक एवं नीतिपरक सुगम पाठ को समझकर जीवन में आचरण करने की क्षमता का निष्पादन।
3. वैदिक सन्देशों को आचरण में लाने की क्षमता।
4. संस्कृत में निबन्ध लेखन के माध्यम से संस्कृत भाषा में वाक्य-विन्यास कौशल का विकास करना।
5. पत्र-लेखन, समाचार-वाचन, संवाद-लेखन तथा संभाषण की योग्यता प्रदान करना।

बी०ए०— भाग दो

प्रथम प्रश्न पत्र—वेद एवं उपनिषद्, वैदिक साहित्य का इतिहास

80+20=100

इकाई प्रथम	— ऋग्वेद संहिता—	अग्निसूक्त (1.1), विष्णुसूक्त (1.154) इन्द्रसूक्त (2.12), वरुणसूक्त (7.86) पुरुष सूक्त (10.90), प्रजापतिसूक्त (10.121) वाक् सूक्त (10.125) के मन्त्र	20
इकाई द्वितीय	— यजुर्वेद संहिता—	(माध्यन्दिन) अध्याय—34, कण्डिका—1—6, (शिवसंकल्पसूक्त) (1—3)	
	— अथर्ववेद संहिता—	सामंनस्यसूक्त (3.30), सामंनस्यसूक्त (6.64) पृथिवीसूक्त (12.1) के मन्त्र (1—5), (8—12, 15 एवं 45)	20
इकाई तृतीय	— कठोपनिषद् —	प्रथम अध्याय (सम्पूर्ण) मंत्र	20
इकाई चतुर्थ	— वैदिक साहित्य का इतिहास—	चारों वेद, वेदांग, उपनिषद्, ब्राह्मण, आरण्यक	20
इकाई पंचम	— सतत मूल्यांकन		20
	(अ) मौखिक उच्चारण (मन्त्रों का)	(अंक—10)	
	(ब) उपस्थिति	(अंक—5)	
	(स) सत्रीय वार्षिक कार्य विवरण	(अंक—5)	

द्वितीय प्रश्न पत्र—व्याकरण, आशुपठन, रूपलेखन एवं संस्कृत में निबन्ध

80+20=100

इकाई प्रथम	—	लघुसिद्धान्तकौमुदी (वरदराजाचार्यकृत) (संज्ञा प्रकरण एवं अच् सन्धि प्रकरणपर्यन्त)	20
इकाई द्वितीय	—	लघुसिद्धान्तकौमुदी (वरदराजाचार्यकृत) (हल् सन्धि एवं विसर्ग सन्धि पर्यन्त)	20
इकाई तृतीय	—(क)	नीतिशतकम् से अनुवाद—	20
	—(ख)	शब्द रूप लेखन—राम, सर्व, मति, हरि, सखि, भानु गो, पितृ, रमा, स्त्री, वधू, ज्ञान तथा वारि।	
इकाई चतुर्थ	—(क)	हितोपदेश—मित्रलाभः से अनुवाद	20
	—(ख)	संस्कृत में निबन्ध लेखन	
इकाई पंचम	—	सतत मूल्यांकन	20
	(अ)	वर्ण एवं पद व्युत्पत्ति से उच्चारण दोष	(अंक—10)
	(ब)	सत्रीय कार्य वार्षिक विवरण	(अंक—5)
	(स)	उपरिस्थिति	(अंक—5)

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बी०ए० भाग—तृतीय, उद्देश्य

(दर्शन, साहित्य एवं व्याकरण)

ज्ञानात्मक उद्देश्य :

1. भारतीय दार्शनिक तत्त्वों के चिन्तन हेतु छात्रों को प्रेरित करना।
2. विद्यार्थियों की तार्किक क्षमता का विकास करना।
3. साहित्य शास्त्रीय तत्त्वों से विद्यार्थियों को परिचित करना।
4. काव्य विधा के शास्त्रीय पक्षों के साथ संयोजित करने की क्षमता का विकास।
5. व्याकरण शास्त्र के ज्ञान के साथ ही साथ विशेष रूप से समाज का ज्ञान कराना।
6. विद्यार्थियों को व्याकरण परक शब्दों की सिद्धि—प्रक्रिया से परिचित कराना।

भावात्मक उद्देश्य :

1. दार्शनिक तत्त्वों में छिपे रहस्य—बोध की क्षमता का विकास।
2. मानव कल्याणार्थ दार्शनिक तत्त्वों के प्रयोग हेतु विद्यार्थियों को प्रेरित करना।
3. साहित्य के भाव एवं कला पक्ष से विद्यार्थियों को परिचित कराना।
4. साहित्य शास्त्र के भावपक्ष के अवगमन की क्षमता का विकास।
5. व्याकरण के संरचनात्मक अवरोध का विकास।

क्रियात्मक उद्देश्य :

1. भारतीय दर्शन में निहित उद्देश्यों एवं ज्ञान को आचरण में लाने के लिए प्रेरित करना।
2. दर्शन में विद्यमान नैतिक एवं कल्याण परक तथ्यों से आत्मोत्कर्ष की अभिप्रेरणा।
3. काव्यशास्त्रीय ज्ञान के आधार रचनात्मक क्षमता उत्पन्न करना।
4. संस्कृत में वाक्य संरचनात्मक क्षमता का विकास करना।
5. संस्कृत सम्भाषण एवं समाचार पत्र वाचन की क्षमता का विकास करना।



बी0ए0- भाग तीन

प्रथम प्रश्न पत्र-दर्शन

80+20=100

इकाई प्रथम -	तर्कसंग्रह (अन्नभट्टकृत) आचार्य रामगोविन्द शुक्ल (कारिका, आलोचनात्मक प्रश्न)	20
इकाई द्वितीय -	श्रीमद्भगवद्गीता -- द्वितीय, तृतीय एवं नवम अध्याय (अनुवाद, आलोचनात्मक प्रश्न)	20
इकाई तृतीय -	ईशावास्योपनिषद्- (अनुवाद, आलोचनात्मक प्रश्न)	20
इकाई चतुर्थ -	दर्शन का सामान्य परिचय - जैन, बौद्ध, सांख्य, न्याय एवं वेदान्त दर्शन (प्रश्न, परिचयात्मक)	20
इकाई पंचम -	सतत मूल्यांकन	20

(अ) नैतिक ज्ञान एवं तर्कशक्ति विकास

पारिभाषिक उपदेश- दर्शन (अंक-10)

(ब) वार्षिक सत्र विवरण (अंक-5)

(स) उपस्थिति (अंक-5)

## द्वितीय प्रश्न पत्र—काव्य एवं काव्यशास्त्र

इकाई प्रथम	—	शिशुपालवधम् (प्रथमं सर्ग) (अनुवाद, व्याख्या, सूक्ति एवं आलोचनात्मक प्रश्न)	20
इकाई द्वितीय	—	शिवराजविजयम् (प्रथम विराम का प्रथम निःश्वास) (अनुवाद, सूक्ति एवं आलोचनात्मक प्रश्न)	20
इकाई तृतीय	—	त्रिपथगा (एकांकी संग्रह) डॉ० हरिदत्त शर्मा कृत (अनुवाद, कथा, परिचय)	20
इकाई चतुर्थ	—	साहित्य दर्पण — (प्रथम एवं द्वितीय परिच्छेद (सम्पूर्ण) एवं तृतीय परिच्छेद कारिका 28 तक) पारिभाषिक शब्दों के लक्षण वस्तु—भेद, नायक—भेद, अर्थप्रकृति, कार्यावस्था, पंचसन्धि, रूपक—भेद परिचय।	20
इकाई पंचम	—	सतत मूल्यांकन (अ) साहित्य शास्त्रीय सौन्दर्य तत्त्व वस्तुनिष्ठ (अंक—10) (ब) वार्षिक सत्र विवरण (अंक—5) (स) उपस्थिति (अंक—5)	20

तृतीय प्रश्न पत्र—व्याकरण—प्रक्रिया

80+20=100

इकाई प्रथम	—	लघुसिद्धान्तकौमुदी—अजन्त शब्दों की रूपसिद्धि राम, हरि, सखि, सर्व, पितृ, गो, रमा, मति, तिसृ गौरी, ज्ञान, वारि तथा दधि। (सूत्रनिर्देशपूर्वक सिद्धि एवं सूत्र—सिद्धि)	20
इकाई द्वितीय	—	लघुसिद्धान्तकौमुदी— अनडुह, किम्, तत्, इदम्, राजन्, मघवन्, युष्मद्, अस्मद्, महत्, विद्मस्, अदस्, वाक्, अप्, अहन्, दण्डिन्, पयस्। (सूत्रनिर्देशपूर्वक सिद्धि एवं सूत्र सिद्धि)	20
इकाई तृतीय	—	लघुसिद्धान्तकौमुदी— (क) समास प्रकरण (समासान्त प्रत्ययों को छोड़कर) (सूत्रनिर्देशपूर्वक सिद्धि) (ख) समाचार वाचन	20
इकाई चतुर्थ	—	अधोलिखित तद्धितप्रत्ययों का सोदाहरण ज्ञान— अपत्यार्थ — अण्, यञ्, ढक्, यत्, अञ् रूक्ताद्यर्थक — अण्, तल् शैषिक — अण्, घ, ख, य, खञ्, ढक्, यत्, छ। भावार्थ एवं कर्माथ—त्व, तल्, इमनिच्, ष्यञ्। मत्वर्थीय — मतुप्, इनि, ठन्, इतच् प्राग्दिशीय — तसिल् अधोलिखित कृत् प्रत्ययों का सोदाहरण ज्ञान— तव्यत्, अनीयर्, ण्यत्, ण्वुल्, तृच्, ड, क्त, क्तवत्, कानच्, क्वसु, शत्, शानच्, तृन्, तुमुन्, घञ् अप्, कित्तन्, थ, खल्, क्त्वा, ल्यप्, क्विप्, युच्, ल्यु, णिनि।	20
इकाई पंचम	—	सतत मूल्यांकन  (अ) संज्ञा एवं सर्वनाम तथा समास युक्त पदों का ज्ञान—पद रचना (अंक—10) (ब) वार्षिक कार्यविवरण (अंक—5) (स) उपस्थिति (अंक—5)	20

## सहायक ग्रन्थ सूची

1. ईशावास्योपनिषद् — डॉ० शिवप्रसाद द्विवेदी, चौखम्बा वाराणसी
2. गीता रहस्य — लोकमान्य तिलक, चौखम्बा प्रकाशन
3. तर्क संग्रह — डॉ० केदार नाथ त्रिपाठी, चौखम्बा प्रकाशन, वाराणसी
4. त्रिपथगा — आर्जेजनेय प्रकाशन-100 एलनगंज, इलाहाबाद-1987
5. भारतीय दर्शन — अनुवाद (झा और मिश्र)
6. भारतीय दर्शन — दत्ता एवं चटर्जी, चौखम्बा प्रकाशन
7. भारतीय दर्शन — डॉ० संगम लाल पाण्डेय, इलाहाबाद टैगोर टाउन
8. लघुसिद्धान्तकौमुदी (प्रथम भाग) — भैमी व्याख्या (भीमसेन शास्त्री भैमी प्रकाशन, दिल्ली)
9. लघुसिद्धान्तकौमुदी (चतुर्थ भाग) — भैमी व्याख्या (भीमसेन शास्त्री-भैमी प्रकाशन, दिल्ली)
10. लघुसिद्धान्तकौमुदी (पंचम भाग) — भैमी व्याख्या (भीमसेन शास्त्री भैमी प्रकाशन, दिल्ली)
11. लघुसिद्धान्तकौमुदी (चतुर्थ भाग) — डॉ० रमणकुमार शर्मा (व्याख्याकार) चौखम्बा सुरभारती प्रकाशन
12. लघुसिद्धान्तकौमुदी (चतुर्थ भाग) — पं० गोमती प्रसाद शास्त्री (व्याख्याकार) चौखम्बा सुरभारती प्रकाशन
13. लघुसिद्धान्तकौमुदी (चतुर्थ भाग) — महेश सिंह कुशवाहा (व्याख्याकार) चौखम्बा विद्या भवन, वाराणसी
14. वैयाकरण सिद्धान्तकौमुदी (कारक प्रकरणम्) — राजकिशोरमणि त्रिपाठी, गीता प्रेस गोरखपुर-2000
15. शिवराजविजयम् — डॉ० रमाशङ्कर मिश्र, चौखम्बा प्रकाशन वाराणसी

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19. शिशुपालवधम् – प्रो० आद्या प्रसाद मिश्र, अक्षयवट प्रकाशन, इलाहाबाद-2002
20. समासप्रकरण – डॉ० उमेशचन्द्र पाण्डेय, मोरखपुर।
21. सर्वदर्शन संग्रह – माधवाचार्य
22. साहित्यदर्पण – विश्वनाथ कविराज, परिच्छेद-1-6, सत्यव्रत सिंह, चौखम्बा विद्याभवन संस्करण-2015
23. साहित्यदर्पण – शालिग्राम शास्त्री, मोतीलाल बनारसीदास प्रकाशन, वाराणसी-1987
24. साहित्यदर्पण – डॉ० राजकिशोर सिंह, प्रकाशन केन्द्र लखनऊ, प्रथम संस्करण

3

वर्ष 1971-72 उर्दू

दीन दयाल उपाध्याय गौर खपुर विश्वविद्यालय गौर खपुर

[1]

**COMMON MINIMUM**

**CURRICULUM**

(According to UGC & Uttar Pradesh Government

Syllabus Committee Guidelines)

Of

**B.A. Part - I, II & III**

**URDU**

**For all State Universities**

of

**Uttar Pradesh**

**Detail of seven papers of**  
**B.A. I,II & III Urdu Course**

There will be seven papers of 100 marks each in the 3 year degree course. Each paper will be of 100 Marks and divided into two parts.

1st part of each paper will be based on **internal assessment** which carries 20 marks.

1- Assignment or Project work ----- 20 Marks

2nd Part of each paper will carry **80 Marks** with a time limit of 3 Hours and it will consist of **four units** of **20 Marks** each. The division of 20 Marks will be as noted below:-

There will be four questions from each unit and students will be asked to answers 2 questions carrying **10 Marks** each.

1st Unit of each question paper except 1st & 3rd Paper of B.A. Part III, will consist of explanation of two prose / verse passages out of three passages carrying 10 Marks each.

## Headings of Each Paper

### B.A. Part - I

**Total Marks Time 3 hrs.**

- Paper - I : Urdu Non Fiction (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Non fiction, Type of forms, Tradition, Writers life & work / Seminar & Discussion.*
- Paper- II : Urdu Ghazal (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Ghazal, Type of forms, Tradition, Poets life & work / Seminar & Discussion.*

### B. A. Part- II

- Paper - I : Urdu Fiction (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of fiction, Type of fiction, Tradition, Writers life & work / Seminar & Discussion.*
- Paper - II : Urdu Nazm (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Poem, Type of poems, Tradition, Poets life & work / Seminar & Discussion.*

### B. A. Part- III

- Paper-I : Tarikh-e-Adab-e-Urdu (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Tarikh & Adab, Different Period, Seminar & Discussion.*
- Paper-II : Qasida, Marsia, Masnavi (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Qasida, Marsia, Masnavi, Tradition, Poets life & work / Seminar & Discussion.*
- Paper- III : Sahafat, Tarjuma Nigari Aur Qawaid (80\* + 20\*) = 100  
*Assignment/Project Work - Topics : Introduction of Sahafat, Tarjuma & Qawaid, Type of Sahafat and Tarjuma, Tradition, Famous Sahafi & Akhbar-o-Rasail, Its importance in freedom struggle / Seminar & Discussion.*

**Note : \* Critical Question & Explanation**  
**\* Assignment/Project Work**

**(External Evaluation 80 Marks)**  
**(Internal Evaluation 20 Marks)**



## Common Minimum Curriculum of B.A. Urdu

### یکساں اردو نصاب برائے بی. اے.

بی. اے۔ سال اول

پہلا پرچہ۔ اردو ناول فکشن

دوسرا پرچہ۔ اردو غزل

بی. اے۔ سال دوم

پہلا پرچہ۔ اردو فکشن

دوسرا پرچہ۔ اردو نظم

بی. اے۔ سال سوم

پہلا پرچہ۔ تاریخ ادب اردو

دوسرا پرچہ۔ قصیدہ، مرثیہ، مثنوی

تیسرا پرچہ۔ صحافت، ترجمہ نگاری اور قواعد

برائے

کل ریاستی یونیورسٹیز اتر پردیش

## **B. A. - Part - I**

Paper- I

Urdu Non Fiction

Paper- II

Urdu Ghazal

بی. اے۔ سال اول

پہلا پرچہ۔ اردو نون فکشن

دوسرا پرچہ۔ اردو غزل

B. A. Part- I

Paper- I

Urdu Non - Fiction

اردو نون فکشن

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

(ضروری ہدایات)

یہ پرچہ چار اکائیوں پر مشتمل ہوگا

سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی

اکائی: ۱۔ پہلا سوال اقتباس کی تشریح کا لازمی ہوگا۔ تین اقتباسات میں سے دو کی تشریح کرنی ہوگی۔

( 10×2 = 20)

ہر تشریح دس نمبر کی ہوگی

اکائی: ۲۔ نصاب میں شامل مضمون نگاری کے فن اور مصنفین سے متعلق چار سوالات دیئے جائیں گے۔

( 10×2 = 20)

ان میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

اکائی: ۳۔ نصاب میں شامل انشائیہ نگاری کے فن، روایت اور انشائیہ نگاروں سے متعلق چار سوالات دیئے جائیں گے۔

( 10×2 = 20)

ان میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

اکائی: ۴۔ نصاب میں شامل خاکہ نگاری کے فن، روایت اور خاکہ نگاروں سے متعلق چار سوالات دیئے جائیں گے۔

(10×2 = 20)

ان میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

B.A. Part-I

## Paper-I

## Urdu Non Fiction

## اردو نون فکشن

**مضمون**

- ۱- تعریف، اصول اور ارتقا
- ۲- سرسید کی مضمون نگاری
- ۳- محمد حسین آزاد کی مضمون نگاری
- ۴- مولانا شبلی کی مضمون نگاری
- ۵- مولانا حالی کی مضمون نگاری
- ۶- عمر رفتہ (سرسید) متن کی تدریس
- ۷- سچ اور جھوٹ کا رزم نامہ (محمد حسین آزاد) متن کی تدریس
- ۸- مرزا غالب کے اخلاق و عادات (الطاف حسین حالی) متن کی تدریس
- ۹- سرسید اور اردو لٹریچر۔ (مولانا شبلی نعمانی) متن کی تدریس

**انشائیہ**

- ۱- تعریف، اصول اور ارتقا
- ۲- رشید احمد صدیقی کی انشائیہ نگاری
- ۳- خواجہ حسن نظامی کی انشائیہ نگاری
- ۴- پطرس بخاری کی انشائیہ نگاری
- ۵- پاسبان (رشید احمد صدیقی) متن کی تدریس
- ۶- چھپر (خواجہ حسن نظامی) متن کی تدریس
- ۷- مرحوم کی یادیں (پطرس بخاری) متن کی تدریس

## خاکہ

- ۱۔ خاکہ نگاری اور اس کا مختصر تعارف
- ۲۔ مولوی عبدالحق کی خاکہ نگاری
- ۳۔ حالی (مولوی عبدالحق) متن کی تدریس

## معاون کتب

- ۱۔ آزادی کے بعد دہلی میں خاکہ نگاری۔ مرتبہ شمیم حنفی اردو اکادمی دہلی ۱۹۹۱ء
- ۲۔ اردو ایگز۔ سید ظہیر الدین مدنی
- ۳۔ انشائیہ کے خدو خال۔ وزیر آغا قومی کونسل برائے فروغ اردو زبان دہلی ۲۰۱۲ء
- ۴۔ اردو انشائیہ۔ آدم شیخ
- ۵۔ اردو میں خاکہ نگاری۔ صابرہ سعید اعجاز پرنٹنگ پریس چھٹا بازار، حیدرآباد ۱۹۷۸ء
- ۶۔ انتخاب نثر (حصہ اول و دوم) ناشر یوپی اردو اکادمی لکھنؤ، یوپی اردو اکادمی لکھنؤ ۲۰۰۲ء
- ۷۔ صنف انشائیہ اور چند انشائیے۔ سید محمد حسین دی آزاد پریس سبزی باغ پٹنہ ۱۹۶۳ء
- ۸۔ انشائیہ کے فنی سروکار۔ مرتبہ احمد امتیاز قومی کونسل برائے فروغ اردو زبان دہلی ۲۰۱۲ء
- ۹۔ انشائیے کی بنیاد۔ سلیم اختر سنگ میل پبلیکیشن لاہور ۱۹۸۶ء
- ۱۰۔ چند معاصر۔ مولوی عبدالحق انجمن ترقی اردو دہلی ۱۹۹۱ء
- ۱۱۔ فن مضمون نگاری۔ آفتاب اظہر صدیقی مکتبہ العارف دیوبند منگلور ۲۰۱۶ء
- ۱۲۔ مرزا فرحت اللہ بیگ بحیثیت انشائیہ نگار اور خاکہ نگار ڈاکٹر خالد حسین خاں
- ۱۳۔ مضامین پطرس۔ پطرس بخاری مکتبہ جامعہ لمیٹڈ دہلی ۲۰۱۱ء
- ۱۴۔ مضامین رشید۔ رشید احمد صدیقی انجمن ترقی اردو ہند دہلی ۲۰۰۹ء
- ۱۵۔ نیرنگ خیال۔ محمد حسین آزاد (مقدمہ رشید حسن خاں) مکتبہ جامعہ لمیٹڈ دہلی ۲۰۱۸ء

B.A-Part-I

Paper-II

## Urdu Ghazal

## اردو غزل

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

## (ضروری ہدایات)

یہ پرچہ چار اکائیوں پر مشتمل ہوگا۔

سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔

اکائی: ۱۔ پہلا سوال اشعار کی تشریح کا لازمی ہوگا۔ منتخب اشعار کے تین نکتے دیئے جائیں گے جن میں سے دو نکتوں کی

( 10x2 = 20 )

تشریح کرنی ہوگی۔ ہر تشریح دس نمبر کی ہوگی۔

اکائی: ۲۔ نصاب میں شامل اردو غزل کے فن اور آغاز و ارتقا سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو کے

( 10x2 = 20 )

جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

اکائی: ۳۔ نصاب میں شامل کلاسیکی غزل گو شعرا۔ دلی، میر، درد، مومن، آتش، اور شاد کے فن اور شخصیت سے متعلق چار سوالات

( 10 x 2 = 20 )

دیئے جائیں گے جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

اکائی: ۴۔ نصاب میں شامل جدید غزل گو شعرا۔ نانی، حسرت، فراق اور پروین شاکر کے فن اور شخصیت سے متعلق چار تنقیدی

( 10x2 = 20 )

سوالات دیئے جائیں گے جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

B.A. Part-I

Paper-II

Urdu Ghazal

اردو غزل

اردو غزل - تعریف، ہیبتی شناخت، فن اور آغاز و ارتقاء

- ۱۔ ولی دکنی کی غزل گوئی
- ۲۔ میر کی غزل گوئی
- ۳۔ درو کی غزل گوئی
- ۴۔ مومن کی غزل گوئی
- ۵۔ غالب کی غزل گوئی
- ۶۔ آتش کی غزل گوئی
- ۷۔ شاد کی غزل گوئی
- ۸۔ قانی کی غزل گوئی
- ۹۔ حسرت کی غزل گوئی
- ۱۰۔ فراق کی غزل گوئی
- ۱۱۔ پروین شاکر کی غزل گوئی

**غزلیں**

منتخب غزلیں ( مذکورہ بالا ہر شاعر کی ابتدائی دو غزلیں ) متن کی تدریس

پروین شاکر (i) کو بکوپھیل گئی بات شناسائی کی

(ii) بخت سے کوئی شکایت ہے نہ افلاک سے ہے

## معاون کتب

- ۱۔ آزادی کے بعد اردو غزل محمد ذاکر
- ۲۔ اردو شاعری کا فنی ارتقا ڈاکٹر فرمان فتح پوری
- ۳۔ اردو غزل کامل قریشی
- ۴۔ اردو غزل یوسف حسین خاں
- ۵۔ ذوق و جستجو خواجہ احمد فاروقی
- ۶۔ غزل اور غزل کی تعلیم اختر انصاری
- ۷۔ غزل اور متغزلین ابواللیث صدیقی
- ۸۔ غزل کا نیا منظر نامہ شمیم حنفی
- ۹۔ ماہِ ناتمام پروین شاکر
- ۱۰۔ محاصر ادب کے پیش رو محمد حسن
- ۱۱۔ مقدمہ کلیاتِ فانی قاضی عبدالغفار
- ۱۲۔ منتخب غزلیں
- ۱۳۔ ولی سے اقبال تک سید عبداللہ
- ۲۰۱۷ء ایجوکیشنل پبلسٹنگ ہاؤس دہلی
- ۱۹۹۸ء اردو اکادمی دہلی
- ۱۹۵۷ء انجمن ترقی اردو ہند علیگڑھ
- ۱۹۶۷ء ادارہ فروغ اردو لکھنؤ
- ۱۹۷۹ء قومی کونسل برائے فروغ اردو زبان دہلی
- ۱۹۶۸ء بھارتی پبلیکیشن جامع مسجد دہلی
- ۱۹۸۱ء ایجوکیشنل بک ہاؤس علیگڑھ
- ۱۹۹۵ء ایجوکیشنل پبلسٹنگ ہاؤس دہلی
- ۲۰۱۱ء مکتبہ جامع لمیٹڈ دہلی
- ۲۰۰۲ء ناشر یو پی اردو اکادمی لکھنؤ
- ۱۹۸۵ء چین بکڈپو، اردو بازار، دہلی



## B. A. - Part - II

Paper- I

Urdu Fiction

Paper- II

Urdu Nazm

بی۔ اے۔ - سال دوم

پہلا پرچہ - اردو فکشن

دوسرا پرچہ - اردو نظم

B.A. Part-II

Paper-I

Urdu Fiction

اردو فکشن

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

(ضروری ہدایات)

یہ پرچہ چار کائیوں پر مشتمل ہوگا۔

سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔

- اکائی: ۱۔ پہلا سوال اقتباس کی تشریح کا لازمی ہوگا۔ چار اقتباسات داستان، ناول، افسانے اور ڈرامے سے ہوں گے۔ جن میں سے دو کی تشریح کرنی ہوگی۔ ہر تشریح دس نمبر کی ہوگی۔ ( 10 × 2 = 20 )
- اکائی: ۲۔ نصاب میں شامل داستان / ناول کے فن اور مصنفین کی داستان نگاری سے متعلق چار سوالات دیئے جائیں گے۔ جن میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ ( 10 × 2 = 20 )
- اکائی: ۳۔ نصاب میں شامل افسانوں کے فن اور افسانہ نگاروں کی فنکاری سے متعلق چار سوالات دیئے جائیں گے۔ جن میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ ( 10 × 2 = 20 )
- اکائی: ۴۔ نصاب میں شامل ڈراما نگاری کے فن اور روایت اور ڈراما نگاروں کی فنکاری سے متعلق چار سوالات دیئے جائیں گے۔ جن میں سے دو سوال کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ ( 10 × 2 = 20 )

B.A. Part-II

Paper-I

Urdu Fiction

اردو فکشن

**داستان**

- ۱۔ داستان کا فن
- ۲۔ داستانوں میں ہندوستانی معاشرت کی عکاسی
- ۳۔ میرامن کی داستان نگاری
- ۴۔ مرزا رجب علی بیگ سرور کی داستان نگاری
- ۵۔ بان و بہار (سیر پہلے درویش کی) متن کی تدریس
- ۶۔ فسانہ عجیب (آغاز داستان) متن کی تدریس

**ناول**

- ۱۔ ناول اور اس کا فن جائزہ
- ۲۔ اردو میں ناول نگاری کی روایت
- ۳۔ ڈپٹی نذیر احمد کی ناول نگاری
- ۴۔ ابن الوقت (ڈپٹی نذیر احمد) متن کی تدریس

### افسانہ

- ۱۔ افسانہ اور اس کا فنی جائزہ
- ۲۔ پریم چند کی افسانہ نگاری
- ۳۔ راجندر سنگھ بیدی کی افسانہ نگاری
- ۴۔ سعادت حسن منٹو کی افسانہ نگاری
- ۵۔ قرۃ العین حیدر کی افسانہ نگاری
- ۶۔ عصمت چغتائی کی افسانہ نگاری
- ۷۔ پوس کی رات (پریم چند) متن کی تدریس
- ۸۔ لاجوتی (راجندر سنگھ بیدی) متن کی تدریس
- ۹۔ نیا قانون (سعادت حسن منٹو) متن کی تدریس
- ۱۰۔ نظارہ درمیاں ہے (قرۃ العین حیدر) متن کی تدریس
- ۱۱۔ چوٹی کا جوڑا (عصمت چغتائی) متن کی تدریس

### ڈرامہ

- ۱۔ ڈرامے کا فن اور اردو میں اس کی روایت
- ۲۔ امتیاز علی تاج کی ڈرامہ نگاری
- ۳۔ آغا حشر کاشمیری کی ڈرامہ نگاری
- ۴۔ انارکلی (امتیاز علی تاج) متن کی تدریس
- ۵۔ سلورنگ (آغا حشر کاشمیری) متن کی تدریس

## معاون کتب:

- ۱۔ اردو افسانہ۔ روایت اور مسائل
  - ۲۔ اردو ڈراما کا ارتقا
  - ۳۔ اردو نثر
  - ۴۔ اردو کی نثری داستانیں
  - ۵۔ اردو نثر کا ارتقا
  - ۶۔ باغ و بہار
  - ۷۔ بیسویں صدی میں اردو ناول
  - ۸۔ پریم چند کہانی کا رہنما
  - ۹۔ ڈرامہ فن اور روایت
  - ۱۰۔ فسانہ عجائب (تلفیص)
  - ۱۱۔ فن افسانہ نگاری
  - ۱۲۔ کہانی کے پانچ رنگ
  - ۱۳۔ لکھنؤ میں اردو نثر
  - ۱۴۔ مقدمہ فسانہ عجائب
  - ۱۵۔ ناول کا فن
  - ۱۶۔ ہماری داستانیں
- |                           |       |  |  |
|---------------------------|-------|--|--|
| گوپتی چند نارنگ           | ۲۰۰۰ء | ایجو کیشنل پبلسٹک ہاؤس دہلی                |  |
| عشرت رحمانی               |       | ایجو کیشنل بک ہاؤس علی گڑھ                 |  |
| مرتبہ آل احمد سرور        |       |  |  |
| گیان چند جین،             | ۲۰۰۲ء | قومی کونسل برائے فروغ اردو زبان دہلی       |  |
| ڈاکٹر عابدہ بیگم          | ۱۹۸۸ء | آفسیڈ پریس دریا گنج، دہلی                  |  |
| میرامن مرتبہ رشید حسن خاں | ۲۰۰۲ء | انجمن ترقی اردو دہلی                       |  |
| یوسف سرمست                | ۱۹۷۳ء | نیشنل بک ڈپو ممبئی کمان حیدرآباد           |  |
| جعفر رضا                  | ۱۹۶۹ء | رام نرائن لال نبی ماڈرن کٹر اردو ڈالہ آباد |  |
| شاہد حسین،                | ۱۹۹۴ء | حسین پبلیکیشن دہلی                         |  |
| رجب علی بیگ سرور          | ۲۰۰۳ء | یو پی اردو اکادمی لکھنؤ                    |  |
| وقار عظیم                 | ۱۹۷۷ء | اعتقاد پبلسٹک ہاؤس دہلی                    |  |
| شمیم حنفی                 | ۲۰۱۱ء | قومی کونسل برائے فروغ اردو زبان دہلی       |  |
| ڈاکٹر محمد شعیب           | ۲۰۰۷ء | مصنف                                       |  |
| رشید حسن خاں              | ۲۰۰۲ء | انجمن ترقی اردو دہلی                       |  |
| ابوالکلام قاسمی           | ۱۹۹۲ء | ایجو کیشنل بک ہاؤس علی گڑھ                 |  |
| وقار عظیم                 | ۱۹۸۰ء | اعتقاد پبلسٹک ہاؤس دہلی                    |  |

B.A. Part-II

Paper-I

## Urdu Nazm

اردو نظم

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

(ضروری ہدایات)

- یہ پرچہ چار اکائیوں پر مشتمل ہوگا۔  
سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔
- اکائی: ۱۔ پہلا سوال شعری اقتباس کی تشریح کا لازمی ہوگا۔ تین شعری اقتباسات میں سے دو کی تشریح کرنی ہوگی۔  
ہر تشریح دس نمبر کی ہوگی۔  
( 10 × 2 = 20 )
- اکائی: ۲۔ نصاب میں شامل نظم کی تعریف اور آغاز و ارتقا سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو سوال کے  
جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )
- اکائی: ۳۔ نصاب میں شامل نظم نگاروں کے فن سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو سوال کے  
جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )
- اکائی: ۴۔ نصاب میں شامل نظموں پر چار تنقیدی سوالات دیئے جائیں گے جن میں سے دو کے جواب مطلوب ہوں گے۔  
ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )

## B.A. Part-II

## Paper-II

## Urdu Nazm

## اردو نظم

- ۱۔ نظم کی تعریف اور آغاز و ارتقاء
- ۲۔ نظیر اکبر آبادی کی نظم نگاری
- ۳۔ چکبست لکھنوی کی نظم نگاری
- ۴۔ اکبر الہ آبادی کی نظم نگاری
- ۵۔ اقبال کی نظم نگاری
- ۶۔ جوش ملیح آبادی کی نظم نگاری
- ۷۔ مخدوم محی الدین کی نظم نگاری
- ۸۔ اختر الایمان کی نظم نگاری

## نظمیں

- ۱۔ برسات کی بہاریں، ہولی (نظیر اکبر آبادی) متن کی تدریس
- ۲۔ رانان کا ایک سین (چکبست لکھنوی) متن کی تدریس
- ۳۔ مستقبل (اکبر الہ آبادی) متن کی تدریس
- ۴۔ خضر راہ (علامہ اقبال) متن کی تدریس
- ۵۔ تنہائی (فیض احمد فیض) متن کی تدریس
- ۶۔ شکستِ زنداں کا خواب (جوش ملیح آبادی) متن کی تدریس
- ۷۔ چاند تاروں کا بن (مخدوم محی الدین) متن کی تدریس
- ۸۔ ایک لڑکا (اختر الایمان) متن کی تدریس

## معاون کتب :

- ۱۔ ادب اور تنقید اسلوب احمد انصاری ۱۹۶۸ء سنگم پبلشر بلواگھاٹ الہ آباد
- ۲۔ اردو شاعری کا فنی ارتقاء ڈاکٹر فرمان فتح پوری ۲۰۱۷ء ایجوکیشنل پبلشنگ ہاؤس دہلی
- ۳۔ اردو نظم کا سفر خلیل الرحمن اعظمی ایجوکیشنل بک ہاؤس علیگڑھ
- ۴۔ تاریخ ادب اردو رام بابوسکینہ تیج کمار بک ڈپولمبیڈ حضرت گنج لکھنؤ ۱۹۹۹ء
- ۵۔ تنقیدی مباحث شارب ردولوی ایجوکیشنل پبلشنگ ہاؤس دہلی ۱۹۹۵ء
- ۶۔ جدید اردو شاعری عبدالقادر سروری انجمن امداد بانی مکتبہ ابراہیمیہ چادرگھاٹ حیدرآباد ۱۹۳۲ء
- ۷۔ جدید اردو نظم۔ نظریہ و عمل عقیل احمد صدیقی ایجوکیشنل بک ہاؤس علی گڑھ ۲۰۱۲ء
- ۸۔ جدید اردو نظم اور یورپی اثرات حامدی کاشمیری ایچ اے آفسیٹ پریشر دہلی ۲۰۱۰ء
- ۹۔ جدید شاعری عبادت بزیلوی ایجوکیشنل بک ہاؤس علیگڑھ ۱۹۸۳ء
- ۱۰۔ منتخب نظمیں ناشر یو پی اردو کادمی لکھنؤ، ۲۰۰۳ء
- ۱۱۔ معاصر ادب کے پیش رو محمد حسن مکتبہ جامعہ لمبیڈ دہلی ۲۰۱۱ء
- ۱۲۔ نظم جدید کی کروٹیں وزیر آغا ایجوکیشنل بک ہاؤس علیگڑھ ۲۰۰۰ء



## B. A. - Part - III

### Paper- I

Tarikh -e- Adab -e- Urdu

### Paper- II

Qasida, Marsia, Masnavi

### Paper - III

Sahafat, Tarjuma Nigari Aur Qawaid

بی. اے۔ سال سوئم

پہلا پرچہ۔ تاریخ ادب اردو

دوسرا پرچہ۔ قصیدہ، مرثیہ، مثنوی

تیسرا پرچہ۔ صحافت، ترجمہ نگاری اور قواعد

B. A. Part-III

Paper-I

## Tarikh-e-Adab-e-Urdu

## تاریخ ادب اردو

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

## (ضروری ہدایات)

- یہ پرچہ چار اکائیوں پر مشتمل ہوگا۔  
سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔
- اکائی-۱: اردو زبان کے آغاز و ارتقا اور: مختلف نظریات سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو کے جواب  
مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )
- اکائی-۲: اردو کے ادبی دبستان (دہلی اور لکھنؤ دبستان) سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو کے جواب  
مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )
- اکائی-۳: فورٹ ولیم کالج اور دلی کالج سے متعلق چار سوالات دیئے جائیں گے جن میں سے دو کے جواب مطلوب ہوں گے۔  
ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )
- اکائی-۴: اردو کی ادبی تحریکوں (علی گڑھ تحریک اور ترقی پسند تحریک) سے متعلق چار سوالات دیئے جائیں گے جن میں سے  
دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔  
( 10 × 2 = 20 )

## B.A. Part-III

### Paper-I

#### Tarikh-e-Adab-e-Urdu

### تاریخ ادب اردو

- ۱۔ اردو زبان کا آغاز و ارتقاء
- ۲۔ اردو زبان کی ابتداء سے متعلق مختلف نظریات
- ۳۔ دبستانِ دہلی
- ۴۔ دبستانِ لکھنؤ
- ۵۔ فورٹ ولیم کالج
- ۶۔ علی گڑھ تحریک
- ۷۔ ترقی پسند تحریک

#### معاون کتب :

- ۱۔ اردو ادب کی تنقیدی تاریخ۔ احتشام حسین ۱۹۹۹ء قومی کونسل برائے فروغ اردو دہلی
- ۲۔ اردو کی ادبی تحریکیں۔ انور سدید ۲۰۰۴ء کتابی دنیا دہلی
- ۳۔ اردو میں ترقی پسند ادبی تحریک۔ خلیل الرحمن اعظمی ۲۰۱۵ء ایجوکیشنل بک ہاؤس علیگڑھ
- ۴۔ تاریخ ادب اردو۔ اعجاز حسین ۱۹۶۵ء ادارہ فروغ اردو امین آباد، لکھنؤ
- ۵۔ اردو زبان کی تاریخ۔ مرزا خلیل احمد بیگ ۲۰۱۷ء ایجوکیشنل بک ہاؤس علیگڑھ
- ۶۔ دکن میں اردو۔ نصیر الدین ہاشمی ۱۹۸۵ء قومی کونسل برائے فروغ اردو زبان دہلی
- ۷۔ سرسید اور ان کے نامور رفقاء۔ سید عبداللہ ۲۰۰۶ء ایجوکیشنل بک ہاؤس علیگڑھ
- ۸۔ مقدمہ تاریخ زبان اردو۔ مسعود حسین خاں ۱۹۵۳ء آزاد کتاب گھر کلاں محل دہلی

B.A. Part-III

Paper-II

Qasida, Marsia, Masnavi

قصیدہ، مرثیہ، مثنوی

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

(ضروری ہدایات)

یہ پرچہ چار کانیوں پر مشتمل ہوگا۔

سوالوں کی نوعیت اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔

اکائی: ۱- پہلا سوال شعری اقتباس کی تشریح کا لازمی ہوگا۔ تین شعری اقتباسات (قصیدہ، مرثیہ اور مثنوی) میں سے دو کی تشریح

(10 × 2 = 20)

کرنی ہوگی۔ ہر تشریح دس نمبر کی ہوگی۔

اکائی: ۲- نصاب میں شامل سودا اور ذوق کی شخصیت اور ان کے قصائد سے متعلق چار تنقیدی سوالات دیئے جائیں گے جن میں سے

(10 × 2 = 20)

دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

اکائی: ۳- نصاب میں شامل انیس اور دبیر کی شخصیت اور ان کے مرثیوں سے متعلق چار تنقیدی سوالات دیئے جائیں گے جن میں سے

(10 × 2 = 20)

دو کے جواب مطلوب ہوں گے، ہر سوال دس نمبر کا ہوگا۔

اکائی: ۴- نصاب میں شامل میر حسن اور دیبا شکر نسیم کی شخصیت اور ان کی مثنویوں سے متعلق چار تنقیدی سوالات دیئے جائیں گے

(10 × 2 = 20)

جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔

B.A. Part- III

## Paper- II

## Qasida, Marsia, Masnawi

## قصیدہ، مرثیہ، مثنوی

قصیدہ

(الف)

قصیدہ کی تعریف، اجزائے ترکیبی، فنی امتیازات اور اردو میں اس کی روایت

قصیدہ شہر آشوب (المعروف بہ تفحیک روزگار) مرزا محمد رفیع سودا متن کی تدریس ۱

دردج بہادر شاہ ظفر شیخ ابراہیم ذوق متن کی تدریس ۲

مرثیہ

(ب)

مرثیہ کی تعریف، اجزائے ترکیبی، فنی امتیازات اور اردو میں اس کی روایت

تمکب خوان تکلم ہے فصاحت بہری (میر بہ علی انیس) ابتدا کی ۱۵ بند کی تدریس ۱

دستِ خدا کا قوت بازو حسین ہے (مرزا سلامت علی ویر) ابتدا کی ۱۵ بند کی تدریس ۲

مثنوی

(ج)

مثنوی کی تعریف، اجزائے ترکیبی، فنی امتیازات اور اردو میں اس کی روایت

سحر البیان۔ (تلخیص) میر حسن۔

ابتداء سے (خدا کی خدائی تو معمور ہے۔ غرض اس کے نزدیک کیا دور ہے) تک

(ابتدائی تین جز) متن کی تدریس

گلزار نسیم۔ (تلخیص) پنڈت دیپ سنگھ نسیم۔

ابتداء سے (ہوتا نہ جو قول کا سہارا۔ پتانا نہ یہیں تو خیر ہارا) تک

(ابتدائی تین جز) متن کی تدریس

## امدادی کتب۔

## (الف) برائے قصیدہ

- ۱۔ اردو قصیدہ نگاری کا تنقیدی جائزہ۔ محمود الہدیٰ ۲۰۱۱ء مکتبہ جامعہ لمپیڈ نیو دہلی
- ۲۔ اردو میں قصیدہ نگاری۔ ابو محمد سحر ۲۰۱۲ء مکتبہ ادب مالویہ نگر بھوپال
- ۳۔ انتخاب قصائد۔ ناشر یو پی اردو اکادمی لکھنؤ ۲۰۰۲ء
- ۴۔ انتخاب منظومات (حصہ دوم)۔ ناشر یو پی اردو اکادمی لکھنؤ ۲۰۰۲ء

## (ب) برائے مرثیہ

- ۱۔ اردو مرثیہ کا ارتقاء۔ مسیح الزماں ۲۰۰۲ء قومی کونسل برائے فروغ اردو زبان، دہلی
- ۲۔ انتخاب مرثیہ۔ ناشر یو پی اردو اکادمی لکھنؤ ۱۹۸۳ء
- ۳۔ انیس۔ تیر مسعود ۲۰۰۲ء قومی کونسل برائے فروغ اردو زبان، دہلی
- ۴۔ مرثیے کی سماجیاست۔ سید محمد عقیل رضوی ۱۹۹۳ء خواجہ پریس جامع مسجد دہلی
- ۵۔ موازیر انیس و دویہ۔ مولانا شبلی ۲۰۰۳ء یو پی اکیڈمی لکھنؤ

## (ج) برائے مثنوی

- ۱۔ اردو کی تین مثنویاں۔ خان رشید ۱۹۶۸ء لاہور پرنٹنگ پریس دہلی
- ۲۔ اردو مثنوی کا ارتقاء۔ عبد القادر سردری ۱۹۹۱ء ایچو کیشنل بک ہاؤس علی گڑھ
- ۳۔ اردو مثنوی شمالی ہند میں۔ گیان چند جین ۱۹۸۷ء انجمن ترقی اردو ہند دہلی
- ۴۔ انتخاب منظومات (حصہ دوم)۔ ناشر یو پی اردو اکادمی لکھنؤ ۲۰۰۲ء

## B.A. Part-III

Paper-III

### Sahafat, Tarjuma Nigari Aur Qawaid

صحافت، ترجمہ نگاری اور قواعد

Total Marks : 80

Time : 03 hrs

**Important Instructions for Preparing of Question Paper**

(فردری ہدایات)

یہ پرچہ چار اکائیوں پر مشتمل ہوگا۔

سوالوں کی ترتیب اور نمبروں کی تقسیم مندرجہ ذیل ہوگی۔

- |  |                  |
|--|------------------|
| <p>صحافت کی تعریف، آغاز و ارتقاء اور قاعدہ میں شامل خبر نگاری، ادارہ نگاری، کالم نگاری اور نامہ نگاری کے متعلق چار سوالات دیئے جائیں گے جن میں سے دو کے جواب مطلوب ہو گے۔ ہر سوال دس نمبر کا ہوگا۔ (10x2=20)</p> | <p>اکائی: ۱-</p> |
| <p>ترجمہ کی تعریف، فن اور روموں میں اس کی روایت سے متعلق چار سوالات دیئے جائیں گے، جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ (10x2=20)</p>   | <p>اکائی: ۲-</p> |
| <p>نصاب میں شامل اردو قواعد کی اصطلاحوں پر چار سوالات دیئے جائیں گے، جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ (10x2=20)</p>   | <p>اکائی: ۳-</p> |
| <p>نصاب میں شامل علم بیان و بدیع کی اصطلاحوں پر چار سوالات دیئے جائیں گے، جن میں سے دو کے جواب مطلوب ہوں گے۔ ہر سوال دس نمبر کا ہوگا۔ (10x2=20)</p>  | <p>اکائی: ۴-</p> |

B.A. Part-III

Paper-III

## Sahafat, Tarjuma Nigari aur Qawaid

## صحافت، ترجمہ نگاری اور قواعد

- (الف) صحافت (i) تعریف، اقسام  
(ii) آغاز و ارتقاء
- (ب) ترجمہ نگاری (i) نثر (تعریف، مسائل لفظی ترجمہ اور آزاد ترجمہ)  
(ii) اردو میں اس کی روایت  
(iii) اردو میں دیئے گئے اقتباس کا ہندی یا انگریزی میں ترجمہ  
(iv) ہندی اور انگریزی میں دیئے گئے اقتباس کا اردو میں ترجمہ
- (ج) قواعد (i) حرف لفظ اسم ضمیر صفت، فعل فاعل اور مفعول (تعریف مع مثال)
- (د) علم بیان و بدیع (i) تشبیہ، استعارہ، مجاز مرسل، کنایہ  
(ii) صنعت۔ ابہام، تلخیص، تخیال، عارفانہ، مبالغہ، حسن، تعلیل، تضاد، مراۃ النظر



### امدادی کتب

- |      |                                 |                       |  |
|------|---------------------------------|-----------------------|--|
| (۱)  | ابلاغیات                        | شاہد حسین             | ایجوکیشنل پبلسٹنگ ہاؤس دہلی                |
| (۲)  | اردو اور عوامی ذرائع ابلاغ      | شاہد حسین             |  |
| (۳)  | اردو زبان و ادب (حصہ اول و دوم) | محمد شفیع احمد صدیقی  | ۲۰۰۸ء مکتبہ جامعہ لمیٹڈ دہلی               |
| (۴)  | اردو صحافت                      | انور علی دہلوی        | ۲۰۰۹ء اردو اکادمی دہلی                     |
| (۵)  | اردو صحافت کی تاریخ کے عہد نامے | نور محمد صدیقی        |  |
| (۶)  | اردو ادب                        | سولای عہد الحق        | انجمن ترقی اردو ہند دہلی                   |
| (۷)  | تاریخ صحافت                     | نور انوار کاکر        | ایجوکیشنل بک ہاؤس علیگڑھ                   |
| (۸)  | ترجمہ کافن اور ذرا لے           | تہ رییس               | ۱۹۷۶ء خواجہ پریس دہلی                      |
| (۹)  | ترجمہ انجمن                     | تہ رییس               | ۱۹۹۶ء شہر آفسیٹ پریس دہلی                  |
| (۱۰) | درس باہر                        | شمس الرحمن فاروقی     |  |
| (۱۱) | رہبرانہ پارٹیکلر                | سید اقبال قادری       | ۲۰۰۰ء قومی کونسل برائے فروغ اردو زبان دہلی |
| (۱۲) | صحافت پاکستان دہلی              | ذہیر اسلام خورشید     |  |
| (۱۳) | نسیم انباز غریب                 | سید اقبال الدین جعفری |  |

SAMPLE  
MODEL QUESTION PAPER

(ماڈل سوالنامہ)

Total Marks : 80

پیسپر کا نام

Time : 3 Hours

نوٹ: درج ذیل سوالوں کے جواب تین تین سوافظ میں حسب ہدایت دیجئے۔ مجموعی نمبر۔ ۸۰ وقت ۳ گھنٹے

(UNIT - I)

مندرجہ ذیل دو اقتباسات شعری/انٹریکٹس کی سیاق و سباق کے حوالے سے کیجئے۔

( 10 x 2 = 20 )

سوال نمبر 1 .....

سوال نمبر 2 .....

سوال نمبر 3 .....

(UNIT - II)

ہدایت: مندرجہ ذیل سوالوں میں سے دو کے جواب تین تین سوافظ میں تحریر کیجئے۔

( 10 x 2 = 20 )

سوال نمبر 4

سوال نمبر 4

سوال نمبر 5

سوال نمبر 5

(UNIT - III)

ہدایت: مندرجہ ذیل سوالوں میں سے دو کے جواب تین تین سوافظ میں تحریر کیجئے۔

( 10 x 2 = 20 )

سوال نمبر 8

سوال نمبر 8

سوال نمبر 9

سوال نمبر 9

(UNIT - IV)

ہدایت: مندرجہ ذیل سوالوں میں سے دو کے جواب تین تین سوافظ میں تحریر کیجئے۔

( 10 x 2 = 20 )

سوال نمبر 12

سوال نمبر 12

سوال نمبر 13

سوال نمبر 13

(4) दीन कपाल उपाध्याय और क्षुद्र विज्ञान विद्यालय, जोरखुर  
भूगोल

## B.A. GEOGRAPHY

### RULES & REGULATIONS

1. Only those candidates may offer Geography as one optional subject in B.A., who has offered Geography in Inter classes. Inter Science and Agriculture students are exempted from those conditions.
2. No private candidates are allowed to offer Geography in B.A.
3. The candidate shall have to pass in theory and practical separately obtaining 33 % marks in each.
4. There shall be two theory papers of 80 marks each and one practical carrying 50 marks in B.A. /B.Sc. I and B.A. /B.Sc. II examinations, while in B.A. /B.Sc. III, there shall be 3 theory papers of 80 marks each and one practical carrying 60 marks.

### **Name of papers in B.A. /B.Sc. Geography**

	Paper	Name of Subject	Marks
B.A. /B.Sc. I	I	Physical Geography	60 + 20 = 80
	II	Human Geography	60 + 20 = 80
		Practical Geography	40
B.A./B.Sc. II	I	Economic Geography	60 + 20 = 80
	II	Geography of India	60 + 20 = 80
		Practical Geography	40
B.A./B.Sc. III	I	Evolution of Geographical Thought	60 + 20 = 80
	II	World Regional Geography	60 + 20 = 80
	II	Environment, Ecology and Development	60 + 20 = 80
		Practical Geography	60

### **B.A. I Objectives**

- Geography is the study of earth and its inhabitants. Physical and Human Geography- the two main branches of Geography have been given equal importance in framing the syllabus. The main objective of this course is to introduce to the students the fundamental concept of Physical Geography, specially related to lithosphere, atmosphere and hydrosphere.
- Human Geography is to make them understand the man-environment relationship and human capabilities to adopt and modify the environment and its varied conditions.

### **B.A. II Objectives**

- The economy of the world is undergoing rapid transformation. The process of such transformation of economic activities is dynamic in nature. In view of this objective of economic Geography course is to acquaint the students with this dynamic aspect of economic geography. It also aims to sensitize the students to the concept of sustainable resource use.
- The course is aimed at presenting a comprehensive, integrated, systematic and regional geography of India.

### **B.A. III Objectives**

- The objective of geographical thought is to introduce the philosophy and methodological foundation of the subject and its place in the world of knowledge and also familiarize the development of geographical thought in different period of time.
- To introduce the concept of environment, pollution and sustainable development.
- To familiarize the students with the concept of region, characteristics of various regions of the world and their underlying uniqueness, complexities and to understand the interaction between physical and human features.

### **Objectives of Practical**

It is necessary for the students of geography to go through the laboratory exercises. The objectives of the practical course are to train students the basic concept and techniques of handling geographical data through different cartographic and statistical methods. The techniques of surveying with various instruments and field survey are also parts of various exercises.

## B.A. /B.Sc. Part-I GEOGRAPHY

### Paper I- PHYSICAL GEOGRAPHY (60+20 = 80 Marks)

- Unit 1 :** Meaning and scope of Physical Geography; Theories of origin of the Earth- Classical Indian Views, Theories of Kant, Laplace, Jeans & Jeffreys, Russell, Hoyle, Otto Schmidt, Big Bang; Interior of the Earth; Origin of Continents & Ocean Basins- Tetrahedral Theory, Theory of Continental Drift, Concept of Plate Tectonics; Theory of Isostasy.
- Unit 2 :** Earth Movements- Diastrophism, Folding & faulting, Earthquakes and Volcanoes; Theories of Mountain Building - Kober, Jeffreys, Holmes; Rocks & their types; Sub-aerial denudation- Weathering and Erosion; Works of Running water, Underground water, Wind, Glaciers & Marine Water and resultant landforms; Normal Cycle of Erosion; System & Pattern of Drainage.
- Unit 3 :** Composition and structure of atmosphere; Insolation; Vertical & Horizontal distribution of Temperature; Pressure and Winds, Humidity & Precipitation; Types of Rainfall; Origin & Characteristics of Temperate & Tropical Cyclones; Anti-cyclones.
- Unit 4 :** Surface Configuration of Ocean Basins with special reference to Atlantic & Indian Oceans; Ocean Temperature; Salinity and Density of Ocean Water, Ocean Tides & Currents; Marine Deposits; Coral Reefs & Atolls

#### *Recommended Books:*

1. G.T.Triwartha :-Elements of Physical Geography
2. Wooldridge & Morgan :- Physical Basis of Geography
3. Singh, D.K. :- Physical Geography
4. Singh, Savindra :- Physical Geography(Hindi)
5. Singh, K.N. & Singh, J :- Bhautik Bhoogol

### Paper-II- HUMAN GEOGRAPHY (60+20 = 80 Marks)

- Unit 1 :** Meaning & Scope; Evolution; Principles and Approaches of Human Geography; Elements of Human Geography with special reference to Jean Brunhes and Huntington; Man and Environment Relationships- Determinism, Possibilism, Neo-determinism, Probabilism.
- Unit 2 :** Evolution of Man- Australopithecus, Homo-habilis, Homo-erectus, Homo-sapien; Man's Spread Over Globe During Pleistocene; Global Migration in Modern World- Their Causes and Consequences; Human Races- Origin & Classification, Cultural Stages and Cultural Realms.
- Unit 3 :** Habitat and socio-economic Adjustment; Major tribes- Pygmies, Kirghiz, Eskimos, Bushmen, Gond, Gaddi, Tharu and Santhal; Stages of Population Growth; Distribution of Population; Population Agglomerations; Population Problems; Concept of Human Resource Development.
- Unit 4 :** Human Settlements: - Rural Settlements- Types and Patterns with special reference to India; House Types in India. Urban Settlements- Trend & Pattern of Urbanization in the World; Classification of Cities.

#### *Recommended Books:*

- Huntington & Shaw: - Principles of Human Geography.  
Majumdar, D.N.: -Races and Culture of Man in India.  
Singh, J. & Singh, K.N.: - Human Geography (Hindi)  
Srivastava, V.K. & Rao, B.P.: - Human Geography (Hindi)  
Dikshit, S.K. & Tripathi, R.D.: -Cultural Geography (Hindi)

**PRACTICALS (40 marks)**

S.No	Topics	Marks
<b>A-Lab Work...(2.1/2 Hours)</b>	1. Drawing of Scales- Comparative, Diagonal and Vernier.	08
	2. Study & Interpretation of Topographical Sheet a) Representation of following relief features by Contours- Hill, Saddle, Plateau, Cliff, Spur, Escarpments, 'U' & 'V' Shaped Valley. b) Study of 1:50,000 R.F. Topographical Sheets, at least one from Hill, Plateau and Plain region.	08
	3. Cartographic Representation of Statistical Data a) Graphs-Line graph, Band Graph, Hythergraph and Climograph b) Diagrams- Circle, Wheel, Pyramid, Rectangular, Wind Roses. c) Distribution of Population- Dot Method and Choropleth method.	08
<b>B-Field Work(1.1/2 Hours)</b>	1.Survey of Given Area and Plotting the same by Plane Table- Radiation, Intersection and Resection methods, Open & Closed Traverse; Height and Depth 2.Measurement of Indian Clinometer	08
<b>C-</b>	Record and Viva-voce	08

*Recommended Books:*

1. Singh, R.L.: -Elements of Practical Geography.
2. Bygott:-Practical Geography.
3. Hiralal :- Navin Prayogatmac Bhoogol
4. P.R.Chauhan :- Prayogatmac Bhoogol
5. R.C.Tiwari :- Prayogatmac Bhoogol
6. Shrivastava, V.K. and Prasad, Mahatam. :- Bhoogol Me Sankhikiya Vidhiyan

## B.A./B.Sc. Part-II GEOGRAPHY

### PAPER I- ECONOMIC GEOGRAPHY (60+20 = 80 Marks)

- Unit 1 :** Meaning & Scope of Economic Geography; Concept and Classification of Resources; Soils; Forest and Water resources; Primary Production- Fishing; Types of Agriculture, Distribution and production of major Agriculture Crops- Rice, Wheat, Maize, Cotton, Sugarcane; Plantation Crops- Rubber, Tea & Coffee.
- Unit 2 :** Von Thunen's Theory of Agricultural Location; Agricultural regions of the World by D. Whittlesey; Mineral & Power Resources- Production and Distribution, Iron-Ore, Copper, Tin, Bauxite, Coal, Petroleum, Natural Gas, Hydro- Electricity & Atomic Power; Consumption of Power Resources.
- Unit 3 :** Industrialization- Major Industries of the World- Iron & Steel, Cotton, Woolen & Silk, Textile and Fertilizer; Alfred Weber's Theory of Industrial Location; Major Industrial Regions of the World with special reference to U.S.A., Western Europe & Japan.
- Unit 4 :** Problems and Prospects of Industrialization in 3<sup>rd</sup> World Countries; International Trade- Modern Trend, Role of W.T.O. in World Economy; Major Trade Routes- Land, Water and Air; International Trade Blocks- NAFTA, European union, ASEAN, APEC.

#### *Recommended Books:*

1. Jones & Darkenward: Economic Geography
2. Alexander, J.W. : Economic Geography
3. Singh, K.N. & Singh, J. : Arthic Bhoogol ke Mool Tatva
4. Shrivastava & Rao : Arthic Bhoogol

### PAPER II- GEOGRAPHY OF INDIA (60+20 = 80 Marks)

- Unit 1 :** Global position of India; Geological Structure; Relief; Drainage Systems; Physiographic Regions; Origin of Monsoon; Climatic Regions; Soils & Natural vegetation; Mineral resources- Iron- ore, Bauxite, manganese, Atomic Minerals; Power Resources- Coal, Petroleum, Hydro-electricity, Non-Conventional Energy Sources.
- Unit 2 :** Human Resources- Growth & Spatial Pattern of Population; Population Explosion; Trend & Pattern of Urbanization in India; National Population policy; Economic Activity Patterns- Agricultural Land Use Pattern; Irrigation and Multipurpose Projects; major Crops- Wheat, Rice, Maize, Sugarcane, Cotton, Tea, coffee; Impact of Green Revolution; Crop Association Regions.
- Unit 3 :** Growth of Industries in India; Major Industries- Iron & Steel, Cotton Textiles, Cement, Fertilizer, Paper & Sugar; Industrial Regions; Problems and Prospects of Industrially Backward Regions.
- Unit 4 :** Transport Network- Road, Rail & Air Transport; Geographical Regions of India- Detailed Study of Assam Valley, Malabar Coast, Middle Ganga Plain and Malwa Plateau.

#### *Books Recommended:*

1. Spate & Learmonth :- India and Pakistan, London
2. Singh, R.L.(Ed) :- India: A Regional Geography, Varanasi
3. Tiwari, R.C. :-Geography of India, Allahabad
4. Singh, J. , Singh, K.N. & Patel, R.B. :-Bharat, Gorakhpur

**PRACTICAL (40 marks)**

S.No	Topics	Marks
<b>A-Lab Work...(2.1/2 Hours)</b>	1. Map Projections- a) Classification and Choice of Projections. b) Construction of Map Projections- Cylindrical Equal Area, Mercator's, Conical with Two Standard Parallel, Bonne's, Polar Zenithal Equal Area, Polar Zenithal Stereographic, Polar Zenithal Orthomorphic.	08
	2. Study & Interpretation of Indian Daily Weather Reports a) Use of Weather Instruments- Wet & Dry Bulb Thermometer, Barometer, Wind-Vane, Rain Gauge. b) Study of Weather Symbols and Interpretation of Indian Daily Weather Reports of January & July; Weather Forecasting.	08
	3. Geological Maps- Completion of Beds, Drawing of Cross-section and Interpretation of Horizontal, Inclined and Folded Beds.	08
<b>B-Field Work(1.1/2 Hours)</b>	Survey and plotting of a given area by Prismatic Compass with Open and Closed Traverse Methods, Correction of Closing error. Use of Sextant-Measurement of Angles and calculation of Height	08
<b>C-</b>	Record & Viva-Voce	08

*Recommended Books:*

All the books which are recommended for B. A. I



**B.A./B.Sc: III GEOGRAPHY**

**PAPER I- EVOLUTION OF GEOGRAPHICAL THOUGHT (60+20 = 80 Marks)**

- Unit 1 :** Geography in Ancient Period: India- Geographical knowledge during Vedic, Epic and Puranic Period. Contribution of Aryabhata, Varahmihira, Brahmagupta & Bhaskaracharya; Contribution of Greek and Roman Geographers; Geography in Middle Ages, Contribution of Arab geographers.
- Unit 2 :** Renaissance period in Europe, Renowned Travellers and their Geographical Discoveries; German School of Geography: Contribution of Forsters, Kant, Humboldt, Ritter, Richthofen, Ratzel, Hettner, French School of Geography, Contribution of Blache and Brunhes.
- Unit 3 :** Soviet Geography- Development of Geographical Knowledge, Contribution of Lomonosov, Dokuchaiev, Baransky and Gerasimov, American School- Contribution of Davis, Semple, Huntington, Carl Sauer; British School- Contribution of Mackinder, Herbertson and L.D. Stamp.
- Unit 4 :** Nature and scope of Geography: Geography as Science, Recent Trends of Geography, Progress of Geography of India.

*Recommended Books:*

1. Dikshit R.D. :-Geographical Thought(Hindi & English), New Delhi
2. Mazid Hussain :- Evolution of Geographical Thought(Hindi & English), Jaipur
3. Dickinson R.E. :The Makers of Modern Geography, London
4. Singh, J :-Bhaugolic Chintan ka Kram Vikas, Gorakhpur
5. Singh, L.R. Bhoogol ki Prakriti, Lucknow
6. Kaushik, S.D. :-Bhaugolic Vichardharayein, Meerut
7. Dikshit, S.K. Bahugolic Chintan: Udbhav Evam Vikas, Varanasi

**PAPER II-WORLD REGIONAL GEOGRAPHY (60+20 = 80 Marks)**

- Unit 1 :** Concept of Region and Regionalization; Tripartite Division of the World; Natural Regions of the World, Bases of Delimitation and salient features of Monsoon Regions of the World.
- Unit 2 :** Regional Study of USA- Physical, Climatic & Agricultural Regions, Mineral and Power Resources, Industrial Regions.
- Unit 3 :** Regional Study of Brazil- Physical, Climatic, Agricultural, Mineral and Power Resources, Industrial Regions.
- Unit 4 :** Regional Study of Egypt- Physical Region, Agriculture, Mineral and Power Resources, Important Industries.

*Recommended Books:*

1. Cole, J :-A Geography of the World: Major Regions, Routledge, London, 1996.
2. Dickinson, J.P. et. al :-The Geography of the Third World, Routledge, London, 1996.
3. Kolb, A. :- East Asia :Geography of the Cultural Regions, Methuen, London, 1977.
4. English, Paul ward & Miller, J.A. :- World Regional Geography: A Question of Place, John Wiley, New York, 1989.
5. Jackson, R.H. & Human, L.E. :- World Regional Geography: Issues for Today, John Wiley, New York, 1991.
6. Jagdish Singh, et al :- Monsoon Asia, Tara Publications, Varanasi.

**PAPER III- ENVIRONMENT, ECOLOGY & DEVELOPMENT (60+20 = 80 Marks)**

- Unit 1 :** Concept of Environment, Elements of Environment; Concepts of Ecosystems and its structure, Trophic level and food chain, Function of Ecosystems, Biogeochemical Cycle, Role of man in Ecosystem, Environmental Degradation- Concept, cause and consequences.
- Unit 2 :** Economic Development and Environmental Crisis, Acid Rain, Greenhouse effect, Ozone layer depletion and Global Warming, Impact of Growth of population, industrialization, technology and consumerism on Environment. Causes and Consequences of Deforestation, Soil Erosion, Energy Crisis, Climatic changes due to Environmental pollution.
- Unit 3 :** Ecosystem in India, causes and consequence of deforestation in India, Soil erosion, Air, Water pollution and flood hazards in India, Urbanization and Environmental degradation.
- Unit 4 :** Environmental management- Concept and significance, Environmental Impact, Assessment of major development project in India- Damodar Valley project, Tehri, Narmada valley project, concept of Eco-Development, Environmental Management.

*Recommended Books:*

1. Allen, P.D. :- Environment & Development
2. Gerasimov: Ecology & Geography
3. Kayastha, S.L. :- Fundamentals of Environmental Studies
4. Khushoo, T.N. :- Environment and Sustainable Development of India
5. Singh, J. :- Vatavaran Niyojan aum Samvikas
6. Singh, Savindra :- Environmental Geography (Hindi & English)
7. Shrivastava, V.K. & Rao, B.P. :- Paryavaran Evam Paristhitiki

**PRACTICAL (60 Marks)**

S.No.	Topics	Marks
<b>A-Lab Work...</b> (3 Hours)	1. Statistical Methods in Geography- Mean, Median, Mode, Mean Deviation, Standard Deviation, Spearman's correlation coefficient, graphical representation and interpretation of Frequency polygon, Histogram, Ogive.	12
	2. Analysis of relief: longitudinal & Transverse Profiles, Construction of Superimposed, Projected and Composite Profiles, Wentworth method of Slope Analysis and Drainage Density	12
	3. Aerial-Photo interpretation- Determination of Scales, Land Use Analysis with the help of Aerial Photographs; Use and Importance of Computer in Geography, Hardware and Software	12
<b>B-Field Survey</b>	The students shall be taken out on a field survey at any one place for about three days. They will be required to conduct survey of the socio-economic landscapes of the concerned area and write a detail report on the basis of data so generated.	14
<b>C-</b>	Practical Records & Viva- Voce	10

*Recommended Books:*

All the books which are recommended for B.A. I

Question Model

Q. 1. All question are compulsory

(a)

(b)

(c)

(d)

Section –A

Note:

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Section – B

Note :

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or

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or

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or

5

दीन दयाल उपाध्याय गोरखपुर विश्वविद्यालय गोरखपुर  
दशम् 2018

**Proposed Common Syllabus for all Universities of U.P.**

**Three-Year Bachelor of Arts Course in Philosophy**

**Nov. 2018**

**B.A. I**

Paper-I : Indian Philosophy

Paper-II : Western Philosophy

**B.A.-II**

Paper-I : Ethics (Indian & Western)

Paper-II : Logic (Indian) or Logic (Western)

**B.A.-III**

Paper-I : Problems of Philosophy (Indian & Western)

Paper-II : Philosophy of Religion

Paper-III : Socio-Political Philosophy

**Prepared by**

**SYLLABUS COMMITTEE DEPARTMENT OF PHILOSOPHY**

**DEEN DAYAL UPADHYAYA GORAKHPUR UNIVERSITY**

**GORAKHPUR**

## B.A.-I :

**Note :** (Learning objectives) There shall be Two Papers Indian Philosophy and Western Philosophy Consisting of 80 marks each paper as Theories and 20 Marks for Assignments, Project, Seminar (10 Marks), Attendance (10 Marks) in both papers. Both the papers aim the general awareness and their behavioural applications.

### Paper-I

## INDIAN PHILOSOPHY

**Indian Philosophy :** This course focuses on the various treatise on Indian Philosophy and enquiries into the different texts which laid the foundation for Indian Philosophy.

### Unit-One

1. **Introduction :** Common characteristics and classification of Indian Philosophical Schools : Āstika and Nāstika
2. **Carvaka School :** Epistemolōgy, Metaphysics, Ethics.
3. **Jainism-**Concept of Sat, Dravya, Paryāya, Guna; Anekāntavāda, Syādvāda and Saptabhanginaya, Theory of Karma, Bondage & Liberation.
4. **Buddhism-**Four noble Truths, Theory of Dependent Origination (Pratītyasamutpādvāda), Definition of Reality (Arthakriyākāritvamsattvam). Doctine of Momentariness (Ksanabhangavāda), Theory of no-soul (Nairātmyavāda), Nirvana, Hinayana & Mahayana.

### Unit-Two

5. **Samkhya-Satkāryavāda,** Nature of Prakriti, its constituents and proofs for its existence. Nature of Purusa and proofs for its existence, plurality of purusas, theory of evolution.
6. **Yoga-Citta, Cittavrtti, Cittabhumi,** Eight fold path of Yoga, God.

### Unit-Three

7. **Nyaya-Pramā and Pramāna, Pratyaksa (Definition), Sannikarsa, Classification of Pratyaksa:** Nirvikalpaka, Savikalpaka, Laukika, Alaukika; Anumiti, Anumana (Definition), Vyāpti, parāmarsa, Classification of Anumāna : pūrvavat, sesavat, smānyatodrista, kevalānvayi., Kevalavyātireki, anvayavyātirekī, svārthānumāna, parārthānumāna, Upamāna, Sabda Pramana.

8. **Vaisesika**-Seven Padārthas. dravya, guna, karma, sāmānya, vishesa, samāvaya, abhāva.
9. **Mīmāmsa** (Prābhakara and Bhatta) : Arthāpatti and Anupalabधि as sources of knowledge.

#### **Unit-Four**

10. **Advaita Vedanta**-Sankara's view of Brahman, Saguna and Nirguna Brahman, Three grades of Sattā : prātibhāsika, vyavahārika and pāramārthika, Jīva, Jagat and Maya, Moksā.
11. **Visistādvaita Vedanta**-Ramanuja's view of Brahman, Jīva, Jagat. Refutation of the doctrine of Māya, Moksā.

#### **Suggested Readings :**

1. Dutta evam Chatterjee, 2013 : **Bhartiya Darshan**, Pustak Mahal, Patna.
2. Dutta, D.M. & Chatterjee, S.C., 2007 : **An Introduction to Indian Philosophy**, Rupa Publication India Pvt. Ltd., Ansari Road Daryaganj, New Delhi.
3. Hiriyanna M. 2014 : **Outlines of Indian Philosophy**, Motilal Banarasidas Publication Pvt. Ltd., New Delhi.
4. Mohanty, J.N., 1992 : **Classical Indian Philosophy**, Rowman and Littlefield Publishers INL Maryland (U.S.A.).
5. Pandey, S.L., 2008 : **Bhartiya Darshan ka sarvekshana**, Central Publishing House, University Road, Allahabad.
6. Radhakrishnan, S., 2008 : **Indian Philosophy (Vol. I & II)**, Oxford University Press, Ground Floor YMCA Jai Singh Road, New Delhi.
7. Sharma, C.D., 2013 : **Bhartiya Darshan : Aalochan evam anusheelan** , Motilal Banarasidas Publication Pvt. Ltd., New Delhi.
8. Sharma, C.D., 2016 : **A Critical Survey of Indian Philosophy**, Motilal Banarasidas Publication Pvt. Ltd., New Delhi.

## B.A.-I : Paper-II

### WESTERN PHILOSOPHY

**Western Philosophy :** In this course, a student will learn the various thinkers who shaped the form of Western Philosophy.

#### Unit-One

1. **Plato and Aristotle:** Ideas, Substance, Form and Matter, Causation, Actuality and Potentiality.

#### Unit-Two

2. **Rationalism-Descartes :** Cartesian method of doubt, cogito ergo sum, criterion of truth, types of ideas, Proofs for the existence of God, mind-body relation : interactionism.
3. **Spinoza :** Doctrine of substance, attributes and modes, existence of God, Pantheism, parallelism.
4. **Leibnitz :** Monads, truths of reason, truths of facts, innateness of ideas, Doctrine of Pre-established harmony.

#### Unit-Three

5. **Empiricism-Locke :** Refutation of innate ideas, the origin and formation of ideas, simple and complex ideas, substance, modes and relations, nature of knowledge and its degrees, limits of knowledge, primary and secondary qualities.
6. **Berkeley :** Refutation of abstract ideas, Criticism of Locke's distinction between primary and secondary qualities, Immaterialism, *esse-est-percipi*, role of God.
7. **Hume :** Impression and ideas, distinction between judgements concerning relations of ideas and judgements concerning matters of fact, theory of causality, theory of self and personal identity, Scepticism.

#### Unit-Four

8. **Kant :** Conception of critical Philosophy, distinction between a priori and a posteriori judgements, distinction between analytic and synthetic judgements. Possibility of Synthetic a priori judgements. Copernican revolution.

#### Suggested Readings :

1. Connor, D.J.O., 1985 : A Critical History of Western Philosophy, Free Press, Parent Company Simon & Schuster, New York.

2. Ewing, A.C., 2012 : The Fundamental Questions of Philosophy, Routledge & Kegan Paul Ltd. Third Avenue, New York, U.S.A.
3. Falckenberg, R., August 14, 2015 : History of Modern Philosophy, Create Space Independent Publishing Platform, Scotts Vally, Carolina, U.S.A.
4. Kenny, A., 2006 : A Brief History of Western Philosophy, Blackwell Publishing Ltd. Malden, New York, U.S.A.
9. Masih, Y.H., 2017 : A Critical History of Western Philosophy (Greek, Medieval, Modern), Motilal Banarasidas Publication Pvt. Ltd., New Delhi.
5. Pandey, S.L., 2008 : Adhunik Darshan Ki Bhoomika, Sharda Pustak Bhawan Publishers & Distributars, University Road, Allahabad.
6. Scruton, R., 2001 : A Short History of Modern Philosophy from Descartes to Wittgenstein, Routledge Publishers, Prakash Mahal, Ansari Road Daryaganj, New Delhi.
7. Srivastava, J.S., 2012 : Adhunik Darshan ka Vaijnanik Itihas, Kitab Mahal, University Road, Allahabad.
8. Thilly, F., 2018 : A History of Philosophy, SBW Publishers, Prahlad Gali, Ansari Road Daryaganj, New Delhi.
9. Wright, W.K., 1952 : A History of Modern Philosophy, Macmillan Company, Mumbai.

### **B.A.-II**

There shall be Two papers Ethics and Logic (Indian) or Logic (Western) Consisting of 80 Marks each paper as Theories and 20 Marks for Assignments, Project, Seminar (10 Marks), Attendance (10 Marks) in both papers. Paper II will have to be optional i.e. Logic (Indian) or Logic (Western). Both the papers aim the general awareness and their behavioural applications.

### **Paper-I**

### **ETHICS (INDIAN & WESTERN)**

**Ethics :** This course introduces the idea of Ethics and its relevance to society. In this paper a student studies some of the prominent theories related to ethics.

### **Unit-One**

1. The Ethics of Bhagwadgita.
2. Purusārthas and their inter-relations.



3. Meaning of Dharma, Concept of Rna and Rta : Classification of Dharma : Sāmānya dharma, Visesadharna, Sādhāranadharna.

#### **Unit-Two**

4. The general features of Jain and Buddhist ethics.
5. The Ethics of Gandhi.

#### **Unit-Three**

6. Nature and Scope of Ethics
7. Postulates of morality, problem of free will and determinism
8. Moral and Non-Moral actions, Object of Moral Judgement-Motive and Intention, ends and means
9. Value as a standard of morality.

#### **Unit-Four**

10. Standards of Morality : Hedonism-Ethical, Psychological, Utilitarianism : Bentham and Mill.
11. Intuitionism, Butler's theory of conscience as the ultimate standard of moral judgment
12. Kant's Ethical Theory.
13. Crime and Theories of Punishment : Corruption and Capital punishment.

#### **Suggested Readings :**

1. Dasgupta, Surama, 1994 : Development of Moral Philosophy in India, Munshiram, Manoharlal Publication, Motia Khan Jhandewala, New Delhi.
2. Frankena, W., 1998 : Ethics, Publishers Pearson, New Delhi.
3. Hospers, J., 1995 : Human Conduct, Cengagi Learning Indian Pvt. Ltd. 7<sup>th</sup> Floor at Fusion Square, Sector 126, Noida.
4. Mackenzie, J.S., 2010 : A Manual of Ethics, Nabu Press.
5. Maitra, S.K., 1963 : The Ethics of the Hindus, Calcutta University Press, Senate House, Calcutta.
6. Pandey, S.L., 1992 : Neetishashtra ka Sarvekshana, Central Publishing House, University Road, Allahabad.
7. Satyanaryana, Y.V., 2009 : Ethics-Theory and Practice, Publishers Pearson, New Delhi.
8. Shaida, S.A., 2003 : Problems of Ethics : Spectrum Publications, Delhi.

9. Sharma, I.C., 1965 : Ethical Philosophies of India, Johnsen Publishing, U.S.A.
10. Tewari, K.N., 1998 : Classical Indian Ethical Thought, Motilal Banarasidass, New Delhi.
11. Verma, Ved Prakash, 1991 : Neetishashatra ka Mool Siddhant, Hindi Madhyam Karyanwayan Nideshalaya, New Delhi.

### **B.A.-II : Paper-II**

### **LOGIC (INDIAN) OR LOGIC (WESTERN)**

#### **LOGIC (INDIAN)**

**Logic :** This course introduces the logic and the various concepts and theories related to logical reasoning.

#### **Unit-One**

1. Indian Logic : Definition, nature and scope.
2. Nature of knowledge.
3. Prama and aprama

#### **Unit-Two**

4. Pramana : Nature and its different kinds
  - (i) Perception according to Nyaya.
  - (ii) Inference : according to Nyaya, Buddhism & Jainism.
  - (iii) verbal testimony, Upamana, Arthapatti and Anupalabhdhi.

#### **Unit-Three**

5. Pramanayavad : Parath & svatah pramanayavad.

#### **Unit-Four**

6. Khyativada : Theory of error.

or

### **LOGIC (WESTERN)**

#### **Unit-One**

1. Logic and Arguments, Deductive and Inductive Arguments, Truth and Validity.
2. Functions of language, Definition, Informal Fallacies.
3. Categorical propositions and classes : quality, quantity and distribution of terms, translating categorical propositions into standard form.

### Unit-Two

4. **Immediate inferences** : Conversion, Obversion and Contraposition, Traditional Square of opposition and Immediate Inferences.
5. **Categorical Syllogism** : Standard Form categorical Syllogism; The Formal nature of Syllogistic Argument, Rules and Fallacies.
6. Boolean Interpretation of categorical propositions; Venn Diagram Technique for Testing Syllogisms; Hypothetical and Disjunctive Syllogisms, Enthymeme, The Dilemma.

### Unit-Three

7. **Induction** : Argument by Analogy, Appraising Analogical Arguments, Refutation by Logical Analogy.
8. **Causal, Connections** : Cause and Effect, the meaning of "Cause", Induction by Simple Enumeration; Mill's Methods of Experimental Inquiry, Criticism of Mill's Methods.
9. **Symbolic Logic** : The value of special symbols; Truth-Functions; Symbols for Negation, Conjunction, Disjunction, Conditional Statements and Material Implication.

### Unit-Four

10. Tautologous, Contradictory and Contingent Statement-Forms; the Three Laws of Thought.
11. Testing Argument Form and Argument; Statement-Form and Statement for Validity by the Method of Truth-table.
12. Science and Hypothesis : Scientific & unscientific explanation Criteria of hypothesis.

### Suggested Readings :

1. Barlingay, S.S., 1976 : A Modern Introduction to Indian Logic, Orient Book Distributors, New Delhi.
2. Chadraborty, Chhanda, 2006 : Logic : Informal, Symbolic and Inductive, Publishers Prentice Hall of India Pvt. Ltd., Patparganj, Industrial Area, New Delhi.
3. Chatterjee, S.C., 2015 : The Nyaya Theory of knowledge, Rupa Publication, Ansari Road, Daryaganj, New Delhi.

4. Cohen & Nagel, 2008 : Introduction to Logic and Scientific Method, Publisher Read Books, India.
5. Copi, I.M. & Cohen, C., 2014: Introduction to Logic, Routledge Ansari Road, New Delhi.
6. Maitra, S.K., 1956 : Fundamental Questions of Indian Metaphysics & Logic, Chakraverty, Chatterjee & Co. Ltd., 15 College Square, Calcutta.
7. Pandey, S.L., 1988 : Jnana, Mulya evam Sat, Central Publishing House, University Road, Allahabad.
8. Pathak, Ram Murti, 2004 : Tarkashashtra, Abhivyakti Prakashan, University Road, Allahabad.
9. Seth, S.K., 2005 : Tarkshastra, Asia Prakashan, University Road, Allahabad.
10. Shastri, Kuppaswami, 1951 : A Primer of Indian Logic, KSRI Mylapoore, Madras.

### **B.A.-III**

**Note :** There shall be three papers Problems of Philosophy (Indian & Western), Philosophy of Religion and Social and Political Philosophy consisting of 80 marks each paper as theories and 20 marks for Assignments, Project, Seminar (10 Marks), Attendance (10 Marks) all three papers. These papers aim the general awareness and their behavioral application.

### **Paper-I**

#### **PROBLEMS OF PHILOSOPHY (INDIAN & WESTERN)**

**Problems of Philosophy :** This course focuses on the various problems of Philosophy (Indian and Western) and theories related to Philosophy.

#### **Part-I**

#### **Unit-One**

1. The main problems of Indian Philosophy. Problem regarding creation and theories regarding this-Materialism, Parmanukaranvada, Prakritiparinamvada, Mayavada, Brahma Parinamvada.
2. Problems of Causality and Theories regarding this : Satkaryavada, Asatkaryavada Pratityasamutpadvada, Parinamvada, Vivartvada.

#### **Unit-Two**

3. Problems regarding Atman (soul) and theories regarding this : Bhutachaitanyavada, Anatmavada, Anekantavada, Ekatmvada.
4. Nature of Reality : Monism, Dualism, Pluralism

## Part-II

### Unit-Three

5. Problems of substance, attribute, mode, relation, idealism, realism & phenomenalism.
6. Nature and source of knowledge : rationalism, empiricism, criticism and intuitionism : apriori and a posteriri.
7. Theories of Truth-Correspondence theory, Coherence theory and Pragmatic theory.

### Unit-Four

8. Problems regarding space, time and causality. (Newlon, Leibnitz, Hume and Kant).
9. Creationism & Evolutionism-Problems of Creationism, Theories of Evolutionism : Creative Evolutionism (Bergson), Emergent Evolutionism (Alexander), Evolutionism of Aristotle and Hegel.
10. Problem and criteria of personal identity and other minds.

#### Suggested Readings :

1. Ayer, A.J., 1991 : The Central Questions of Philosophy, Publishers Penguin (U.K.) 1991.
2. Bhattacharya, H.M., 2002 : Principles of Philosophy, Calcutta University, Calcutta.
3. Chatterji, S.C., 2008 : Nyaya Theory of knowledge, Bharatiya Kala Prakashan, Trinagar Narang Colony, New Delhi.
4. Datta, D.M., 1997 : Six Ways of Knowing, Motilal Banarasidas Pvt. Ltd, New Delhi.
5. Ewing, A.C., 2012 : Some Fundament questions of Philosophy, Routledge & Kegan Paul Ltd. Third Avenue, New York.
6. Maitra, S.K., 1956 : Fundamental Questions of Indian Metaphysics & Logic, Chakraverty, Chatterjee and Co. Ltd. 15, College Square, Calcutta.
7. Pandey, S.L., 1984 : Jnana Mimamsa ke goodha prashna, Asia Prakashan, University Road, Allahabad.
8. Pandey, S.L., 1988 : Bhartiya Darshan ka Sarvekshana, Central Publishing house, University Road, Allahabad.

9. Prasad, Rajendra, 1989 : Darshan Shashtra ki Rooprekha, Publishers Shukla Book Depo, Patna.
10. Raja, K.C., 1974 : Some Fundamental Problems of Indian Philosophy, Motilal Banarasidas Pvt. Ltd, New Delhi.
11. Russell, B., 1990 : Problems of Metaphysics, Hackett Publishing Company Massachusetts, U.S.A.
12. Srivastava, Chandra Prakash, 1993 : Darshan ki Pramukh Samasyayein, Neelkamal Prakashan, Bakshipur, Gorakhpur.
13. Tripathi, R.K., 1971 : Problems of Philosophy and Religion, Published by Banaras Hindu University, Varanasi, U.P.
14. Upadhyay, H.S., 2006 : Jnana mimamsa ke mool prashna, Sharada Pustak Bhawan, University Road, Allahabad.
15. Woozley, A.D., 2015 : Theory of Knowledge, Routledge & Kegan Paul Ltd. Third Avenue, New York.

### **B.A.-III : Paper-II**

#### **PHILOSOPHY OF RELIGION**

**Philosophy and Religion :** In this course, the focus is on the various philosophies and theories related to religion and their relevance.

#### **Unit-One**

1. Nature and scope of Philosophy of Religion, Religion, Science and Morality.
2. Foundations of Religious belief : Reason, Revelation, Faith and mystical experience.

#### **Unit-Two**

3. The general features of Hindum, Jain, Bauddha, Islam and Christianity.
4. Religious Pluralism and the problem of Absolute Treeth.

#### **Unit-Three**

5. Arguments for the existence of God : Cosmological, Teleological moral and Ontological arguments, Nyaya arguments.
6. Immortality of soul, transmigration and doctrine of karma, Destiny of soul : salvation and moksha, pathways of moksha-karma, bhakti and jnana.
7. The problem of evil and its solutions.

#### **Unit-Four**

8. Nature of Religious Language : Analogical and Symbolic, Cognivist and Non Cognitive.

9. Religious tolerance, conversion, secularism and meeting points of all religions.

**Suggested Readings :**

1. Chatterjee, S.C., 1950 : The Fundamentals of Hinduism-A Philosophical Study, Calcutta.
2. Hick, J., 1991 : Philosophy of Religion, PHI Learning Pvt. Ltd. Patparganj Industrial Area, New Delhi.
3. Davies, Brian, 3<sup>rd</sup> Ed. (2004) : An Introduction to the Philosophy of Religion, Oxford University Press, New York.
4. Chatterjee, P.B., 1996 : Comparative Religion, Ramkrishna Mission Institute of Culture, Kolkata.
5. Bhattacharya, H.D., 2<sup>nd</sup> Ed. 1994 : Foundations of Living Faith, Motilal Banarasidass, New Delhi.
12. Verma, Ved Prakash, 1991, Dharma Darshan ke Mool Samashyayein, Hindi Madhyam Karyanwayan Nideshalaya, New Delhi.
6. Masih, Yakub, 1997 : Dharma Darshan, Motilal Banarasidass, Varanasi.

**B.A.-III : Paper-III**

**SOCIAL AND POLITICAL PHILOSOPHY**

**Social and Political Philosophy:** This course enquires into the social and political aspects of Philosophy especially in the context of Indian Society.

**Unit-One**

1. Nature and Scope of Social and Political Philosophy.
2. Individual, Society and State.
3. Social and Political Ideals : Equality, liberty and Justice, Rights and Duties.

**Unit-Two**

4. Tradition, change and modernity with special reference to Indian Social institutions.
5. Gender Discrimination : Female Foeticide, Land and Property Rights, Empowerment and Caste discrimination.

**Unit-Three**

6. Political ideologies : democracy, socialism, Marxism, Communism and Gandhism.
7. Humanism, Secularism and multi-culturalism, Feminism.

#### **Unit-Four**

8. Means of political action : constitutionalism, revolutionism, terrorism, satyagraha.

#### **Suggested Readings :**

1. Agrawal, Rajyashree, 2006 : Darshan, Manav evam Samaj, Madhya Pradesh Hindi Granth Academy, Bhopal.
2. Joad, C.E.M., 1948 : Guide to Modern Thought, Publishers Feber & Feber, London.
3. Joad, C.E.M., 1953 : Introduction to Modern Political Theory, Oxford University Press, London, U.K.
4. Mackenzie, J.S., 2003 : Outlines of Social Philosophy, George Allen and Unwin Ltd. London.
5. MacIver, R.M. & Page, 2014 : C.H. Society, Trinity Press, Golden House, Daryaganj, New Delhi.
6. Pandey, S.L., 1984 : Samaj Darshan ki ek pranali, Asia Prakashan, University Road, Allahabad.
7. Raphael, D.D., 1990 : Problems of Political Philosophy, Macmillan Press Ltd. Hampshire, London.
8. Singh, Shiv Bhanu, 2008 : Samaj Darshan, Sharada Pustak Bhawan, Publishers & Distributors, University Road, Allahabad.
9. Singh, Shiv Bhanu, Shukla, S.K. 2009 : Critique of Justice, Published by Philosophy Deptt. Ewing Christian College, Allahabad.

Head  
Department of Philosophy,  
D.D.U. Gorakhpur University,  
Gorakhpur, (U.P.)



⑥ दीनदयाल उपाध्याय गोरखपुर विश्वविद्यालय गोरखपुर  
इतिहास

**DeenDayalUpadhyay Gorakhpur University,  
Gorakhpur**

**Department of Medieval & Modern History**

**Proposed Syllabus of History**

**(Medieval & Modern)**

**(Under Common Minimum Syllabus Programme)**

**DEPARTMENT OF HISTORY**

**EVALUATION**

**PAPERS**

**(80+20) in each**

**B.A I**

**paper**

- I History of India (1206 A.D. to 1605 A.D.)**
- II Rise of Modern West (15<sup>th</sup> Century to French Revolution)**

**BA II**

- I History of India (1605-1857)**
- II History of Europe : Napoleon to First World War**

**BA III**

- I Transition from Medieval to Modern India & Readings from Archives**
- II- Indian National Movement (1885-1947)**
- III History of Modern World (1919-1945)**

**DeenDayal Upadhyay Gorakhpur University, Gorakhpur**

**Department of Medieval & Modern History**

**Proposed Syllabus of History (Medieval & Modern)**

**(Under Common Minimum Syllabus Programme)**

Proposed syllabus is designed on the core issues of Indian History, as introduced by UGC and spirit of the directives as suggested by U.P. State Coordination Committee on Common Minimum Syllabus programme in the State of Uttar Pradesh in HEI's

There shall be seven papers of History in the graduate programme of the University, widely covering Indian History (1206 A.D- 1947), History of Europe (15<sup>th</sup> century to First World War) and Modern World (Between the Two Great Wars). Each paper will be divided into four units and total number of units to be covered will be twenty eight. It will be mandatory that each unit shall be covered in the annual examination of each year.

Examining process will be yearly based along with continuous evaluation system. 80% of the marks will be allotted through annual examination system and 20% shall be allotted on the basis of continuous evaluation system. Continuous evaluation can be in the form of Assignments, Projects etc.

**An Introduction:** The proposed syllabus covering Indian History from 1206 A.D. to 1947 A.D. is being designed in such a manner that student at graduate level should develop a comprehensive understanding of affairs in contemporary times, not only in proximity of Delhi but in other parts of the country also. Thus, a sizeable vital portion of Indian affairs at various levels has been included as a core part of the syllabus, with special emphasis on the history of National movement. Other than Indian History, this syllabus covers core issues of European History and World affair between the two great wars. A special unit in the first paper of the final year, with aim of developing professional skills of a student graduating in History has been designed, as per guidelines of the Committee.

## Syllabus of History (Medieval & Modern)

### B.A.Part-I

#### Paper- I-History of India (1206 A.D. to 1605 A.D.)

*This paper is designed to develop the understanding of India with the advent of Timurs, Afghans and subsequently the establishment of Mughal rule in parts of India. An emphasis has been laid to cover the regions of India not under the domination of Timurs/Afghans and Mughals in India. This paper covers the territorial expansion of various kings and impact of Medievalism on Indian society and culture. The paper has four units, each divided into five subunits.*

#### Unit-I : The Delhi Sultanate.

20 marks

- i) India on the eve of 11<sup>th</sup> century and advent of Islam : invasions of Mohammad Ghazni and Mohammad Ghori
- ii) The Early Turks and Khaljis : Foundation of Sultanate and Administration.
- iii) The Tughlaqs and invasion of Timur
- iv) The Afghan rule: Lodis and Surs , administrative measures with special reference to Sher Shah Suri.
- v) Other Dynasties: with special reference to Assam, Vijayanagar and Jaunpur : Society, Culture and administration.

#### Unit-II : Establishment and Expansion of Mughal Rule.

20 marks

- i) India on the eve of Babur's invasion and Babur a fugitive from Central Asia
- ii) Establishment of Mughal rule under Babur: Wars
- iii) Humayun: His problems, weakness and expulsion from India
- iv) Akbar: His early conquests, administrative reforms
- v) Akbar: His policies- Religious, Rajputs, Akbar and Maharana Pratap and Deccan.

#### Unit-III- Society in Medieval India (1206-1605)

20 marks

- i) The Hindu Society : Varna, Jati and occupational groups
- ii) The Muslim Society: Nobility and common man
- iii) The Indian Muslims: customs , the Indian impact and Islam in India
- iv) Customs, rituals and beliefs of the Hindus
- v) Customs rituals and beliefs of the Muslims

**Unit-IV : Culture in Medieval India (1206-1605)**

**20 marks**

- i) Development of Hindi and Persian Literature
- ii) Development of Architecture under Sultans and Mughals
- iii) Development of Painting under Mughals : Indigenous and Western impact
- iv) Indigenous Paintings : Rajput and Pahari Qalam
- v) Indigenous Cultural achievements under the rulers of Rajputana, Vijayanagar and Bengal provincial style.

**Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

**Recommended Books :**

- Digby, Simon : (1971), War Horses and Elephants in the Delhi Sultanate, Oxford University Press
- Edwards and Garrett : (1962) Mughal Rule in India (relevant chapters), India. S.chand& co.
- Habib, Mohammad and K.A. Nizami, ed, (1992), Comprehensive History of India, Vol. V, The Delhi Sultanate. India, People's Publishing House; Second edition
- Kulke, Herman (ed.) (1995), The state in India (1000-1700), *New York and Delhi: Oxford University Press*
- Majumdar, B.P.: (1960), Socio-economic History of northern India, Calcutta, Firma, K.L. Mukhopadhyay
- Nigam, S.B.P.: (1968), Nobility under the sultans of Delhi, Delhi, MunsiramManoharlal
- Prasad, Iashwari : (1940), Medieval India (English or Hindi Version) Delhi, Indian Press.
- Roy, S.C.: (1935) Dynastic History of Northern India, Calcutta, Calcutta University Press
- Sharma, S. R : (2005) Crescent in India (English or Hindi Version) Delhi, Bhartiya kala Prakashan
- Singh, Dilbag : Structure of rural Society in Medieval India
- Srivastav, A.L. : (2017), Delhi Sultanate (English or Hindi Version) India, Shivalal Agarwal & co.
- Srivastava, A.L. : (2017), The Mughal Empire (English or Hindi Version) India, Shivalal Agarwal & co.
- Tripathi, R. P. : (2012), Rise and Fall of the Mughal Empire (English or Hindi Version), Delhi, Surjeet Publications
- Yadav, B.N.S.: (2012), Society and culture in North India in the 12<sup>th</sup> century, India, RakaPrakashan
- श्रीवास्तव, आर्शावादीलाल : (2017), भारतवर्षका इतिहास 1000 से 1907, शिवलालअग्रवाल एण्ड कम्पनी, दिल्ली
- पाण्डेय, अवध बिहारी : (1988) पूर्व मध्यकालीनभारत, इलाहाबाद, सेन्ट्रलबुकडिपो
- पाण्डेय, अवध बिहारी : (1988) उत्तर मध्यकालीनभारत, इलाहाबाद, सेन्ट्रलबुकडिपो

## Syllabus of History (Medieval & Modern)

### B.A.Part-I

#### Paper- II-Rise of Modern West (15<sup>th</sup> Century to French Revolution)

*This paper is designed to develop the understanding of Modern Europe from a theocratic society to modern Nation-State system .Renaissance and its aftermaths on European society, economy, polity and culture and above all breaking of Roman Catholic Church leading to subsequent development of Nation-State and emergence of new ideologies culminating in the form of French Revolution which is supposed to be the last nail in the Medieval coffins and first cradle of Modern times in European context.*

#### Unit-I : Renaissance Years

20 marks

- i) Political and Religious structure of Europe in the early 15<sup>th</sup> Century and fall of Constantinople.
- ii) Renaissance : Role of City States, spread of Humanism, Renaissance Art & Architecture
- iii) Breaking of Theocracy: Reformation & Counter Reformation
- iv) Religious Warfare's: The Thirty Years War, Edict of Nantes
- v) Voyages, Explorations , Rise of Mercantilism and Colonialism.

#### Unit- II- Age of Absolutism

20 marks

- i) Predominance of Spain and Hapsburgs
- ii) Predominance of France and Bourbons
- iii) British Expansions
- iv) Conflict in Germany and expansion of Russia
- v) Emergence of Nation-State system

#### Unit- III- Scientific Revolution & Enlightenment.

20 marks

- i) The Scientific Revolution
- ii) Foundations of Enlightenment
- iii) New Philosophies

- iv) Glorious Revolution in England
- v) The Growth of Parliamentary system in England

#### **Unit-IV – French and Industrial Revolution**

**20 marks**

- i) Ancien Regime of France
- ii) French Revolution : Nature & Results
- iii) Effects of French Revolution on Europe
- iv) Mercantilism and Transition to Feudalism
- v) Prelude to Industrial Revolution.

#### **Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

#### **Books Recommended :**

- Acton : (1906), Lectures on Modern History, London, Macmillan and co. Limited
- Fisher, H. A. L. : (1938), History of Europe (relevant portion only), London, Eyre and spottiswoode
- Hayes, C.J.H. : (1936), A Cultural and Political History of Europe (Vol.1) (1500 – 1830), London, Macmillan
- Hazen, C.D. : (1937), A History of Europe in Modern Times, Henry Holt and Company
- Phukan, Meenaxi : (2012) Rise of Modern West, Trinity Press Pvt. Ltd.
- Schevil : (1898) History of Modern Europe (Hindi or English), Charles Scribners sons
- सिंह, हीरालाल एवंरामवृक्ष सिंह : (2011) आधुनिक यूरोपका इतिहास (1453 – 1789), इलाहाबाद, स्टूडेन्ट्सफेण्ड्स
- वर्मा, लालबहादुर : (1998) यूरोपका इतिहास (पुर्नजागरण से क्रान्ति तक), नईदिल्ली, प्रकाशनसंस्थान

## Syllabus of History (Medieval & Modern)

### B.A.Part-II-Paper- I- History of India (1605-1857)

*This paper is designed to cover the history of India from Medieval to Modern times. This era of Indian history witnesses the transfer of power from Mughals, Other provincial important dynasties to East India company. It covers the study of Indian resistance at various levels and finally culminates in the First War of Independence. This is an important era of Indian History, as it witnesses the rise of indigenous powers like Marathas and Sikh State, along with new regional identities.*

#### Unit-I- Times of Jahangir, Shahjahan and Aurengzeb

20 marks

- i) Mughal Administration under Jahangir & Shahjahan, ideology of Dara Shikoh
- ii) Aurengzeb : His policies and their consequences, Impact and destabilizing of the Mughal rule.
- iii) Regional powers under Aurengzeb
- iv) Development of Art & Architecture (1605-1707)
- v) Economic, Cultural and Social life from (1605-1707)

#### Unit-II- Rise of New States

20 marks

- i) Causes for the downfall of Mughals
- ii) Rise of Marathas under Shivaji
- iii) Maratha Administration, Concept of Hindu Pad - Padshahi- The Maratha State
- iv) Expansion of Maratha Kingdom under Peshwas and Maratha Confederacy
- v) Administration , Social & Economic conditions under Marathas and causes for the downfall

#### Unit-III-Rise of New States and Advent of Europeans

20 marks

- i) Rise of Punjab under Ranjit Singh: conquests and administration.
- ii) Rise of Bengal, Avadh ,Hyderabad and Mysore in 18<sup>th</sup> century
- iii) Political conditions in South India: Cochin & Travancore
- iv) Arrival of European Companies : Rivalry for control
- v) Ascendancy of English East India Company: Buxar and Plassey and its effects

#### Unit- IV- Era of Colonization

20 marks

- i) Territorial Expansion of East India Company : 1770-1813
- ii) Territorial Expansion of East India Company : 1813-1856



- iii) Development of Administration under East India Company: 1770-1856
- iv) Resistance: Some Peasant Revolts in 19<sup>th</sup> century: Deccan, Indigo and Pabna uprising
- v) First War of Independence : Causes & Nature

**Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

**Books Recommended:**

- Banerjee, A. C. : (1983) *The New History of Modern India (1707-1947)*, Calcutta, K. P. Bagchi
- Bayly, C.A.: *An illustrated History of Modern India 1600-1947*, London 1990
- Chabra, G.S: (1989)*Advanced History of Modern India, Stearling Publication*
- Chandra, Satish : *Uttar Mughal Kalin Bharat*
- Desai, A. R. (1948) *Social Background of Indian Nationalism* , Mumbai, RamdasjiBhatakai, Popular publication.
- Desai, A.R. : (1984)*India's Path of Development* , Mumbai, Popular publication.
- Dodwell : (1925) *A Sketch of the History of India* , London, Longman's Green and co.
- Dutt, R.P.: (1930) *India Today* , Read Country Book
- Dutta, K.K. : (1975)*Social History of Modern India* , Delhi, Macmillan publication
- Freedenberg, R.E. : (1912)*Land Control and Social Structure in India*
- Grover, B. L.: () *A New look on Modern Indian History*
- Jain, M. S.: (1993)*Aadhunik Bharat varshikaltihis*, New Age International Ptd Ltd
- Jeffery, R., *JMasseloss: From Rebellion to the Republic.*
- Lal, Sunder : (2018)*Bharat mei Angreji Raj* , Prabhat Publication
- Majumdar, Dutta and Ray Chowdhury (ed.) (1967)*Advanced History of India 3 vols. Macmillan Publication*
- Metcalf, Barbara D and T.R. Metcalf : (1995)*A Concise History of India*, Cambridge, 2002
- Metcalf, Thomas : (1995) *Ideologies of the Raj* , Cambridge University.
- Mishra, B.B. : (1972) *Administrative History of Modern India*, Oxford University Publication
- Mishra, J. P.: *Aadhunik Bharat kaltihis*, Uttar Pradesh Granth Academic ,Prabhag
- Mittal, S.C. : ()*Bharat KaSaamajikaurAarthikltihis (1758-1947)*
- Muir, Ramsay : (1969)*The Making of British India* , Oxford University Press
- Prasad, Ishwari&Subedar: (1951) *History of Modern India (English or Hindi)* , Indian Press
- Roberts, P.E. And Spear : (1931) *History Of British India (English Or Hindi)*, London, Oxford University Press
- Sarkar, Sumit : (1993)*Adhunik Bharat (Hindi)*, Delhi, RajkamalPrakashan
- Sarkar, Sumit : *Modern India 1885 ñ 1947*, Macmillan, 1983
- Sen, Sunil, K. : (1979)*Agrarian Relations in India, 1793-1947*, People's Publication House
- Shukla, R.L. (ed.) :*Adhunik Bharat Kaltihis(Hindi)*, Delhi University Publication
- Singh, G.N.(1963) *Constitutional Development in Modern India, Punjab* , Atma Ram
- Stein, Burton : (1992)*The Making of Agrarian Policy in British India, 1770-1900* , Oxford University Press
- Thompson & Garret : (1934) *Rise and Fulfilment of British Rule in India.*, Originally Published

## Syllabus of History (Medieval & Modern)

### B.A.Part-II-Paper- II- History of Europe : Napoleon to First World War

*This paper is designed to introduce the student regarding rapid changes which occurred in Europe. Special emphasis is laid on the positioning of Nationalities and the rise of new order defying the traditional theory of kingship. This is era of new ideologies leading to the First World War to which a student of history must be introduced with*

#### Unit-I- Rise of New Nationalism in Europe

20 marks

- i) National Assembly : its works and new administration in France
- ii) Failure of Directory and rise of Napoleon Bonaparte as Consul
- iii) Counter Revolution and Napoleon : His Foreign policy, Continental System and Internal reforms
- iv) Downfall of Napoleon and Age of Reactionism, Congress of Vienna
- v) Metternich : Age of Reactionism

#### Unit-II- Age of Revolutions and Rise of New Nations

20 marks

- i) Revolutions of 1830 & 1848
- ii) Counter Revolution and Rise of Napoleon III in France; His internal & External policies
- iii) Unification of Germany under Prussia
- iv) Unification of Italy
- v) Russia & problems of Eastern Nationalities

#### Unit- III-International Relations : New Era

20 marks

- i) Germany : Balance of Power- Congress of Berlin, Creation of Alliance, Internal policies of Bismarck
- ii) The Crumbling Ottoman Empire: rise of new Nationalities
- iii) Third French Republic: its problems and foreign affairs, creation of Entente
- iv) British Policy of 'Splendid Isolation' and causes for leaving it.
- v) Communism in Russia: The Bolshevik Revolution

#### Unit – IV- Road to the First World War

20 marks

- i) Imperialist disputes and clashes

- ii) Circumstances leading to First World War
- iii) Role of United States in the First World War
- iv) Role of Japan in the First World War
- v) Main events and defeat of Alliance powers.

**Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

**Books recommended:**

- Grant & Temperley : Europe in the Nineteenth and Twentieth Centuries.
- Hayes, C. J. H. : A Political and Cultural History of Europe, 1830-1839.
- Ketelbey, C.D.M. : A History of Modern Times (English or Hindi)
- Lipson : Europe in the Nineteenth and Twentieth Centuries.
- भटनागर एवं गुप्ता : आधुनिक यूरोपका इतिहास (भाग दो)
- लाल, के. एस. : आधुनिक यूरोपका इतिहास (भाग दो)
- वर्मा, लालबहादुर : (1998) यूरोपका इतिहास (भाग दो), नई दिल्ली, प्रकाशन संस्थान

## Syllabus of History (Medieval & Modern)

### B.A.Part-III-Paper- I- Transition from Medieval to Modern India & Readings from Archives

*In context of Indian History, the socio-economic changes occurred from Medieval ages to Modern is the core base of this paper. A new unit has been introduced in this paper to underline the professional use of History in contemporary times.*

#### Unit-I- Survey of Socio-Economic life in North India

20 marks

- i) Socio-Economic conditions of North India on the eve of Turkish invasion
- ii) Socio-Economic changes from 12<sup>th</sup> to 16<sup>th</sup> centuries, with special reference to Sufism and its impact
- iii) Bhakti Movement- in ancient India, early medieval South India & re-strengthening in North India in medieval times
- iv) Rise of Sikhism and other sects in Bengal, South & Kashmir in medieval times
- v) Social background of the emergence of Maratha State & its impact on regionalism and growth of regional powers during Mughal period

#### Unit- II – Social Life in Medieval India & 19<sup>th</sup> Century Reforms

20 marks

- i) The private and public life of Sultans & Mughal Kings
- ii) The Imperial Court and Court life in Mughal Era
- iii) The Clergy (Ulema) and its impact on Medieval State & Society
- iv) Socio-Religious reform movement in 19<sup>th</sup> century: BrahmoSamaj, Arya Samaj, Ramakrishna Paramhans Mission and Vivekanada
- v) Aligarh Movement & Ahmadia Movement

#### Unit-III- Economic Life in Medieval & Modern India

20 marks

- i) Land Revenue Administration during Sultnate period
- ii) Land Revenue Administration during Mughal period
- iii). Land Revenue Settlements under the British Rule: Permanent Settlement, Ryotwari Settlement & Mahalwari Settlement
- iv) Trade and Commerce during Medieval India

- v) Railways and Modern Banking during British Rule

**Unit- IV- History and its Professional Utility**

**20 marks**

- i) Use of Archives, Libraries & Museums
- ii) Tourism for Architectural Monuments
- iii) Local Heritages, Temples & Shrines
- iv) Use of History in Journalism- Print & Electronic Media
- v) A History of development of Science & Technology in India- a general survey

**Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

**Books Recommended:**

- Ali, M. Athar: (2001) *Mughal Nobility under Aurangzeb*, New York, Oxford University Press
- Asraf, K.M.: (1959) *Life and condition of the people of Hindustan*, Gyan Published House
- Bhandarkar, R.G.: (1895) *Early History of the Deccan*, Asian Educational Service
- Brown, Percy: *Islamic Architecture*.
- Chaube, Jharkhande : (2015) *MadhayayuginBhartiyaSamajevamSanskriti (Hindi)* ,Lucknow, U. P. Hindi Sansthan
- Chopra Puri and Das : (2011) *A Social Cultural and Economic History of India Vols. I, II and III (Eng. or Hindi)* ,London , Macmillan India Limited
- Chopra, P. N. : (1955) *Some Aspect of Social life during the Mughal Age. (1526 – 1707)*, Agra, Shiva Lal Agarwal
- Digby, Simon, *War Horses and Elephants in the Delhi Sultanate*.
- Edwards and Garrett: *Mughal Rule in India (relevant chapters)*
- Farquhar, J. N. : (1915) *Modern Religious Movements in India*, Okley Press
- Gordon, Stewart (1993) *The Marathas 1600-1818*, Cambridge University Press
- Gordor, Stewart: *The Marathas*
- Habib, Irfan : (2001) *Agrarian System of Mughal India*, India ,OUP
- Husain, Yusuf : (1959) *Medieval India Culture (Eng. or Hindi)* , Asia Publication House
- Karashima, Nobora: (1985) *South Indian History and Society*India ,OUP
- Kulke, Herman (ed.) (1998) *The state in India (1000-1700)*, India ,OUP
- Kumar, D.: (2008) *The Cambridge Economic History of India*, Cambridge University Press
- Mahalingam, T.V.: (1967) *South Indian Polity*, University of Madras.
- Majumdar, B.P.: (1960) *Socio-economic History of northern India*, Firma K.L Mukhopadhyay
- Majumdar, R. C. : (1963) *British Paramountcy and Indian Renaissance (Part-I)*, Bombay ,  
BhartiyaVidhyaBhavan
- Marshall, P.J.: *The Eighteenth Century in Indian History.*, New York, Oxford University Press
- Nigam, S.B.P.: (1968) *Nobility under the sultans of Delhi*, Delhi, MunshiramManoharlal

- Pandey, Avadh Bihari : (1969)MadhyakalinshashanAurSamajAllahabad, Indian University Press
- Prasad, Iashwari : () Medieval India (English or Hindi Version)
- Roy, H.C.: (1935)Dynastic History of Northern India, Calcutta, Calcutta University Press
- Sarkar, J.N. : (1987)Mughal Economy, Nya Prokash
- Sharan, P.: (1973)Provincial Government of the Mughal , Asia Publishing House
- Sharma, S. R.: Crescent in India (English of Hindi Version)
- Shastri, K.A.N.: (1997)A History of South India, , New York, Oxford Univesity Press
- Siddiqui, I.H.: (1966)Afghan Despotism., Indian Institute of Islamic Studies
- Singh, Dilbag: (1975)Structure of rural Society in Medieval India , IHR
- Srivastav, A.L.: (1970) The Mughal Empire (English or Hindi Version) , Agra , Shiva Lal Agarwal and Co.
- Stein, Burton :(2005)New Cambridge History of India: Vijayanagara., New York, Oxford Univesity Press
- Stein, Burton: (1966)Essay on South Indian History, New York, Oxford Univesity Press
- Talbot, Cynthia :((2001) Pre-colonial India in Practice., New York, Oxford Univesity Press
- Tripathi, R. P. : (1936) Some Aspect of Muslims Administration , Allahabad, The Indian Press
- Tripathi, R.P.: (1963)The Rise and fall of the Mughal Empire, 2 vol, Allahbad, Central Book Depot
- Veluth, Kesvan(2012) Political Structure of Early Medieval South India, Oriented Blackswan Private Ltd
- Yadav, B.N.S.: (2012)Society and culture in North India in the 12<sup>th</sup> century, RakaPrakashan

## Syllabus of History (Medieval & Modern)

### B.A. Part-III-Paper- II- Indian National Movement (1885-1947)

*This paper is designed to cover the history of India's struggle for freedom from later nineteenth century to independence. The paper covers the history of Freedom Movement in a manner that each section, which played a vital role in independence of the country is introduced to the student.*

#### Unit-I- Rise of Nationalism

20 marks

- i) Theories of Nationalism
- ii) Nation & Nation- State : Views of Gandhi, Tagore, DeenDayalUpadhyay and Ambedkar
- iii) Factors leading to growth of Nationalism in India
- iv) Early phase: The ideology of Moderates with special reference to Gokhale
- v) Extremist phase : The ideology of Extremists with special reference to Tilak and Aurobindo.

#### Unit-II- From Swadeshi to Home Rule

20 marks

- i) Concept of Swadeshi, Swadeshi Movement & Congress Split at Surat
- ii) Rise of Muslim League: Demands and Programmes
- iii) First World War: Lucknow Pact, Home Rule Movement
- iv) Entry of Gandhi: Regional Movements, RowlattSatyagrah, Khilafat issue
- v) The Non-cooperation movement

#### Unit – III – Indian Revolutionaries

20 marks

- i) Rise of Revolutionary Movement in Bengal, Maharashtra, United Provinces & Punjab before First World War
- ii) Revolutionary Movement & Organizations outside India with special reference to Ghadar Party
- iii) Revolutionary Movement after First World War: HRA, HRSA, with special reference to trial of Bhagat Singh
- iv) Revolutionary Organizations outside India between the Two Great Wars
- v) Subhash Chand Bose and Indian National Army

#### Unit-IV- Mass Movements , Partition & Independence

20 marks

- i) Simon Commission, Nehru Report and Civil Disobedience Movement, Poona Pact
- ii) Second World War and Quit India Movement
- iii) Constitutional Crisis: Cripps and Cabinet Mission
- iv) The Communal Politics : 1942-1947
- v) Mountbatten Plan , Partition & Independence

#### Internal Assessment : 20 marks

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

#### Books Recommended:

- Agrow, D. : (1968)*Moderates and Extremists in the Indian National Movement*, Asia Publishing House
- Brass, Paul: (1994,2015)*The Politics of India since Independence*, London, Cambridge University Press
- Chandra, Bipan and Others : *Freedom Struggle*
- Desai, A. R. (2016)*Social Background of Indian Nationalism*, Sage Publication Pvt Ltd
- Desai, A.R:(1984)*India's Path of Development*, Popular Prakashan
- Dutta, K.K. : (1975)*Social History of Modern India*, Delhi, Macmillan Publication
- Gupta, M.N. : (1972)*History of the Revolutionary Movement in India*, Somaiya Publication
- Jeffery, R. and J Masseloss: *From Rebellion to the Republic*.
- Majumdar, R. C. : (1954)*History of the Freedom Movement in India* 3 Vols. Reprint
- Majumdar, R. C. : *Struggle for Freedom*
- Mehrotra, S. R.: (2004)*The Emergence of India National Congress* , Rupa And Co.
- Moon, Penderal(1998)*Divide and Quit*, USA, Oxford Univesity Press
- Patel, Vallab Bhai :*Correspondence, Writings and Speeches*
- Prasad, Bisheswar, : *Bondage and freedom*, 2 Vols.
- Rai, Satya M.(ed.) :*Bharat Mein Upniveshwad Aur Rashtrawad*(Hindi)
- Sarkar, Sumit : *Adhunik Bharat* (Hindi)
- Sarkar, Sumit : *Modern India 1885 fi 1947*, Macmillan, 1983
- Sen, S. N.: (1957) *Eighteen Fifty Seven* Publication Division
- Singh, Ayodhya : (2012) *Bharat Ka Mukti Sangram*, Neha Publishers and Distributers
- Subramanian, K.G.(1987) *The Living Tradition: Perspectives on Modern Indian Art*, Seagull Books Pvt Ltd
- Tara Chand :*History of the Freedom Movement in India*, Vols. I – IV, Division Publication



## Syllabus of History (Medieval & Modern)

### B. A. Part-III-Paper- III- History of Modern World (1919-1945)

*This paper covers the history of Modern World between the two Great Wars. This is an era when there is shift from Euro-centric history to world history. These turbulent times witnessed the rise of Totalitarianism as an alternative to democratic and liberal ideal, as Second World War was lesser Imperialistic clash and more a clash of two ideologies. This period also witnesses the formation of International Agencies and above all in the same period Colonist and Imperialist structure crumbled.*

#### Unit-I- Peace Conference of Paris

20 marks

- i) Role of Big Four in the Peace Conference of Paris
- ii) Treaty of Versailles & Other treatise in Paris Peace Conference
- iii) Formation of the League of Nations : Organization, achievements & failures
- iv) Formation of International Labour Organization
- v) Formation of International Court of Justice

#### Unit-II- Rise of Totalitarianism

20 marks

- i) Failure of Weimar Republic & rise of Nazism in Germany
- ii) Internal & Foreign Policy of Hitler
- iii) Factors leading to growth of Fascism in Italy: Internal & Foreign policy
- iv) Rise of Communism in Russia: Lenin and New Economic Policy
- v) Stalin and his Foreign Policy

#### Unit-III- New Powers after the First World War & Anti Imperialist Movements :20 marks

- i) United States in world affairs: Washington Conferences, Economic Depression and 'New Deal' of F.D.Roosevelt
- ii) Rise of Japan as an Imperialist power : Manchurian Crisis & role in Second World War
- iii) Nationalist Movement in China : Role of Dr.SunYat Sen
- iv) Anti Imperialist Movement in Indo-China

- v) Anti-Imperialist Movement in Egypt

**Unit-IV- Quest for Security and Road to Second World War**

**20 marks**

- i) French Search for Security
- ii) Mandate System and its problems
- iii) Circumstances leading to Second World War
- iv) Process of the formation of U.N.O.
- v) Organization of U.N.O.

**Internal Assessment : 20 marks**

- (i) Assignment/Project- 10 marks
- (ii) Attendance- 10 marks

**Books Recommended:**

- Bennis, F.Lee.: Europe since 1914
- Car, E.H.: (1948)International Relations between two world war (1919-1939), Delhi, Macmillan and Co.
- Carsten, F.L. (1982) The Rise of Fascism University Of California Press
- Dhar, S. N.:(1967) International Relations and world politics since 1919, Bombay, Asia publish House
- Hardy, G.M.S.: (1950)Short History of International Affairs 1920-1939, , New York, Oxford Univesity Press
- Langsam, W.C. : World since 1919 , Surjeet Publication
- Lowe, Normon :(1982)Mastering Modern world History, Macmillan and Co.
- Marriot, M.: International Relations between the two world war
- Parker, R. A. C. : (1969) Europe (1919-1915) London, Weidenfeld and Nicolson
- Taylor, A.J.P.:(1961) Origin of the second world war, Simon and Schuster
- Verma, Dinanath :AadhunikVishwaKaItihas. (Hindi) ,Jnanada Publication
- Vinacke Herald : (1959)A History of For East in Modern Times ,East Asia,Appleton Century-Crofts
- Woodroff, C.: (1998)Modern World, St. Martin's



#### IV<sup>th</sup> Semester

- Paper – XVI- Administrative Law. (80+20)
- Paper – XVII- Environmental Law. (80+20)
- Paper – XVIII- Interpretation of Statutes (80+20)
- Paper – XIX- Banking Law (80+20)
- Paper – XX- Labour Law (80+20)

#### LL. B. III<sup>rd</sup> Year

##### V<sup>th</sup> Semester

- Paper – XXI- Law Of Crimes – II (80+20)
- Paper- XXII- Law of Evidence (80+20)
- Paper- XXIII- Law Of Intellectual Property (80+20)
- Paper – XXIV- Professional Ethics And Professional Accounting System  
(Practical) (50+50)
- Paper – XXV- Alternative Dispute Resolution (Practical) (50+50)

##### VI<sup>th</sup> Semester

- Paper – XXVI- Civil Procedure Code & Limitation Act (80+20)
- Paper – XXVII -U. P. Revenue Code 2006 (80+20)
- Paper – XXVIII- Principles of Taxation (80+20)
- Paper – XXIX- Pleading, Drafting And Conveyancing (Practical) (45+45+10)
- Paper – XXX- Moot Court Exercise And Internship (Practical) (30+30+30+10)

## **Aims and Objectives of the Course**

“A man without education is a strange animal.”

Dr. Babasaheb Ambedkar was of the opinion that education will liberate all and hence he called each and everyone to be educated, unite and fight against the odds of the society. The encyclopedia of education defines legal education as a ‘skill for human knowledge which is universally relevant to the lawyer’s art and which deserves special attention in educational institutions’. Education does not mean mere “accumulation of information” or acquisition of degrees. It is the motivating force behind the character and personality of the student that mould him into a good human being. Education pulls out a person from ignorance, superstitions and narrow-minded selfishness and leads towards progress, liberation and social behavior respectively.

Education is a radiance that shows the mankind the right path to move forward. The purpose of education is not just making a student literate but to develop rationale thinking, enhances knowledge and self sufficiency

Keeping the above in mind this course has been designed with the following objectives:

- To encourage students to choose Legal Education for shaping their career;
- To enable the students to understand the Importance of Legal Education;
- To study why Legal Profession is a Noble Profession

- To enable the students to understand Ethics in legal profession;
- To be enable the students to understand the challenges of Legal Profession.

To achieve the above-mentioned objectives, this course has been designed keeping the guidelines of the Bar Council of India in view.

**SCHEDULE**  
**LL.B. FIRST SEMESTER**

**PAPER – I**

**CONTRACT – I**

**Unit I: Formation of Contract**

- a. Meaning, definition and nature of contract
- b. Proposal / Offer
  - Definition & Kinds
  - Communication
  - Revocation
  - General & Specific offer
  - Invitation to offer
  - Termination of offer
- c. Acceptance
  - Definition
  - Communication
  - Revocation
- d. Standard form contracts

**Unit II: Consideration and Capacity**

- a. Consideration
  - Definition
  - Essentials
  - Exceptions
  - Privity of consideration & contract
- b. Capacity to contract
  - Minor's position
  - Nature / effect of minor's agreements
  - Persons of unsound mind, insolvent & others

**Unit III: Free Consent & Void agreements etc.**

- a. Free Consent
  - Coercion, undue influence, Misrepresentation, Fraud & Mistake
- c. Unlawful consideration and object
- d. Void agreements & contingent contracts
- e. Effect of void & voidable agreements / contracts

**Unit IV: Discharge, Performance, Quasi Contracts and Remedies**

- a. Discharge of Contracts
- b. Breach & Performance
  - Breach - Anticipatory & Present
  - Time and Place of performance
  - Impossibility of performance: Indian & English position
  - Performance under the Specific Relief Act, 1963
- c. Quasi Contracts
- d. Remedies
  - i. Under the Indian Contract Act
  - ii. Under the Specific Relief Act
  - iii. *Quantum Meruit*

**Act:**

1. Indian Contract Act, 1872
2. Specific Relief Act, 1963

**Recommended Books:**

1. V.G. Ramchandran - Law of Contract (Publisher – State Mutual Book & Periodical Service Ltd, 1989)
2. Anson's Law of Contract ( Publisher – Oxford Press 30<sup>th</sup> Edition)
3. Pollock & Mulla – The Indian Contract and Specific Relief ( Publisher – Lexis Nexis 15<sup>th</sup> Edition)
4. Avtar Singh – Law of Contract and Specific Relief ( Publisher – Eastern Book Company 12<sup>th</sup> Edition)
5. R. C. Srivastava: The Principles of Law of Contract ( Publisher – Bloomsbury India, 2018)



**Paper- II**

**Law of Torts and Consumer Protection**

**Unit – I: Introduction and Principles of Liability in Tort-I**

- a. Definition, Elements and Nature of Tort
- b. Development of Tort actions in England and India
- c. Essentials of Tort
- d. Mental Elements in Tort: Fault and No-Fault Liability
- e. Joint Tort Feasors

**Unit – II: Principles of liability-II**

- a. Vicarious Liability and Liability of State for Tort
- b. General Exceptions
- c. Strict Liability and Absolute Liability
- d. Remoteness of Damage

**Unit – III: Specific Torts - I**

- a. Negligence and Nervous Shock
- b. Nuisance
- c. Trespass
- d. Assault and battery

**Unit - IV: Specific Torts – II & Consumer Protection**

- a. Defamation
- b. False imprisonment
- c. malicious prosecution
- d. **The Consumer Protection Act, 1986**
  - i. Definitions of Consumer, Goods and Services
  - ii. Rights and Duties of Consumer
  - iii. Consumer Disputes Redressal Agencies
  - iv. Remedies

**Recommended Books:**

1. Tort: Winfield and Jolowicz ( Publisher – Sweet & Maxwell 19<sup>th</sup> Edition, 2016)
2. The Law of Torts: Ratanlal & Dhirajlal ( Publisher –Badhwa & Co. Nagpur 23<sup>rd</sup> Edition, 2003)
3. Law of Torts& Consumer Protection Act: R.K. Bangia ( Publisher –Allahabad Law Agency Publications, Allahabad , 2016)
4. Law of Torts: B.M. Gandhi ( Publisher – Eastern Book Company, Lucknow 3<sup>rd</sup> Ed., 2006)
5. Law of Torts & Consumer Protection Act: J.N. Panday ( Publisher –Central Law Publications, Allahabad, 2017 )
6. Law of Torts: Salmond & Heuston( Publisher –Universal Law Publication Co. Pvt. Ltd.20<sup>th</sup> Ed. , 2004)

**Paper- III**  
**Constitutional Law – I**

**Unit I: Constitution**

- Meaning and Nature of Constitutional Law
- Preamble and Salient features of Indian Constitution
- Rule of Law
- Separation of Powers

**Unit II: Distribution of Legislative Powers between Union and States**

- Legislative Powers (Procedure and Privileges)
- Federal idea: nature of Indian Polity, co-operative federalism
- Doctrine of Territorial Nexus, Doctrine of Harmonious Construction, Doctrine of Pith and Substance, Doctrine of Repugnancy

**Unit III: Constitutional Organs**

- Parliament: Parliamentary Sovereignty, Parliamentary Privileges, Anti-Defection Law
- Executive Power: Nature of executive in India, Relationship between President and council of ministers
- Judiciary: Organization and jurisdiction of Supreme Court and High Courts, Independence of Judiciary, Public Interest Litigation, Power of Judicial Review

**Unit IV:**

- Emergency Provisions, impact of emergency on Centre-State relations
- Amendment of Constitution
- Doctrine of Basic Structure
- Freedom of inter-state Trade & Commerce.

**Recommended Books:**

1. D.D. Basu, Shorter Constitution of India, ( Publisher –Lexis Nexis 15<sup>th</sup> Edition, 2017)
2. Kailesh Rai, Constitution of India, ( Publisher –Allahabad Law Agency, Allahabad Edition, 2014)
3. V.N. Shukla, Constitution of India, ( Publisher –Eastern Book Co.Lucknow 13<sup>th</sup> Edition, 2017)
4. M.P. Jain, Indian Constitutional Law, ( Publisher –Wadhwa & Company,Nagpur,5<sup>th</sup> Edition 2003)
5. J.N. Panday, Constitution of India, ( Publisher –Central Law Agency, Allahabad , 2017)

**Paper- IV**  
**Family Law - I (Hindu Law)**

**UNIT-I**

1. Sources of Hindu Law
2. Marriages amongst Hindus (With reference to Hindu Marriage Act, 1955)
  - (i) Nature of Marriage
  - (ii) Kinds of Marriage
  - (iii) Requirements of Marriage
  - (iv) Matrimonial Remedies
    - (a) Restitution of Conjugal Rights
    - (b) Judicial Separation
    - (c) Dissolution of Marriage
    - (d) Decree of Nullity

**UNIT-II**

1. Minority and Guardianship amongst Hindus.
2. Adoption amongst Hindus
3. Maintenance amongst Hindus

**UNIT-III**

- Joint family:
  - (a) Coparcenary
  - (b) Alieneation
  - (c) Debts
  - (d) Partition

**UNIT-IV**

1. Succession: Testate and intestate succession amongst Hindus.
2. Stridhan and Women's Estate.
3. Religious and Charitable Endowments under Hindu Law.

**Recommended Books:**

1. Modern Hindu Law - Paras Diwan ( Publisher –Allahabad Law Agency Publications, Allahabad Edition 2018)
2. Modern Hindu Law – U.PD. Kesari ( Publisher – Central Law Publications, Allahabad Edition 2018)
3. Hindu Law - R. K. Agarwal ( Publisher – Central Law Agency, Allahabad Edition 2017)
4. Hindu Law – B.M. Gandhi ( Publisher – Eastern Book Company, Lucknow, Edition 2016)
5. Introduction to Hindu Law – Tahir Mahmood ( Publisher – Universal Law Publishing Co., New Delhi, Edition 2016)

**Paper- V**  
**Public International Law**

**Unit I:**

- Nature, Definition, Origin and Basis of International Law
- Sources of International Law
- Subjects of International Law
- Relationship between International Law and Municipal Law

**Unit II:**

- Recognition: Definition & salient features, Theories of Recognition, Kinds of Recognition, Legal effect of Recognition, Withdrawal of Recognition.
- State Succession: Definition and Kinds of Succession Consequences of State Succession.
- Extradition: Definition, Purpose of Extradition, Legal Duty, Extradition of Political Offenders, Doctrine of Double Criminality, Rule of Specialty.
- Asylum: Meaning, Right of Asylum, Types of Asylum

**Unit III:**

- Nationality & Statelessness
- State Territory: Concept, Modes of Acquisition, International Rivers & canals.
- Law of sea and outer space
- State Jurisdiction: Territorial Jurisdiction and Its Limitation
- State Responsibility: Kinds and extent of State Responsibility, Consequence of State Responsibility.
- Diplomatic & Consular relations

**Unit IV:**

- U.N.: Origin, Object, Principles and Membership
- Main organs of U.N. : General Assembly, Security Council, Economic and Social Council, Trusteeship Council and Secretariat, International Court of Justice.
- Settlement of International Disputes
- War and use of force in International Law
- Law of Contraband, Blockade and Enemy character

**Recommended Books:**

1. S.K. Kapoor : Public International Law ( Publisher – Central Law Publication, Allahabad Ed.2018
2. H.O. Agrawal : International Law and Human Rights ( Publisher – Central Law Publication, Allahabad Ed.2018
3. Prof. T.P. Tripathi- An Introduction to the Study of Human Rights ( Publisher – Allahabad Law Agency Publication, Allahabad Ed.2017)

## LL.B. SECOND SEMESTER

### Paper - VI CONTRACT - II

#### Unit I: Specific Contracts - I

- Contract of Indemnity
- Contract of Guarantee

#### Unit II: Specific Contracts - II

##### (A) Bailment

- Definition and essentials
- Rights and duties of bailor & bailee

##### (B) Pledge

- Definition and essentials
- Rights and duties of pawnor & pawnee

##### (C) Agency

- Definition
- Essentials of Agency
- Kinds of agents
- Creation of Agency
- Relation of Principal and Agent, Sub-agent and Substituted agent
- Ratification
- Termination & revocation of Agency

#### Unit III: Partnership

Nature & Definition of Partnership; Partnership at will; Distinction from Company and Joint Family Business; Relationship between partners; Incoming and outgoing partners; Registration of Firm; Implied Authority; Relationship with third party; Liability of partners - holding out; Modes of Retirement of Partners; Dissolution of Firm.

#### Unit IV: Sale of Goods

Definition, Essentials of Sale; Sale & agreement to sell; Conditions and Warranties; Implied Conditions and Warranties; *Caveat emptor*; Effect of contract, Passing of Property; *Nemo dat quod non habet*; Rights of Parties and Remedies; Performance of Contract; Rights of Unpaid Seller, Suits for Breach of Contract.

#### Acts:

1. Indian Contract Act, 1872
2. Indian Partnership Act, 1932
3. The Sale of Goods Act, 1930

#### Recommended Books:

1. V.G. Ramchandran - Law of Contract (Publisher – State Mutual Book & Periodical Service Ltd, 1989)
2. Anson's Law of Contract ( Publisher – Oxford Press 30<sup>th</sup> Edition)
3. Pollock & Mulla – The Indian Contract and Specific Relief ( Publisher – Lexis Nexis 15<sup>th</sup> Edition)
4. Avtar Singh – Law of Contract and Specific Relief ( Publisher – Eastern Book Company 12<sup>th</sup> Edition)

**Paper – VII -**  
**LAW OF CRIMES – I (INDIAN PENAL CODE)**

**Unit I: Introduction**

- Definition and elements of Crime & Stages of Crime
- Principle of Joint Liability : Common Intention and Common object,
- General exception (Sec. 76-106)

**Unit II:**

- Abetment, Criminal Conspiracy and Attempt
- Offences affecting the Human body –
  - Culpable Homicide, Murder, Death caused by Negligent act, Dowry Death, Hurt and Grievous Hurt
  - Wrongful Restraint and Wrongful Confinement,
  - Criminal Force and Assault
  - Kidnapping and Abduction.

**Unit III:**

- Offences against property
  - Theft and Extortion,
  - Robbery and Dacoity.
  - Criminal misappropriation and Criminal breach of trust,
  - Cheating and Mischief,
  - Criminal Trespass.

**Unit IV:**

- Defamation
- Criminal Intimidation, Preparation
- Offences against State
- Offences against Women and Children

**Acts:**

- The Indian Penal Code, 1860
- The Protection of Children from Sexual Offences Act, 2012

**Recommended Books:**

1. Indian Penal Code – B.M. Gandhi ( Publisher –Eastern Book Company, Lucknow Ed. , 2016)
2. Indian Penal Code – S.S. Srivastava ( Publisher –University Book House, Jaipur Ed. , 2014)
3. Indian Penal Code – Murlidhar Chaturvedi ( Publisher –Eastern Book Company, Lucknow Ed. , 2017)
4. Indian Penal Code - S.N. Mishra S.N. ( Publisher –Allahabad Law Agency Publications, Allahabad Ed. , 2017)
5. Indian Penal Code – N.V. Pranjape ( Publisher –Central Law Publications, Allahabad Ed. , 2017)

**Paper – VIII**  
**Constitutional Law – II**

**Unit – I Fundamental Rights – I**

- a. Definition of 'State' for enforcement of fundamental rights, Justifiability of fundamental rights – Doctrine of eclipse, severability, waiver. Distinction between pre-constitutional law and post-constitutional law
- b. Right to equality – Concept of Equality; Procedural and substantive equality; Doctrine of Reasonable classification and the principle of absence of arbitrariness
- c. Fundamental freedoms: Freedom of speech and expression, freedom of association, freedom of movement, freedom to reside and settle, freedom of trade, business and profession – expansion by judicial interpretation – reasonable restrictions

**Unit – II: Fundamental Rights – II**

- a. Right to life and personal liberty
- b. Protection in respect of conviction for offences
- c. Preventive detention under the Constitution – Policy and safeguards – Judicial review
- d. Right against exploitation – Forced labour and child employment
- e. Freedom of religion
- f. Cultural and Educational Rights

**Unit – III: Right to Constitutional Remedies**

Right to Constitutional Remedies – Judicial Review – Writs – Habeas Corpus, Mandamus, Certiorari, Prohibition and Quo-warranto – Art 32 and 226

**Unit – IV: Directive Principles, Fundamental Duties and Social Justice**

- a. Directive Principles of State Policy – Nature and justiciability of the Directive Principles – Inter-relationship between Fundamental Rights and Directive Principles – Fundamental Duties
- b. Social justice under the Indian Constitution

**Recommended Books:**

1. D.D. Basu, Shorter Constitution of India, ( Publisher –Lexis Nexis 15<sup>TH</sup> Edition, 2017)
2. Kailesh Rai, Constitution of India, ( Publisher –Allahabad Law Agency, Allahabad Edition, 2014)
3. V.N. Shukla, Constitution of India, ( Publisher –Eastern Book Co.Lucknow 13<sup>th</sup> Edition, 2017)
4. M.P. Jain, Indian Constitutional Law, ( Publisher –Lexis Nexis, 8<sup>th</sup> Edition 2018)
5. J.N. Panday, Constitution of India, ( Publisher –Central Law Agency, Allahabad , 2017)

**Paper – IX**  
**Family Law-II (Muslim Law)**

**UNIT- I: Sources of Muslim Law and Marriages among Muslims**

1. Sources of Muslim Law
2. Marriages among Muslims in India
  - (i) Nature of Marriage
  - (ii) Kinds of Marriage
  - (iii) Requirements of Marriage (including Dower)

**UNIT-II: Matrimonial Remedies and Guardianship**

1. Matrimonial Remedies
  - (a) Restitution of Conjugal Rights
  - (b) Dissolution of Marriage
2. Guardianship

**UNIT-III: Legitimacy and Maintenance**

1. Legitimacy and parentage
2. Maintenance

**UNIT-IV: Wills, Gifts, Waqf and General Principles of Inheritance**

1. Wills
2. Gifts
3. Waqf
4. General Principles of Inheritance (No specific rules of inheritance are to be taught)

**Recommended Books:**

1. Introduction to Muslim Law – Tahir Mahmood ( Publisher – Universal Law Publishing Co, New Delhi, Edition 2018)
2. Textbook of Muslim Law- R.K. Singh ( Publisher – Universal Law Publishing Co, New Delhi, Edition 2016)
3. Muslim Law – Aquil Ahamad ( Publisher – Central Law Agency, Allahabad, Edition 2018)
4. Muslim Law – Dr. Sinha ( Publisher – Central Law Agency, Allahabad, Edition 2018)
5. Muslim Law – Khalid Rashid ( Publisher – Eastern Book Company, Lucknow, Edition 2018)



**Paper – X**  
**HUMAN RIGHTS LAW AND PRACTICE**

**Unit I:**

- Human Rights: Meaning, Nature, Concept, Origin and Development
- Evolution of Human Rights: Ancient and Natural Law perspective, Natural Rights and Human Rights, Legal right and Human Rights,
- Human Rights: Classification,
- Human Rights: Importance.

**Unit II :**

- U. N. Charter and Human Rights, Universal Declaration of Human Rights and its legal Significance.
- Covenants and Conventions: International Covenant on Economic, Social and Cultural Rights, 1966; International Conventions on Civil & Political Rights, 1966 The European Convention on Human Rights, 1950, The American Convention on Human Rights, 1969, African Charter on Human and People's Rights, The Vienna Conference on Human Rights, Convention Against Torture and Other Cruel Inhuman or Degrading Treatment or Punishment, Rights of the Aged.

**Unit III:**

- Human Rights in India, Human Rights and Indian Constitution, The Protection of Human Rights Act, 1993
- Judicial activism & Protection of Human Rights in India, Role of Non-Governmental Organization in the Promotion and Protection of Human Rights;
- Refugee: Rights and Duties

**Unit IV:**

National Human Rights Commission, National Commission for Minorities, National Commission for Women, National Commission for Backward Classes and National Commission for Schedule Castes and Schedule Tribes.

**Acts**

1. The Charter of UN
2. The Protection of Human Rights Act, 1993
3. The Universal Declaration of Human Rights, 1948

**Recommended Books:**

1. Dr. H.O. Agrawal- Human Rights ( Publisher – Central Law Publication, Allahabad Ed.2017
2. Dr. U. Chandra - Human Rights ( Publisher – Allahabad Law Agency, Allahabad Ed.2016
3. Prof. T.P. Tripathi- An Introduction to the Study of Human Rights ( Publisher – Allahabad Law Agency Publication, Allahabad Ed.2017)

## **LL.B. THIRD SEMESTER**

### **Paper – XI** **Jurisprudence**

#### **Unit – I: Introduction**

- Meaning, Scope and Importance of Jurisprudence.
- Relation between Jurisprudence and Legal Theory, Nature and Kinds of Law and Theories of Justice.
- Sources of Law : Custom, Legislation, Precedent

#### **Unit – II: Schools of Jurisprudence**

- Natural Law
- Analytical Positivism, Pure Theory- Bentham, Austin, Kelsen and Hart
- Historical Jurisprudence- Savigny and Maine
- Sociology Jurisprudence- Dean Roscoe Pound and Dugit
- Economic Approach- Karl Marx
- Realist Movement- American and Scandinavian

#### **Unit – III:**

- Law and State
- Law and Morality
- Law and Religion
- Law and Social Change

#### **Unit – IV: Legal Concepts**

- Rights and Duties
- Personality
- Possession, Ownership and
- Property

#### **Recommended Books:**

1. B.N. Mani Tripathi : Jurisprudence – Legal Theory ( Publisher – Allahabad Law Agency, Allahabad Ed.2005)
2. N.R.Madhava Menon : Holland on Jurisprudence ( Publisher – Universal Law Publishing Co. Pvt. Ltd.,Delhi Ed.2004)
3. Nomita Aggarwal : Jurisprudence – Legal Theory ( Publisher – Central Law Publications, Allahabad Ed.2015)
4. Anirudh Prasad: Fundamental Theory of Jurisprudence ( Publisher – Eastern Book Company,Lucknow Ed.2015)
6. T.P. Tripathi : Jurisprudence ( Publisher – Allahabad Law Agency Publications, Allahabad Ed.2005)

**Paper – XII**  
**COMPANY LAW**

**Unit I: Formation, Registration and Incorporation of Company**

- Definition and Kinds of Company
- Nature of Company: Theory of Corporate Personality and its exception
- Promoters: Position, Duties and Liabilities
- Incorporation of Company: Memorandum of Association and Articles of Association
- Doctrine of Ultra-vires
- Indoor management and constructive notice

**Unit II: Prospectus, Share, Share Capital and Debenture**

- Prospectus: Issue, contents, Kinds, liabilities for misstatement, Shelf Prospectus and Red herring Prospectus
- Share and Debenture- Kinds, Nature of share, allotment of share and debenture, share, stock and share warrant
- Charge- Floating and Fixed Charge
- Transfer of Shares, Restriction on transfer, Relationship between transferor and transferee.

**Unit III: Administration and Management**

- Directors - Appointment, Tenure, Remuneration, Removal, Kinds, Powers, Duties and legal position
- Managing Director and other Managerial Personnel
- Oppression and Mismanagement
- National Company law Tribunal
- Security and Exchange Board of India (SEBI )
- Protection of Investors

**Unit IV: Reconstruction, Amalgamation and Winding up of Companies**

- Reconstruction and Amalgamation
- Concept, Meaning and kinds of winding up
- Liquidator: Appointment, Powers and Functions
- Consequences of Winding up

**Recommended Books:**

1. Avtar Singh - Company Law ( Publisher – Eastern Book Company, Lucknow 13<sup>th</sup> Ed., 2001)
2. N. V. Paranjape - Company Law( Publisher – Central Law Agency,Allahabad,2017)
3. Gower – Principles of Morden Company Law( Publisher – Sweet & Maxwell, 6<sup>th</sup> Ed., 1997)

**Paper – XIII**  
**Property Law**

**Unit-I: Introduction**

- a. Concept and kinds of Property
- b. Nature and scope of Transfer of Property Act
- c. Important terms and their definitions
- d. Persons competent to transfer
- e. Transferable and Non-Transferable Property
- f. Effect of transfer

**Unit-II: General Principles Governing Transfer of Immoveable Property**

Conditions Restricting Transfer, Transfer to an Unborn Person and Rule against Perpetuity, Direction for accumulation, Vested and Contingent interest, Conditional Transfer, Doctrine of Election, Transfer by ostensible owner, Rule of feeding the grant by estoppels, Improvements made by bonafide holders under defective titles, Doctrine of *Lis pendens*, Fraudulent transfer & Part - performance

**Unit – III: Specific Transfers – I**

- a. Sale and exchange
- b. Gift
- c. Mortgage

**Unit – IV: Specific Transfer – II**

- a. Lease and License
- b. Charge
- c. Actionable claim

**Recommended Books:**

1. Mulla D.F. – Transfer of property (Publisher –Lexis Nexis Publication, ,13<sup>TH</sup> Ed. )
2. T.P. Tripathi – Transfer of property (Publisher –Allahabad Law Agency Publication, Ed. 2017 )
3. G.P. Tripathi – Transfer of property Act (Publisher –Central Law Publication, Ed. 2017 )
4. R. K. Sinha - Transfer of property Act (Publisher –Central Law Publication, Ed. 2017 )

**Paper – XIV**  
**ENGLISH & LEGAL LANGUAGE**

**Unit –I: Language of the Law**

- Distinctive Feature of Legal Language, Problems of Language in the Drafting of Statutes, other Legal Documents; Representations and the Language of the Judgements.
- Official Language: The Constitutional Provisions (Articles 343-347)
- Language of the Supreme Court and the High Courts (Art.348); Language of the representations for redress of grievances (Art. 350) and the Development of the Hindi Language (Art.351)

**Unit –II: Essay Writing (in Hindi & English Language)**

Essay using legal expressions on socio legal problems and legal concepts (Democracy, Socialism, Secularism, Social Justice, Human Rights, Environment, Consumer Protection, Uniform Civil Code, Panchayati Raj)

**Unit –III: Translation**

Translation of Passages from legal documents: Law Books, Constitution of India and Acts (Indian Penal Code and Indian Contract Act)

**Unit –IV:**

Legal Maxims, Legal words and Phrases (used in law-teaching, law-courts, legal-documents & enactments)

**Legal Maxims:**

- 1- Actio personalis maritur cum persona
- 2- Actus non facit reum nisi mens sit rea
- 3- Delegatus non postest delegare
- 4- Ex turpi causa non oritur action
- 5- Ignorantia legis neminem excusat
- 6- Jura non remota causa sed proxima spectator
- 7- Nemo dat quod non habet
- 8- Par in parem imperium non habit
- 9- Ubi jus ibi remedium
- 10- Ut res magis valeat quam pereat
- 11- Volenti non fit injuria

**Legal Terms & Phrases:**

Ab initio, ad idem, ad valorem, alibi, ambiguitas latens, ambiguitas patens, amicus curiae, animus possidendi, audi alteram partem, bonafide, caveat emptor, corpus delicti, cypres, de facto, de jure, de novo, exabundati cautela, ex officio, exparte, ex-post facto, factum valet, fait accompli, felo de se, fiat justitia, functis officio, in lime, in loco parentis, in pari delicto, in pari materia, jus ad rem, letter rogatory, locus standi, mutatis mutandis, nudum pactum, onus probandi, parens patriae, plenum dominium, prima facie, pro bono publico, quid pro quo, res integra, res nullius, sine qua non, ultra vires.

**The Question Paper Structure:**

The question paper will have eight questions in four sections. Section- A will have two questions out of which the examinee will have to answer only one question. All the questions from sections B, C and D will have to be answered. Questions no. 3 to 8 will be compulsory. In all SEVEN questions will have to be answered. The scheme of questions will be as follows:

**Section A: 10 Marks (for one question)**

Two questions will be asked from unit 1<sup>st</sup> of the course of study. The examinee will answer only one question out of these two questions.

**Section B: 30 Marks (for two question)**

Two essays of 15 marks each and in about 200 words each, one in Hindi language and another in English language from the topics prescribed in unit 2<sup>nd</sup> of the course of study. The examiner will give three topics each for Hindi and English essays.

**Section C: 20 Marks (for two question of 10 and 10 marks respectively)**

Two passages of not more than 100 words, each will have to be translated - One from Hindi into English, and another from English to Hindi. Each translation will carry 10 marks. The passages will be asked in accordance with unit 3<sup>rd</sup> of the course.

**Section E: 20 Marks (for two question of 10 and 10 marks respectively)**

Question 07: Explanation of 5 maxims from unit 4<sup>th</sup> of the course. Each carrying Two marks.

Question 08: Explanation of 10 legal words and phrases from unit 4<sup>th</sup> of the course. Each carrying One mark.

**Recommended Books:**

1. Prof. A. Prasad: Outlines of Legal Language ( Publisher – Central Law Publication Allahabad Ed.2018)
2. R. L. Jain: Legal Language ( Publisher – Central Law Agency, Allahabad Ed.2014)

**Paper – XV**  
**TRUST & EQUITY**

**Unit-I: Trust**

- (a) Definition and classification
  - (i) Definition of Trust, Trustees, Beneficiary, Trust Property and semi Trust institutions, Instrument of Trust
  - (ii) Classification and kinds of Trust
  - (iii) Creation of trust
  - (iv) Trustees: Appointment and Removal of trustees
- (b) Duties and Liabilities of trustees
- (c) Rights and Powers of trustees
- (d) Extinction of Trusts.

**Unit-II: Public and Charitable trusts.**

- (a) Public and Charitable trusts. (English Law)
  - (i) Definition of Charity
  - (ii) Charitable Purposes
- (b) Charitable Trusts under Mohammedan Law
- (c) Charitable Trusts Under Hindu Law

**Unit-III: Equity**

- (a) Origin and development of Equity in England.
- (b) Concept and definition of Equity
- (c) Equity under Roman, English and India legal systems.
- (d) Equity: Relation with the Common Law.

**Unit-IV: Maxims of Equity**

- (a) Equity will not suffer a wrong to be without a remedy
- (b) Equity follows the Law
- (c) He who seeks Equity must do Equity
- (d) He who comes to Equity must -come with clean hands.
- (e) Delay defeats Equity
- (f) Equality is Equity
- (g) Equity looks to the intent rather to the form.
- (h) Equity looks on that a done which ought to have been done.
- (i) Equity imputes an intention to fulfil an obligation.
- (j) Equity acts in Personam.
- (k) Where the Equities are equal, the first in time shall Prevail.
- (l) Where there is equal Equity, the law shall prevail.

**Recommended Books:**

1. Dr. G. P. Singh- Equity, Trust and Fiduciary Relations ( Publisher – Central Law Agency, Allahabad Ed.2018
2. Aquil Ahamad - Equity, Trust , Mortgage & Specific Relief ( Publisher – Central Law Agency, Allahabad Ed.2018
3. B. M. Gandhi – Equity, Trust & Specific Relief ( Publisher – Eastern Book Company, Lucknow Ed.2016)
4. M.P. Tandon - Equity, Trust & Specific Relief ( Publisher – Allahabad Law Agency Publication,Allahabad Ed.2015)
5. S.R. Myneni - Equity, Trust and Fiduciary Relations ( Publisher – Asia Law House, Hyderabad Ed.2016



## LL.B. FOURTH SEMESTER

### LL.B. FOURTH SEMESTER

#### Paper – XVI

#### Administrative Law

#### Unit – I: Evolution and Scope of Administrative Law

- a. Meaning, Nature and Growth of Administrative Law
- b. Administrative Law & Constitutional Law, Relation between the two
- c. Rule of law and Administrative Law
- d. Doctrine of Separation of powers and Administrative Law

#### Unit – II: Legislative Powers of Administrative Agencies; Liabilities and Privileges of the State & Government

- a. Meaning & Kinds of Delegated Legislation, Causes for Growth of Delegated Legislation & extent of delegation of Legislative Powers
- b. Control of Delegated Legislation
  - i. Legislative
  - ii. Judicial
- c. Publication of Delegated Legislation
- d. (i) Liabilities of and suits against Union of India, State & other Public Authorities in Torts and Contracts  
(ii) Privileges enjoyed by the Government & Public Authorities in relation to legal proceedings

#### Unit-III: Power of Adjudication of Administrative Agencies

- a. Need for devolution of adjudicatory authority on administration, Difference between Administrative adjudication & adjudication by Traditional Courts
- b. Administrative Tribunals (in general)
- c. Practice & Procedure of Administrative Tribunals & Agencies:
  - (i) General
  - (ii) The Twin Principles of Natural Justice
  - (iii) Right to Counsel
  - (iv) Reasoned Decision
  - (v) Institutional Decision
  - (vi) Hearing Officers Report
  - (vii) Finality of Decisions
- d. Law of Government Services in India as provided in the Constitution of India with special reference to Service Tribunals.
- e. Ombusman

#### Unit – IV:

#### A. Administrative Action, Discretion and Direction

- a. Administrative Action and quasi-judicial action
- b. Discretion, its meaning, advantages and disadvantages of conferring discretionary powers, Judicial Control of Administrative Action
- c. Administrative Discretion, its nature, distinction between direction and rule
- d. Doctrine of legitimate expectations

#### B. Control of Administrative Action

- i. Introduction
- ii. Court as the final authority to determine the legality of administrative action
- iii. Method of Judicial Review
  - (a) Extra ordinary remedies
  - (b) Equitable remedies
  - (c) other statutory appeals

- iv. Locus standi
  - v. Laches
  - vi. Res judicata
- C. Public Corporation

**Recommended Books:**

1. J.J.R. Upadhaya - Administrative Law ( Publisher – Central Law Agency, Allahabad Ed.2015)
2. S.P. Shate - Administrative Law ( Publisher – Allahabad Law Agency Publication, Allahabad Ed.2000)
3. C.K. Takwani – Equity- Administrative Law ( Publisher – Eastern Book Company, Lucknow Ed.2005)
4. I.P. Massey - Administrative Law ( Publisher – Eastern Book Company, Lucknow 7<sup>th</sup> Ed.2007)
5. U.P.D. Kesari - Administrative Law ( Publisher – Central Law Publications, Allahabad Ed.2013)

**Paper – XVII**  
**Environmental Law**

**UNIT – I:**

- a. Introduction
  - i. Environment – Meaning and Definition
  - ii. Environmental Pollution – Meaning and Issues
- b. Environment Protection: The International Efforts
- c. International Legal Norms
  - i. Concept of Sustainable Development
  - ii. Precautionary Principle
  - iii. Polluter pays Principle
  - iv. Public Trust Doctrine

**UNIT – II:**

- a. Environment Protection & the Constitution of India
  - i. Relevant Provisions – Arts. 14, 19 (1) (g), 21, 48-A, 51-A(g)
  - ii. Right to Wholesome Environment – Evolution and Application
  - iii. Environment Protection through Public Interest Litigation
- b. Other Laws
  - i. Environment Protection & Law of Torts
  - ii. Environment Protection & Law of Crimes
  - iii. Environment Protection & Other Legislations

**UNIT – III:**

- a. The Environmental (Protection) Act, 1986
- a. The Water (Prevention and Control of Pollution) Act, 1974
- b. The Air (Prevention and Control of Pollution) Act, 1981

**UNIT – IV:**

- a. The Wild Life (Protection) Act, 1972
  - i. Authorities to be appointed and constituted under the Act
  - ii. Hunting of Wild Animals
  - iii. Protection of Specified Plants
  - iv. Protected Areas
  - v. Trade or Commerce in wild animals, animal articles and trophies
- b. The National Green Tribunal Act, 2010

**Recommended Books:**

1. Gurdip Singh - Environmental Law ( Publisher – Eastern Book Company, Lucknow 2<sup>nd</sup> Ed.2016)
2. J.J.R. Upadhaya - Environmental Law ( Publisher – Central Law Agency, Allahabad Ed.2015)
3. P.S. Jaswal - Environmental Law ( Publisher – Allahabad Law Agency, Faridabad, Haryana Ed.2008)
4. Anirudh Prasad - Environmental Law ( Publisher – Central Law Agency, Allahabad Ed.2015)
5. C.P. Singh - Environmental Law ( Publisher – Allahabad Law Agency Publications, Allahabad Ed.2010)

Paper – XVIII  
Interpretation of Statutes

Unit – I: Introduction

- a. Meaning of Interpretation and construction
- b. Need for Interpretation
- c. Act, Enactment, Statutes, Ordinances, Rules, etc.
- d. Nature of Judicial Process: Judges as Law Makers

Unit – II: Internal Aids to Interpretation

- a. Title
- b. Preamble
- c. Heading
- d. Marginal Note
- e. Section
- f. Sub-section
- g. Punctuation
- h. Illustration
- i. Exception
- j. Proviso
- k. Explanation
- l. Saving Clause
- m. Schedule

Unit – III: External aids of construction etc.

- a. Constituent Assembly Debates for Constitutional Interpretation
- b. Legislative History: Legislative Intention
- c. Statement of Objects and Reasons
- d. Legislative Debates
- e. Committee Reports, Law Commission Reports
- f. Decisions of foreign courts
- g. Dictionary and Text Books

Unit – IV: Rules of Interpretation

(1)

- a. Literal Rule
- b. Golden Rule
- c. Mischief Rule
- d. Rule of Harmonious Construction
- Doctrines-
- e. *Ejusdem generis*
- f. *Noscitur a sociis*
- g. *Generalia specialibus non derogant*
- h. *Reddendo singula singulis*

(2)

- a. Effect and operation of Statutes:
  - i. Repeal of Statutes
  - ii. Retrospective operation of statutes
  - iii. Effect of statutes on state
- b. Construction of Penal & Tax Statutes

**Recommended Books:**

1. B.M. Gandhi - Interpretation of Statutes ( Publisher – Eastern Book Company, Lucknow 2<sup>nd</sup> Ed.2006)
2. Anirudh Prasad - Interpretation of Statutes ( Publisher – Central Law Publications, Allahabad Ed.2015)
3. T. Bhattacharyya - Interpretation of Statutes ( Publisher – Central Law Agency, Allahabad 7<sup>th</sup> Ed.2009)
4. D.N. Mishra - Interpretation of Statutes (Publisher –Allahabad Law Agency, Publication Allahabad Ed.2010)
5. J.G. Chandra - Interpretation of Statutes (Publisher –Shakti Publication, Allahabad Ed.2006)

**Paper – XIX**  
**BANKING LAW**

**Unit I: Banking Regulation Act, 1949**

Concept of Bank and Banker, Functions of Bank, Classification of Banks, Relationship between Bank and Customer, Control by Government and its agencies, Management of Banking companies on account and audit, Reconstruction, amalgamation and merger of banking companies, Suspension and winding up of business of banking companies, Social control over banking, Banking Ombudsman, Recent Trends in Banking: Automated Teller Machine (ATM) and Internet Banking, Smart Cards, Credit Cards and Debit Cards.

**Unit II: Reserve Bank of India Act, 1934**

Incorporation, Capital Management and Business of Banking Company, Central Banking function of Reserve Bank of India, collection and furnishing of Credit Information, Control of Reserve Bank of India over banking, Non-banking Institutions and other Financial Institutions, Credit Control by Reserve Bank of India, General provisions and penalties.

**Unit III: Negotiable Instrument Act, 1881 (Part – I)**

Definition and characteristic of Negotiable Instruments, Types of Negotiable Instruments, Definition and Essentials Promissory Note, Bill of exchange and cheque, Liabilities and capacity of Parties of Negotiable Instrument, Holder and Holder in due Course, Transfer and Negotiation of Negotiable Instrument, Payment in due course and maturity of the instrument.

**Unit IV: Negotiable Instrument Act, 1881 (Part – II)**

Crossing of Cheques and payment, Dishonor of Cheques, Presentment and Payment, Noting and Protest of Negotiable Instrument;  
Endorsement: Definition, Essential of a valid endorsement and its kinds, Rules of evidence and compensation.

**Recommended Books:**

1. Dr. Avtar Singh – Laws of Banking Negotiable Instrument ( Publisher – Eastern Book Company, Lucknow 1<sup>st</sup> Ed.2007)
2. Indrajit Singh & Kamlesh Shukla – Banking Law ( Publisher – Central Law Agency, Allahabad 2<sup>nd</sup> Ed.2008)
3. Dr. H.P. Gupta – Banking Law ( Publisher – Central Law Publications, Allahabad Ed.2002)
4. Prof. Ram Naresh Choudhary – Banking Law ( Publisher – Allahabad Law Agency, Publication, Allahabad Ed.2016)

**Paper – XX**  
**LABOUR LAW**

**Unit-I: Industrial Dispute Act, 1947**

- Scope and object. of Industry
- Workmen, Employees, Industry, Industrial disputes.
- Authorities under the Industrial dispute.
- Reference of Disputes to Boards, Courts or tribunals.
- Procedure, Power and duties of Authorities.

**Unit-II: Industrial Dispute Act, 1947 (continued)**

- Strike, Lock-out
- Lay off and Retrenchment
- Penalties
- Miscellaneous Provisions

**Unit-III Employees Compensation Act, 1923**

- Definitions, Aims and Object
- Liability of Employer
- Notional Extension and Defences, Determination of Amount of Compensation, Compensation when due, Penalty for default, Contracting out (Sec.17), Appointment and powers of Commissioner(Sec 19-31)

**Unit-IV: - Other Legislations**

- (a) **The Trade Union Act 1926:** History and development of Trade Union, Definition, Registration of Trade Union, Rights and Liabilities of Registered Trade Union, Penalties and Procedure.
- (b) **Minimum Wages Act, 1948:** Object of the Act, Definition and Revision of rates of Wages, Working hours and Determination of Wages and Claims etc., Authority, Appointment and Powers of the Authority.

**Recommended Books:**

1. S. N. Mishra: Labour & Industrial Law (Publisher –Central Law Publication,Allahabad, 24<sup>TH</sup> Ed.2008 )
2. P.L. Malik: Labour & Industrial Law(Publisher –EBC 18<sup>TH</sup> Ed.2018 )
3. S. C. Srivastava: Industrial Relations & Labour Laws(Publisher – Vikas Publishing House 6<sup>th</sup> Ed.2014 )
4. V. G. Goswami: Labour & Industrial Law (Publisher – Central Law Agency ,Allahabad, 7<sup>th</sup> Ed. 1999 )
5. J.P. Sharma : Labour Laws (Publisher – Bharat Law House Pvt. Ltd, New Delhi, 2018)

**LL.B. FIFTH SEMESTER**

**Paper – XXI**

**LAW OF CRIMES – II**

**The Code of Criminal Procedure**

**Unit I : Introduction**

- a- Meaning & Definition of terms used in the code
- b- Constitution of Criminal Courts and their powers
- c- Provisions for investigation:
  - Arrest and Bail Provisions
  - Information to Police and their Power to Investigate
- d- Processes to Compel Appearance and Production of things:
  - Summons for Appearance
  - Warrant of arrest
  - Proclamation and Attachment
  - Other rules regarding processes
  - Summons procedure
  - Search Warrants
  - General provisions as to search
  - Miscellaneous

**Unit II : Proceedings before Magistrate**

- a- Jurisdiction of Criminal Court
- b- Conditions requisite for initiation of proceedings
- c- Complaint to Magistrate
- d- Commencement of Proceeding before Magistrate
- e- Security for keeping Peace and maintaining good behavior
- f- Public order and tranquility

**Unit III : Trial & Execution procedure**

- a- General provisions as to Inquiries and Trials
- b- The Charge:
  - Forms of Charges
  - Joinder of Charges
- c- Trial
  - Sessions Trial
  - Warrant Trial
  - Summon Trial
  - Summary Trial
- d- Judgement
- e- Submission of Death sentence for confirmation
- f- Execution, Suspension, Remission and Commutation of Sentence
- g- Provisions as to accused person of unsound mind

**Unit IV :**

- a- Appeal, Revision and Reference
- b- Inherent Power of the High Court
- c- Miscellaneous:



- Maintenance of wife, children and parents
- Transfer of Criminal Cases
- Irregular Proceedings
- Limitation for taking Cognizance of certain offences

**Recommended Books:**

1. Ratan Lal & Dheeraj Lal, Cr.P.C. (Publisher –Bhatar Law House, New Delhi,25<sup>th</sup> Ed. 2006)
2. Batuk Lal Criminal Procedure Code (Publisher –Central Law Publication, Allahabad, 2016 )
3. V.N. Paranjape, Criminal Procedure Code (Publisher –Central Law Publication, Allahabad, 2017 )
4. S.N. Mishra, Criminal Procedure Code (Publisher –Central Law Publication,Allahabad, 2017 )
5. Muralidhar Chaturvedi, Criminal Procedure Code (Publisher – Allahabad Law Agency, Allahabad, 2016)

**Paper- XXII**  
**Law of Evidence**

**Unit – I: Introduction and Relevancy**

- a. Evidence and its relationship with the substantive and procedural laws
- b. Definitions – Facts, facts in issue, relevant facts, evidence proved, disproved, not proved, oral and documentary evidence
- c. Relevancy and admissibility
- d. Proof of Conspiracy

**Unit – II: Statements – Admissions / Confessions and Dying Declarations**

- a. Admissions
- b. Confessions
- c. Dying Declarations

**Unit – III: Method of proof of facts**

- a. Presumptions
- b. Presumption as to Abetment of Suicide and as to Dowry Death
- c. Expert opinion
- d. Evidence as to Character
- e. Admissibility of - oral and documentary evidence, primary and secondary evidence
- f. Law relating to Burden of proof
- g. Privileged Communications

**Unit – IV: Presumptions regarding discharge of burden of proof**

- a. Evidence by accomplice
- b. Judicial notice
- c. Presumption as to Certain Offences
- d. Improper admission and rejection of evidence
- e. Examination-in-chief, cross examination and re-examination
- f. Estoppel

**Recommended Books:**

1. M. Monir – The Law of Evidence (Publisher –Universal Law Publishing Co. ,G.T. Karnal Road, Delhi, 2017 )
2. Muralidhar Chaturvedi – Evidence Act (Publisher – Eastern Book Company, Lucknow)
3. Raja Ram Yadav – Indian Evidence Act (Publisher –Central Law Agency,Allahabad, 2017)
4. Batuk Lal –The Law of Evidence (Publisher –Central Law Agency,Allahabad, 2017 )
5. Raghunath Prasad Verma- Indian Evidence Act (Publisher – Allahabad Law Agency, Allahabad, 2017)
6. Avtar Singh – Indian Evidence Act (Publisher –Central Law Publications ,Allahabad, 2017)

Paper- XXIII

**LAW OF INTELLECTUAL PROPERTY**

**Unit-I:**

(A) Introduction to Intellectual Property: -

- (a) Concept and Meaning of Intellectual Property
- (b) Nature and Characteristics of Intellectual Property
- (c) Origin and Development of Intellectual Property
- (d) Kinds of Intellectual Property

(B) International Institutions and Basic International Conventions: -

- (a) Paris Convention for the Protection of Industrial Property, 1883
- (b) The Berne Convention, 1886
- (c) TRIPS Agreement, 1994
- (d) International Institutions Concerned with Intellectual Property.

**Unit-II: LAW OF COPYRIGHT**

- (a) Introduction
  - Nature, Evolution and Scope of Copyright
- (b) Subject Matters of Copyright
  - Work in which Copyright subsists
  - Authorship vis-a- vis Ownership
  - Copyright: Economic and Moral Rights
  - Duration of Copyright
  - Assignment, Transmission & Licensing
- (c) Limitations, Infringement & Enforcement of Copyright
  - Limitations and Exceptions of Copyright
  - Infringement
  - Enforcement of Copyright & Remedies

**Unit-III: LAW OF PATENTS**

- (a) Introduction
  - Evolution of Patents in India
  - International Treaties on Patents.
- (b) Patentability and Procedures for Grants of Patents.
- (c) Assignment, Transmission and Licensing of Patent
- (d) Limitations, Exceptions & Infringements.
- (e) Patent Authorities, Patent Agents & Emerging Issues.
- (f) Enforcement & Remedies

**Unit-IV: LAW OF TRADEMARK**

- (a) Introduction
  - Evolution of Trademark in India
  - Kinds of Trademarks
- (b) Registration of Trademarks
- (c) Commercial Exploitation of Trademarks
  - Rights of Proprietor

- Assignment, Licensing and Transmission of Trademark
- (d) Infringement and Passing off
- (e) Enforcement & Remedies

**Recommended Books:**

1. V. K. Ahuja :Law Relating to Intellectual Property Rights( Publisher – Lexis Nexies, Nagpur Ed.2012)
2. B. L. Wadehra: :Law Relating to Patents, Trade Marks, Copyright, Designs & Geographical Indications( Publisher – Universal Law Publishing Co. Ed.2012)
3. S. K. Singh: Intellectual Property Rights ( Publisher – Central Law Agency Allahabad Ed.2018)
4. R.K. Nagarajun : Intellectual Property Law ( Publisher – Allahabad Law Agency Allahabad Ed.2017)
5. Rodney D Ryder : Intellectual Property Law ( Publisher – Macmillan India Ltd, New Delhi 1st Ed.2005)

**Paper - XXIV**  
**PROFESSIONAL ETHICS AND PROFESSIONAL ACCOUNTING SYSTEM**  
**(CLINICAL COURSE/PROJECT WORK - 1)**

(50 marks for written paper and 50 marks for viva-voce)

**Unit I:**

- History and Development of Legal Profession in India
- Nature, Need and Importance of Legal Profession
- Constitution, Function, Powers and Jurisdiction of State Bar Council and Bar Council of India
- Efforts towards unification of the Bar of in India
- Admission and Enrolment of Advocates
- Accounting for Lawyers

**Unit II: Professional ethics and Advocacy**

- Standards of Professional Conduct and Etiquette
- Conflict between interest and duty
- Lawyers' Duty to court, to client, to opponent, to colleagues, towards society and obligation to render legal aid

**Unit III: Bench-Bar Relationship**

- Reciprocity as partners in the administration of Justice
- Code of conduct for Lawyers & Professional Misconduct
- Rights and Privileges of Advocates

**Unit IV: Contempt of Court Act, 1971**

- Historical Development of the Contempt of Court Act in India,
- Object and Scope of the Contempt of Court Act
- Definition & Kinds of Contempt
- Contempt by Judges, Magistrates, Lawyers and other persons
- Cognizance, Procedure, Appellate provisions regarding Contempt,
- Defences, Punishment and Remedies.

**Acts**

1. The Advocate Act, 1961
2. Contempt of Court Act. 1971
3. The Advocates Welfare Fund Act, 2001

**Rule**

**The Bar council of India Rules, 1961**

**Recommended Books:**

1. Holland Avrom Shree - Advocacy, (Publication- Universal Law Agency, Delhi, 1994)
2. Keith Eva -. The Golden Rules of Adovacy (Publication- Universal Law Agency, Delhi, 1994)
3. Raju Ramchandran – Professional Ethics (Publication- Lexis Nexis, New Delhi, Ed.2004)
4. Kailesh Rai – Legal Ethics Accountancy for Lawyers & Bench (Publication- Central Law Publications, Allahabad Ed.2014)

**Paper - XXV**  
**ALTERNATIVE DISPUTE RESOLUTION**  
**(CLINICAL COURSE/PROJECT WORK - 2)**

(50 marks for written paper and 50 marks for viva-voce)

**Unit-I: Concept of ADR**

- a. Meaning, Nature and Genesis of Alternative Dispute Resolution
- b. Forms of ADR Mechanism
- c. Legal Framework: Legal Services Authorities Act, 1987
- d. Legal Aid

**Unit-II: Negotiation and Mediation**

- a. Negotiation
- b. Theories, Development and its types
- c. Qualities of Negotiator and Process for Negotiation
- d. International Negotiation
- e. Mediation
- f. Good Offices

**Unit-III: Arbitration and Conciliation**

- a. Arbitration Agreement, Essentials, Rule of Severability
- b. Composition of Arbitral Tribunal, Extent of Judicial Intervention, Interim Measures, Power of Court to refer Parties to Arbitration
- c. Jurisdiction of Arbitral Tribunal, Competence of Arbitral Tribunal, Conduct of Arbitral Proceedings, Place of Arbitration
- d. Arbitral Award, Termination, Enforcement
- e. Conciliation and its Mechanism

**UNIT-IV: International Perspective**

- a. International Commercial Arbitration
- b. New-York and Geneva Convention
- c. UNCITRAL Model Law, Treaties etc.
- d. Enforcement of Foreign Award and Jurisdictional Issues

**Recommended Books:**

1. A.K. Dubey , *Law of Arbitration and Conciliation & Alternative Dispute Resolution* (Central Law Publications ,Allahabad, Ed. 2016)
2. Avtar Singh, *Law of Arbitration and Conciliation & Alternative Dispute Resolution Laws* (Publication-Eastern Book Company,Lucknow Ed. 2016)
3. V.N. Pranjape , *Law of Arbitration and Conciliation & Alternative Dispute Resolution Laws* (Publication-Central Law Agency, Allahabad ,Ed. 2016)

**LL.B. SIXTH SEMESTER**

**Paper – XXVI**

**CIVIL PROCEDURE CODE & LIMITATION ACT**

**Unit I : Introduction**

- a- Important terms & Definition under the Code of Civil Procedure
- b- Important concepts:
  - Mesne Profits
  - Suit of Civil Nature
  - Res Sub Judice
  - Resjudicata
  - restitution
  - Caveat
  - Inherent Power of The Courts

**Unit II : Initial steps in Suit**

- a- Jurisdiction and place of suing and transfer of suits
- b- Institution of suits, Summons and Discovery, inspection and production of documents
- c- Pleading: Meaning, Object, General rules, Amendment of pleadings
- d- Complaint, Written Statement, Framing of issues & Rejection of Complaints
- e- Judgement & Decree
- f- Interest and Costs

**Unit III :**

- a- Incidental Proceeding:
  - Commission
  - Power of the court to issue Commission
- b- Suits in particular cases:
  - Suits by or against Government
  - Inter-pleader Suits
  - Pauper Suit
- c- Special Proceeding: Suits Relating to-
  - Public Matters
  - Public Nuisance
  - Public Charities
- d- Supplemental Proceedings:
  - Arrest before Judgment
  - Attachment before Judgment
  - Temporary Injunction
  - Interlocutory Order
  - Compensation for Wrongful Arrest and Attachment
- e- Execution:
  - Procedure in Execution
  - Arrest and Detention
  - Attachment and Sale
  - Distribution of Assets (rateable distribution)

**Unit IV :**

- a- Appeals:
  - Appeals from Order
  - General Provisions relating to Appeals
  - Appeals to the Supreme Court

- b- Review, Reference & Revision
- c- Limitation Act, 1963

**Recommended Books:**

1. C.K. Takwani - Code of Civil Procedure (Publication-Eastern Book Company,Lucknow 5<sup>th</sup> Ed. 2005)
2. M.P. Tandan - Code of Civil Procedure (Publication-Allahabad Law Agency Publications, Allahabad Ed. 2013)
3. T.P. Tripathi - Code of Civil Procedure (Publication-Allahabad Law Agency Publications, Allahabad Ed. 2017)
4. A.N. Panday - Code of Civil Procedure (Publication-Central Law Agency, Allahabad Ed. 2013)



**Paper – XXVII**

**U. P. Revenue Code 2006**

**Unit-I**

- Introduction & Salient Features of the Code
- Definitions of important terms
- Board and Revenue Officers
- Boundaries and Boundary Marks
- Maintenance of Village Records

**Unit-II**

- Management of Land and Other Properties by Gram Panchayat or other Local Authorities
- Classes of Tenure holder and their rights -
  - Transfer
  - Division
  - Surrender
  - Abandonment

**Unit-III**

- Lease of Land by Gram Panchayat
- Ejectment
- Rent
- Declaratory Suits.

**Unit-IV**

- Assessment of Collection of Land Revenue
- Attachment and sale of immovable Properties
- Jurisdiction and Procedure of Revenue Courts (Jurisdiction of Civil & Revenue Courts, first appeal, second appeal, power to review, notice, limitation)
- Miscellaneous- delegation, power to enter upon land, lodging of caveat, power of an assistant collector first and second class, damages or destruction of boundary marks, power to make rules and regulations

**Recommended Books:**

- Prof. R.N. Chaudhary - U.P. Revenue Code 2006 (Publication-Eastern Book Company,Lucknow 1<sup>st</sup> Ed. 2017)

**Paper – XXVIII**  
**PRINCIPLES OF TAXATION**

**Unit I : General Principles of Taxation**

- 1- Needs
- 2- Meaning
- 3- Direct and Indirect Taxes
- 4- Tax & Fee
- 5- Tax evasion & Tax avoidance
- 6- Incidence & Shifting of Tax
- 7- Tax Planning & Management

**Unit II : Constitutional Principles of Taxation**

- 1- Power of Taxation
- 2- Distribution of Taxing Power
- 3- Residuary Power of Taxation
- 4- Inter Governmental Tax immunities
- 5- Finance Commission, Money & Finance Bill
- 6- Aims of Directive Principles of State Policy to be achieved through Taxation

**Unit III : Indirect Taxes: GST**

- 1- Introduction, nature & scope of GST
- 2- Important terms & definitions
- 3- Types of GST- CGST, SGST, IGST, UTGST
- 4- Valuation in GST
- 5- General Procedure: Registration, Return Filing, payment and cancellation
- 6- GST Administration: GST Council, GST Network
- 7- Authorities & Powers
- 8- Appeals, Review & Revisions
- 9- Penalties & Prosecution

**Unit IV : Direct Taxes: Income Tax ( IT Act, 1961)**

- 1- Introduction
- 2- Definition: Income, Agriculture Income, Person, Assessee, Taxable income
- 3- Basis of Charge: Residence & Tax Liability
- 4- Exemptions
- 5- Heads of Income: Income from Salary, Income from House Property, Profits & Gain of Business & Profession, Depreciation Allowance
- 6- Capital Gains
- 7- Income from Other Sources
- 8- Clubbing & Aggregation of Income
- 9- Set off and Carry Forward of Losses
- 10- Deductions
- 11- Assessment of Firms & Associations of Persons
- 12- Income Tax Authorities & Their Powers
- 13- Procedure for Assessment
- 14- Advance Payment of Tax
- 15- Appeals & Revision
- 16- Penalties

**Recommended Books:**

1. V. K. Singhania etc. - Students' Guide to Income Tax including GST(Publication-Taxman Publication Pvt. Ltd. Ed. 2018)
2. S. R. Myneni: Law of Taxation (Publication-Allahabad Law Agency , Faridabad, Haryana Ed. 2017)
3. Kailash Rai - Taxation Laws (Publication-Allahabad Law Agency , Faridabad, Haryana Ed. 2017)

Paper – XXIX

**PLEADING, DRAFTING AND CONVEYANCING**

**(CLINICAL COURSE/PROJECT WORK - 3)**

(45 Marks for Drafting & Pleading, 45 Marks for Conveyance and 10 Marks for Viva-Voce)

**Outline of the Course:**

1. **Drafting:** General Principles of Drafting and relevant substantive Rules shall be taught.
2. **Pleadings:**
  - (i) **Civil:** Complaint, Written Statement, Interlocutory Application, Original Petition, Affidavit, Execution Petition, Memorandum of Appeal and Revision, Petition under Article 226 and 32 of the Constitution of India.
  - (ii) **Criminal:** Complaint, Criminal Miscellaneous Petition, Bail Application, Memorandum of Appeal and Revision.
  - (iii) **Conveyance:** Sale deed, Mortgage deed, Lease deed, Gift deed, Promissory Note, Power of Attorney, Will, Trust Deed.
  - (iv) **Drafting of Writ Petition and PIL Petition.**

The Course will be taught with class instructions and simulation exercises, preferably with assistance of practicing lawyers/retired judges.

*Apart from teaching the relevant provisions of law, the course may include not less than 15 practical exercises in drafting carrying a total of 45 marks (3marks for each) and 15 exercises in conveyance carrying another 45 marks (3 marks for each exercise). Remaining 10 marks will be given for viva-voce.*

**Recommended Books:**

1. R. D. Srivastava – The Law of Pleading, Drafting and Conveyancing (Publication-Central Law Agency, Allahabad 12<sup>th</sup> Ed. 2008)
2. S. C. Dixit - Pleading, Drafting and Conveyancing (Publication-Central Law Publications, Allahabad Ed. 2012)
3. S.P. Agrawal – Pleadings (Publication- Lexis Nexis, New Delhi Ed. 2010)

## Paper – XXX

### MOOT COURT EXERCISE AND INTERNSHIP (CLINICAL COURSE/PROJECT WORK - 4)

(30 Marks for Moot Court, 30 Marks for Observation of Trial, 30 Marks for Internship and 10 Marks for Viva-Voce)

#### Outline of Course:

1. **Moot Court (30 Marks):** Every student may be required to do at least three moot courts in a year with 10 marks for each. The moot court work will be on assigned problem and it will be evaluated for 5 marks for Written Submission and 5 marks for Oral Advocacy.
2. **Observation of Trial in two cases - One Civil & one Criminal (30 Marks):** Students may be required to attend two trials during the course of LL.B. They will maintain a record and enter the various steps observed during their attendance on different days in the court assignment. This scheme will carry 30 marks.
3. **Interviewing Techniques and Pre-trial Preparations and Internship Diary (30 Marks):** Each Student will observe two interviewing sessions of clients at the Lawyer's Office/Legal Aid Office and Record the proceedings in a Diary, which will carry 15 marks. Each student will further observe the preparation of documents and court papers by the Advocate and the procedure for filing of the suit/petition. This will be recorded in the diary, which will carry 15 marks.
4. **Viva-Voce Examination (10 Marks):** The fourth Component of this paper will be Viva-Voce on the above three aspects. This will carry 10 marks.

#### Recommended Books:

1. S. P. Gupta - Moot Court (Publication-Central Law Agency , Allahabad Ed. 2004)
2. Kailash Rai - Moot Court (Central Law Publications ,Allahabad, Ed. 2016)

#### Mode of Assessment in Clinical Course/Project Work

The Assessment in all the Components of each CLINICAL COURSE/PROJECT WORK in V<sup>th</sup> and VI<sup>th</sup> Semesters shall be done by a Board Consisting of the following:

- (i) **Convener:** A Teacher of the University Law Department
- (ii) **External Examiner:** Who shall either be a Lawyer of not less than 10 Years standing at the Bar or a Retired/Sitting Judicial Officer.
- (iii) **Clinical Course/Project Work Teacher:** The Teacher concerned of the University/ College.

⑧ दीर्घात्मक अध्यायों को (खुद निश्चयपूर्वक, गौरवपूर्वक  
समीक्षा करें)

## COMMON MINIMUM CURRICULUM

### Psychology

	Marks
<b>B. A. I</b>	
Paper I: Basic Psychological Processes	60+20= 80
Paper II: Psychology of Human Development	60+20= 80
Paper III: Practical	40
<b>B. A. II</b>	
Paper I: Social Psychology	60+20= 80
Paper II: Psychological Statistics and Assessment	60+20= 80
Paper III: Practical	40
<b>B. A. III</b>	
Paper I: Personality	60+20= 80
Paper II: Psychopathology	60+20= 80
Paper III: Counseling Psychology	60+20= 80
Paper IV: Practical	60

**Note:** Each of the theory papers will carry 80 marks (60 marks for Annual examination and 20 marks for internal assessment).

## **B.A. I**

### **Paper I : Basic Psychological Processes**

**Objectives:** *To introduce the students with basic psychological processes and related researches and acquaint them with pertinent application fields of psychology.*

#### **Unit I**

- ❖ Psychology: Nature, Scope and Applications; Approaches: Psychodynamic, Behaviouristic, Cognitive and Humanistic.
- ❖ Methods: Observational, Experimental and Correlational.
- ❖ Biological Bases of Behavior: Neurons; Basic Structure and Functions of Peripheral and Central Nervous System.

#### **Unit II**

- ❖ Sensory Processes: Visual and Auditory Senses: Structure and Function; Psychophysics: Problems and Methods.
- ❖ Attentional Processes: Selective and Sustained Attention: Nature and Determinants.
- ❖ Perceptual Processes: Nature and Determinants; Perceptual Organization; Perceptual Illusion; Form and Depth Perception.

#### **Unit III**

- ❖ Learning: Concept, Classical and Operant Conditioning; Verbal Learning: Methods and Procedures.
- ❖ Memory and Forgetting: Stages of Memory: Encoding, Storage and Retrieval; Types of Memory: Sensory, Short Term and Long Term

Memory; Reconstructive Memory; Forgetting: Decay, Interference and Cue dependent forgetting theory.

- ❖ Motivation and Emotion: Concepts; Biogenic and Sociogenic Motives; Intrinsic-extrinsic framework; Basic Emotions; Theories of Emotion: James- Lange & Cannon-Bard Theory.

#### Unit IV

- ❖ Thinking and Reasoning: Concepts, Categories and Prototypes, Schemas and Scripts; Inductive and Deductive Reasoning; Problem Solving: Solution Strategies.
- ❖ Intelligence: Concepts and Determinants; Theories of Intelligence; Spearman, Thurston and Guilford.
- ❖ Personality: Concept and Determinants; Approaches to Personality: Psychoanalytic (Freud); Trait (Cattell) and Types (Eysenck), Socio-Cultural (Bandura & Triguna).

#### Books Recommended :

- Baron, R.A. (2001). *Psychology*. New Delhi: Pearson Education.
- D. Amato, M.R. (1979). *Experimental Psychology, methodology, psychophysics and learning*. India: Tata McGraw Hill.
- Feldman, R. S. (2006). *Understanding Psychology*. India: Tata McGraw Hill.
- Kalat, J.W. (2013). *Introduction to Psychology*. Cengage Learning.
- Mishra, G. (Eds.) (2011). *Handbook of Psychology in India*. New Delhi: Oxford University Press.
- Morgan, C. T., King, R.A. Weiz, J. R., Schopler, J. (2001). *Introduction to Psychology*. New Delhi: Tata McGraw Hill.



- त्रिपाठी, ला०ब०एवंअन्य (2001). *आधुनिकप्रायोगिकमनोविज्ञान*।आगरा: हरप्रसादभार्गव ।
- तिवारी, बी०डी०एवंत्रिपाठी, ए०एन० (1990). *आधुनिकदैहिकमनोविज्ञान*। वाराणसी: मोतीलालबनारसीदास ।
- Zimbardo, P.C. & Weber, A.L. (1997). *Psychology*. New York: Harper Collins College Publishers.

## Paper II : Psychology of Human Development

**Objectives:** *To develop an understanding of the concepts related to human development with special focus on different domains of development across life span.*

### Unit I Introduction

- ❖ **Human Development:** Concept, the Life Span approach, Foundation of development; Nature- Nurture and Socio-Cultural factors in human development. Principles of development.
- ❖ **Theoretical Perspectives of Development:** Psychoanalytic (Freud, Erikson), Cognitive (Piaget, Vygotsky) and Social Learning theory (Bandura).
- ❖ **Methodological Approaches:** Longitudinal, Cross-sectional, Sequential, Case study and Observational methods.

### Unit II Beginning of Human Life (Prenatal Period & Infancy)

- ❖ **Prenatal Development:** Stages of prenatal period, Effect of environmental factors on prenatal development; Genetics and Culture.
- ❖ **Infancy: Physical and Cognitive Development;** Period of adjustment, Reflexes and competencies in Neonates; Infancy: Physical growth, Motor skills, Handedness. Sensory, Perceptual Competencies and Cognitive development in Infants.
- ❖ **Social and Emotional Development:** Pattern of social development, Determinants; Emotional development: Types, Factors responsible for emotional development. Parent- Child attachment.

### **Unit III Childhood and Adolescence**

- ❖ **Physical and Cognitive Development:** Physical development, Motor skills; Pattern and Types of Cognitive development; Language development: Stages and Theories.
- ❖ **Emotional and Social Development:** Forms of Emotional Development. Conditions responsible for emotional development. Development of Social behaviours; Determinants, Social adjustment.
- ❖ **Moral and Personality Development:** Stages of Moral development; Kohlberg's and Piaget's views on moral development, Moral reasoning; Concept, and determinants of Personality Development; Identity Crisis in adolescents.

### **Unit IV Adulthood and Ageing**

- ❖ **Early Adulthood:** Adult identity, Developmental tasks, Developmental concerns: Marriage, Family and Adjustment, Occupational development.
- ❖ **Middle Adulthood:** Physical changes, Cognitive development, Personality development and Change, Developmental tasks and middle age crisis.
- ❖ **Late Adulthood:** Theories of Ageing, Physical changes, Health, Cognitive Changes and Cognitive Decline.

#### **Books Recommended :**

- Berk, L.E. (2007). *Development through the life span* (III Edition). New Delhi: PearsonEdu. Inc. Co.
- Boer, F.Gaedhart, A.W. & Treffers, P.D.A. (1992). *Siblings and their Parents*. In F. Boer & J. Dunn (Eds). *Children's Siblings relationship*. Hillsdale, NJ: Erlbaum.

- Cole, L. and Hall, I.N. (1970) *Psychology of Adolescence*. New York: Holt Rinehart & Winston Inc.
- Craig, G.J. (1979). *Human Development*. N. Jersey Prentice Hall.
- Gormly, Anne V. (1997). *Lifespan Human Development* (6th Ed.) New York: Holt Rinehart and Willston. Inc.
- Hurlock, E.B. (2002): *Developmental Psychology: A Life Span Approach* (5th Ed.). New Delhi: Tata McGraw Hill.
- Papalia, D.E, Olds S.W & Feldman, R.D. (2007). *Human development*. (10<sup>th</sup> Ed.) New York: McGraw Hill.
- Stewart, A.C., Parlmutter, M. & Friedman, S. (1988) *Life Long Human Development*. New York: John Wiley & Sons.
- त्रिपाठी, ला० ब० एवम पाण्डेय, सुषमा (2009). *मानव विकास का मनोविज्ञान*. नई दिल्ली: कॉन्सेप्ट पब्लिशिंग कंपनी.

### **Paper III : Practical**

#### **Topics for Practical Work**

*Students will be required to conduct at least **Eight** Practical from the topics listed below:*

- Muller Lyer Illusion/ Method of Minimal Changes/ Method of Constant Stimuli
- Sustained Attention/Time Perception
- Paired Associate Learning/Clustering in Verbal Learning
- Reconstructive Memory
- Retroactive Inhibition
- Set in Problem Solving
- Motivation/Emotion
- Intelligence Test
- Moral Judgment
- Adjustment Test

**Books Recommended:** As per mentioned for theory papers

## **B.A. II**

### **Paper I : Social Psychology**

**Objectives:** *To familiarize students about how individual behavior is influenced by social and cultural contexts and how social problems can be analyzed in terms of various social psychological factors and theories.*

#### **Unit I**

- ❖ Social Psychology: Nature, and Scope; Experimental, and Correlational methods, Cross-cultural Research.
- ❖ Person Perception: Concept, Determinants of Impression formation; Self Perception; Impression management.
- ❖ Social Cognition: Schema, Schematic processing; Attribution: Theories and Biases.

#### **Unit II**

- ❖ Attitude: Nature, Formation and Measurement.
- ❖ Interpersonal Attraction: Nature, measurement and determinants.
- ❖ Aggression: Nature and characteristics; Theories; Factors provoking Aggression and its Control.

#### **Unit III**

- ❖ Helping Behavior: Nature and Characteristics; Determinants.
- ❖ Social Influence Processes: Nature and types: Conformity; Compliance and Obedience.
- ❖ Intergroup Relations: Prejudice; Discrimination and Social Identity.

#### **Unit IV**

- ❖ Group Influence: Social facilitation; Social loafing; Group Polarization; Group Think; De-individuation and Mob-behavior.

- ❖ Leadership: Concept and Approaches; Trait, Situational, Interactional and Contingency theory of leadership.
- ❖ Communication: Nature and Process; Barriers in Communication.

### Books Recommended

- Baron, R.A. & Branscombe, N.R. (2012). *Social Psychology* (13<sup>th</sup> Edition) New Delhi: Pearson.
- Donnerstein, M.V. & Donnerstein E.I. (Eds.) (1984). *Social Psychology*. W.W. Brown, Dubuque.
- Feldman, R.S. (1985). *Social Psychology: Theories, Research and Applications*. New York: McGraw Hill.
- Myers, D. G. (1994). *Exploring Social Psychology*. New York: McGraw Hill.
- Secord, P.F. & Backman, C.W. (1974). *Social Psychology*. New York: McGraw Hill Ltd.
- Taylor, S.E., Peplau, L.A. & Sears, D.O. (2006). *Social Psychology*. Pearson/Prentice Hall.
- त्रिपाठी, एल०बी०एवंसहयोगी (2001). *आधुनिक सामाजिक मनोविज्ञान*। आगरा: हरप्रसाद भार्गव
- Worchel, S. & Cooper, J. (1983). *Understanding Social Psychology*. Illinois: Dorsey Press.

## **Paper II : Psychological Statistics and Assessment**

**Objectives:** *To comprehend the assumptions, applications and limitations of a range of statistical techniques and to familiarize students with various psychological assessment techniques.*

### **Unit I**

- ❖ Psychological statistics: Introduction, Types (Descriptive & Inferential); Measurement Scales; Frequency Distribution and Graphic Representation of data.
- ❖ Measures of Central Tendency: Mean, Median and Mode.
- ❖ Measures of Variability: Range, Quartile Deviation, Standard Deviation.

### **Unit II**

- ❖ Normal Distribution: Concept of Probability, Characteristics, Normal Probability Curve, Skewness and Kurtosis. Applications of Normal Probability.
- ❖ Correlation: Concept of Linear Correlation; Pearson Product Moment Correlation and Spearman Rank Order Correlation; Interpretation of Correlation.

### **Unit III**

- ❖ Inference and Prediction: Population and Sample; Sampling Methods; Parametric and Non parametric tests.
- ❖ Computation of test: Difference between means between Independent groups and Correlated samples. Interpretation of t test.
- ❖ Chi Squares: Computation of Chi Square from simple and contingency table; Application of Chi Square.



## Unit IV

- ❖ Psychological Assessment: Nature and Scope; Techniques of assessment.
- ❖ Psychological Test Construction: Steps; Reliability, Validity and Norms.
- ❖ Types of Psychological Tests; Verbal and Non-Verbal; Tests for General and Special Abilities (Aptitude).

### Books Recommended

- Anastasi, A. & Urbina, S.(1999). *Psychological testing* (7th International Ed.). New York: Macmillan.
- Anastasi, A. (1997). *Psychological Testing*. New York: Macmillan.
- Garret, H. C. (1981). *Statistics in Psychology and Education*. New York: Longmans, Green & Co.
- Garret, H. C. (2003). मनोविज्ञान और शिक्षा में सांख्यिकी. नई दिल्ली : मोतीलाल बनारसी दास.
- Guilford, J.P. (1984). *Psychometric Methods*. Tata-McGraw Hill.
- कपिल, एच०के० (1980). सांख्यिकी के मूल तत्व I आगरा: विनोद पुस्तक मंदिर I
- Kaplan, R. N. & Saccuzzo D.P. (2001). *Psychological Testing: Principles, Applications and Issues*. USA: Wadsworth Thomson Learning.
- लाल, जे०एन० (2012). मनोवैज्ञानिकसांख्यिकी I गोरखपुर: नीलकमल प्रकाशन I
- मिश्रा, बब्बन एवं त्रिपाठी, ला०ब० (2001). मनोवैज्ञानिकसांख्यिकी I आगरा: हरप्रसादभार्गव I
- Snodgrass, J. G. (1985). *Human Experimental Psychology*. Oxford University Press.
- वर्मा, पी० एवं श्रीवास्तव, डी०एन० (1996). मनोविज्ञान और शिक्षा में सांख्यिकी I आगरा: विनोद पुस्तक मंदिर

### **Paper III : Practical**

#### **Topics for Practical Work**

*Students would be required to design and conduct at least Eight Practical from the topics listed below:*

- Person Perception: Methods of Averaging or Halo effect
- Social Perception
- Success & Failure Attribution
- Prejudice/Stereotypes
- Interpersonal Attraction
- Attitude Measurement
- Conformity
- Social Facilitation/Social Loafing
- Helping behavior
- Aggression
- Leadership

**Books Recommended:** As per mentioned for theory papers

## **B.A. III**

### **Paper I : Personality**

**Objectives:** *The course enables the students to understand, analyze and assess personality from diverse psychological approaches*

#### **Unit I**

- ❖ Introduction: Nature, Historical perspective, Indian Perspective on Personality.
- ❖ Biological and Social Determinants of Personality; Family Determinants and Socio-cultural Factors, Person-Environment Interaction.
- ❖ Assessment of personality: Psychometric and Projective.

#### **Unit II**

- ❖ Psychodynamic View: Freud, Jung and Adler.
- ❖ Erik Erikson's theory of personality.
- ❖ Henry Murray's Personology.

#### **Unit III**

- ❖ Gordon Allport and Cattell's theory of personality.
- ❖ Hans Eysenck's Biological Trait Theory.
- ❖ Big Five Theory of personality.

#### **Unit IV**

- ❖ George Kelly's Personal Construct theory
- ❖ Carl Rogers's Person – Centered Theory
- ❖ Albert Bandura and Walter Mischel's Theories

#### **Books Recommended**

- Engler, B. (2009). *Personality Theories: An Introduction*. Wadsworth Publishing Co.Inc.
- Hall, C.S., Lindzey, G. & Campbell, J.B. (1997). *Theories of Personality* (Fourth Edition). Wiley Student Edition.
- Hjelle, L.A. & Ziegler, D.J. (1992). *Personality Theories: Basic assumptions, Research and Applications* (Third Edition). McGraw Hill International Editions, Psychology Series.
- Larsen, R. J. & Buss, D.M. (2017). *Personality Psychology: Domains of Knowledge about Human Nature* (Sixth Edition). McGraw Hill Publication.
- श्रीवास्तव, डी० एन० (2010). व्यक्तित्व का मनोविज्ञान I आगरा: अग्रवाल प्रकाशन I
- सिंह, ए० के० एवं सिंह, ए० के० (2017). व्यक्तित्व का मनोविज्ञान I वाराणसी: मोतीलाल बनारसी दास I

## **Paper II : Psychopathology**

**Objectives:** *To familiarize students about normal and abnormal behaviour and aware them about the nature and course of various abnormal conditions and skills needed for psychological assessment of different abnormal conditions.*

### **Unit I**

- ❖ Concept and elements of psychopathology: Statistical, Social and Practical Criteria.
- ❖ Classification in Psychopathology, DSM IV-TR.
- ❖ Models of Psychopathology: Psychodynamic, Behavioural, Cognitive, Humanistic –Existential Models.

### **Unit II**

- ❖ Anxiety Disorder (Panic Disorder, GAD, Phobia and OCD): Clinical picture, Diagnostic criteria and Etiology.
- ❖ Somatoform and Dissociative Disorders: Clinical picture, diagnostic criteria and etiology.
- ❖ Delirium, Dementia and Amnesic disorder: Clinical picture, diagnostic criteria and etiology.

### **Unit III**

- ❖ Mood Disorders: Major depressive disorder, bipolar disorder, cyclothymia, dysthymia and SAD (Seasonal Affective Disorder): Clinical picture, diagnostic criteria and etiology.
- ❖ Schizophrenia: Historical backgrounds, major types, negative and positive symptoms, etiology of schizophrenia; genetic, biological and psychological perspectives.

#### Unit IV

- ❖ Disorders of Childhood: Attention Deficit/ Hyperactivity disorder, Mental Retardation, Autistic Disorder: Types, clinical picture and etiology.
- ❖ Substance – related disorders: Various forms and causes.
- ❖ Stress: Concept and types; Post Traumatic Stress Disorder (PTSD): Clinical picture and etiology.

#### Books Recommended

- Bootzin, R.R. (1995). *Abnormal Psychology: Current Perspectives*. McGraw Hill Inc.
- Comer, R. J. (2009). *Abnormal Psychology*. Worth Publisher.
- Davison, G.C., Neale, J.M. &Kring, A.M. (2007). *Abnormal Psychology*. Wiley International Edition.
- कार्सन, आर०सी०, ब्रुचर, जे०एन०, मिनेका, एस०एवं हुली, जी०एम्० (2016). असामान्य मनोविज्ञान I पियरसनएजुकेशन I
- Sarason, I.G. &Sarason, B.R. (2005). *Abnormal Psychology: The Problem of Maladaptive Behavior*. Prentice Hall India Learning Private Limited.
- त्रिपाठी, जयगोपाल एवं त्रिपाठी, विवेक (2007). असामान्य मनोविज्ञान I आगरा: हरप्रसादभार्गव I
- सिंह, लाभ एवं तिहारी, गोविन्द (2008). असामान्य मनोविज्ञान I आगरा: विनोद पुस्तक मंदिर I
- सिंह, अरुणकुमार(2009). आधुनिक असामान्य मनोविज्ञान I वाराणसी: मोतीलाल बनारसीदास I
- सिंह, आर०एन०(2010). आधुनिक असामान्य मनोविज्ञान I आगरा: अग्रवाल प्रकाशन

### **Paper III : Counseling Psychology**

**Objective:** *To familiarizes students with the nature and process of counseling, its major theories and techniques and introduce them to the different fields of application of counseling.*

#### **Unit I**

- ❖ Counseling: Meaning, Purpose and Goals.
- ❖ Types of Counseling: Directive, Non- directive and Eclectic; Individual and Group Counseling.
- ❖ Professional issues and Ethics.

#### **Unit II**

- ❖ Theories and Techniques: Psychoanalytic Approach (Sigmund Freud's and Erickson's Contribution); Humanistic Approaches (Carl Roger's and Abraham Maslow's Contribution; Key Concepts and Techniques)
- ❖ Cognitive-Behavioral Approaches: Key Concepts and Techniques; Albert Ellis's Rational Emotive Therapy; Beck's Contribution.
- ❖ Indian Contribution to Counseling; Theories and Techniques.

#### **Unit III**

- ❖ Counseling Processes: Counseling Interview, Phases of Counseling (Initial, Middle, Terminal & Follow-up).
- ❖ Counseling Micro Skills: Attending, Paraphrasing, Encouragers, Confronting and Summarizing.
- ❖ Crisis Interventions; Counseling for victimized women, abused children and elderly people.

## Unit IV

- ❖ Family and Marriage Counseling; Student counseling; career and vocational counseling.
- ❖ Counseling for children with special needs: Cognitive, emotional and behavioral deficits.
- ❖ Counseling in organizations: Employee counseling, counseling for work place bullying and stress management.

### Books Recommended

- Edward, N. (2011). *Counseling Theory and Practice*. Cengage Learning.
- Gelso, C. J. & Pretz, B.R. (1995). *Counseling Psychology*. Bangalore: Prism Books Pvt. Ltd.
- Gibson, R. L. & Mitchell, M.H. (2005). *Introduction to Counseling and Guidance* (6th Ed.) Pearson Education.
- Kapur, Malavika (2011). *Counseling Children with Psychological Problems*. Pearson Publications.
- Nelson-Jones, R. (2011). *Theory and Practice of Counseling & Therapy*. New Delhi: Sage South Asia Edition.
- Patri, V. R. (2008). *Counseling Psychology*. New Delhi: Authors Press.
- Rao, S. N. (1991). *Counseling and Guidance* (28th Reprint 2008). New Delhi: Tata McGraw Hill.
- राय, ए०एवं अस्थाना, एम्० (2003). *आधुनिक परामर्शन मनोविज्ञान I* नई दिल्ली: मोतीलाल बनारसीदास I
- Woolfe, R., Dryden, W. & Strawbridge, S. (2003). *Handbook of Counseling Psychology* (2<sup>nd</sup> Ed.). London: Sage Publication Ltd.



## **Paper IV : Practical**

- 1. Administration, Scoring and Interpretation**
  - A) T.A. T. / Sentence Completion Test (Any one)
  - B) J.M.P.I. /16 PF/NEO-PI-R(Any one)
  
- 2. Administration, Scoring and Interpretation (Any Two)**
  - A) Anxiety/Depression/Stress Test
  - B) Mini Mental Status Examination
  - C) Screening of Learning Disability
  - D) Child Abuse/Domestic Violence/Substance Abuse
  - E) Aptitude Test
  
- 3. Field Study/Long Experiment**

**Books Recommended:** As per mentioned for theory papers.

9) दी नदी लखनपुर विद्यालय, लखनपुर  
रक्षा मध्येय

## **MODEL SYLLABUS for Defence and Strategic Studies**

### **Objectives**

1. Attainment of sound knowledge about the basics that the students is expected to imbibe in the subject.
2. Having a clear understanding of the key concepts related to the subject along with their applications in real life situations.
3. Development of analytical skills so as to be able to appreciate the importance of the subject and spread its awareness.
4. Inculcate a spirit of nationalism and develop good values contributing to building strong national character.

### **Programme learning outcomes relating to UG programme.**

1. Upon completion of the programme of Bachelor's in Defence and Strategic Studies, a student should have acquired basic competency in strategic affairs covering a wide spectrum of interstate security to global security issues including non kinetic dimensions.
2. Shall develop capability in understanding the implications of use and threat of use of force in International relations.
3. Shall seek, identify and apply the acquired knowledge in defence and strategic studies on contemporary issues of strategic relevance.
4. Ability to move from LOTS (Lower Order of Thinking Skills) to HOTS (Higher Order of Thinking Skills) in Defence and Strategic Studies.
5. The learning of strategic studies shall arm the candidates to independently choose further course of action in his/her life whether pursuing higher education by taking specialized course in honours or identifying a career for himself or herself.

## Format for U.G. Examinations

The entire curriculum is to be divided into four units and each question paper will have :

1. First question-compulsory-comprising of 10 short answer questions covering the entire curriculum. This question will carry 40% marks of the total marks.
2. The rest of the question paper will be divided into FOUR UNITS, comprising of two questions in each unit. Therefore ,the total number of questions in each paper shall be NINE.
3. Student will have to attempt one question from each unit.
4. All these Four questions will be of equal marks and will carry 60% marks of the total marks.
5. The minimum passing marks in each paper shall be 33% of the total marks. The candidate has to pass theory and practical separately. Total passing percentage to obtain the degree shall be 36%.
6. In the part-I and part-II there shall be two theory papers and one practical and for BA/BSc-III, there shall be 3 or 4 papers ( **depending upon the committee's decision considering the uniformity issue**) and one practical.

# **B.A./B.Sc.-I**

## **PAPER – 1**

### **CONCEPTUAL ASPECTS OF WAR**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Clearly understand the definition, meaning and distinguish basic concepts of war;
- Various types of war and its various typologies, techniques and characteristics; and
- Grasp the concept and theories of nuclear war in detail.

### **CONTENTS**

#### **UNIT-1**

##### **i. Conceptual Formulation**

- a. Meaning and definition of Defence and Strategic Studies – Its relevance and significance and relationship with other disciplines of study.
- b. War - Definition and meaning and basic concepts – War, Campaign, Battle, Strategy, Tactics, Security and Defence.

#### **UNIT-2**

##### **ii. Modern Warfare**

- a. Concept and definition
- b. Features of Modern Warfare
- c. Principles of warfare

### **UNIT-3**

#### **iii. War as an Instrument of Policy**

#### **iv. Guerilla Warfare**

- a. Origin and concept.
- b. Principles, techniques and characteristics of guerrilla warfare.
- c. Counter guerrilla measures.

### **UNIT-4**

#### **v. Psychological Warfare**

- a. Definition and concept.
- b. Functions and Limitations.

#### **vi. Nuclear Warfare**

- a. Beginning of nuclear era and effects of nuclear explosion.
- b. Nuclear strategies of 'Deterrence' and 'Massive Retaliation'.

#### **SUGGESTED READINGS:**

- Andreski S., (1968) Military Organization and Society, Univ. California Press, Berkeley.
- Anthony James Joes, (1996) Guerrilla Conflict before the Cold War, (Praeger Publishers,
- Aron R., (1966) Peace and War: A Theory Of International Relations, Praeger, New York.
- Barringer R., 1972) War: Patterns Of Conflict, MIT Press, Cambridge, Mass.
- Blainey G., (1973) The Causes Of War, Macmillan, London.
- Montgomery Viscount, (1983) A History of Warfare, William Morrow & Co, New York City.
- Mukherji and Shyam Lal, (1952) A Textbook of Military Science, Vol. II., Navayuga, New Delhi.
- Osanka, F.M., (1962) Modern Guerrilla Warfare, Free Press of Glencoe, New York.
- Sidhu, K.S., (1988) War and Its Principles, Atlantic, New Delhi.
- Tripathi, K.S., (1970) Evolution of Nuclear Strategies, Vikas, New Delhi
- Wright, Quincy, (1942) Study of War, University of Chicago Press.

## **PAPER – 2**

### **INDIAN MILITARY HISTORY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Become familiar in evolution of art of warfare in India;
- Learn and understand the Strategy, tactics, application of principles of war and causes of defeat and victory of various Indian, Mughal, Maratha and Sikh Generals.
- Besides, in a position to appreciate and understand evolutionary changes in the art and science of war in India through ages.

### **CONTENTS**

#### **UNIT-1**

**i. Macedonian and Indian Military Organisations and techniques of fighting with particular reference to the Battle of Hydaspes, 326 B.C.:**

- a. Military Organisations and techniques of fighting of Macedonian and Indians; Opposing forces and their deployment.
- b. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory).

**ii. Kautilya's Philosophy of War:**

- a. Diplomacy and Strategy; The institution of Spies; Army Organisation; Mode of Warfare.
- b. Forts- Types & Role.

## **UNIT-2**

### **iii. Military organisations and techniques of fighting of Rajputs and Turks with particular reference to the Battle of Tarain, 1192 A.D.:**

- a. Military organisations and techniques of fighting of Rajputs and Turks; Opposing forces and their deployment.
- b. Analysis (strategy, tactics, application of principles of war and causes of defeat and victory.)

### **iv. Military organisations and techniques of fighting of Mughals with particular reference to the First Battle of Panipat, 1526 A.D.:**

- a. Military organisation of Mughals; Opposing forces and their deployment
- b. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory).

## **UNIT-3**

### **vi. Military organisations of Marathas under Shivaji and his techniques of fighting:**

- a. Shivaji as a military leader.
- b. Military organisation.
- c. Techniques of fighting.

### **vii. Military organisation of Sikh Army and its fighting techniques under Maharaja Ranjit Singh:**

- a. Maharaja Ranjit Singh as a Military leader.
- b. Growth and development of the Sikh Army from 1799-1849
- c. Organisation of the Army d. Fighting techniques of the Sikh Army (Strategy and tactics).

## **UNIT-4**

### **viii. Anglo-Maratha and Anglo-Sikh Warfare with particular reference to the Battle of Assaye, 1803 A.D. and Battle of Chillianwala**

#### **A. Battle of Assaye :**

- a. Introduction - Opposing forces and their deployment; Description of the battle.
- b. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory).

#### **B. Battle of Chillianwala:**

- a. Introduction - Opposing forces and their deployment; Description of the battle
- b. Analysis (Strategy, tactics, application of principles of war and causes of defeat and victory).

**SUGGESTED READINGS** - • Alfred, David., (1953) Indian Art of War, Atma Ram , Delhi. • Bajwa F.S., (1964) Military System of the Sikhs, Moti Lal, Banarsi Dass, Delhi. • Bruce, George., (1969) Six Battles of India, Rupa & Company, Calcutta. • Das, S.T., (1969) Indian Military - Its History and Development, Sagar, New Delhi. • Dikshitar, Ramachandra V. R. (1999) War in Ancient India. Cosmo, New Delhi. • Fuller, J.F.C., (1958) Generalship of Alexander The Great, Natraj Publishes, Dehradun. • Gustav Oppert, (1967) Weapons, Army Organisation and Political Maxims of Ancient Hindus, R.F Patel Rajratan Press, Ahmedabad. • Kangle, R.P., (1963) Kautilya's Arth Shastra, University of Bombay, Mumbai. • Majumdar, B.K., (1960) Military System in Ancient India, Firma K.L. Mukhopadhyoy, Calcutta. • Majumdar, B.N., (1963) Study of Indian Military History. Army Educational Store, Delhi. • Roy, Kaushik, (2004) From Hydaspes to Kargil: A History of Warfare in India from 326 BC to AD 1999. Manohar, New Delhi.

## **PRACTICAL**



# **B.A./B.Sc.-II**

## **PAPER – 1**

### **KEY CONCEPTS OF SECURITY AND DIPLOMACY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Develop core competencies in national security affairs by building his/her capacity on essentials of National Security through theory and practice.
- understand the basic concepts of Diplomacy, international relations and how nation-state system works;
- Acquire competency in military and state - centric aspects of international relations; and
- Understand the Contemporary security environment in the world.

### **CONTENTS**

#### **UNIT-1**

##### **i. National Power and National Security:**

Conceptual Aspects.

##### **ii. Elements of National Security**

#### **UNIT-2**

##### **iii. National Interest**

a. Concept and Definition

b. Vital and Non-Vital Components

c. Instruments to secure National Interest.

##### **iv. International Relations:**

Concept and its Historical Evolution.

### **UNIT-3**

#### **v. Balance of Power**

- a. Meaning and concept
- b. Historical development of the system

#### **vi. Collective Security**

- a. Meaning and Concept
- b. Role of the UN in maintaining Collective Security

### **UNIT-4**

#### **vii. Diplomacy:**

Definition, Types and uses

#### **viii. Contemporary security environment in the world in brief.**

**SUGGESTED READINGS** • Booth, Ken, (2007), Theory of World Security: Cambridge University Press, Cambridge. • Buzan, Barry., (1987), People, State and Fear, Trans Asia Publications. New Delhi. • Das, S.T., (1987), National Security in Perspective, Gyan Publishing House, New Delhi. • Frankel, Joseph, (1970), National Interest, Macmillan London. • Military Balance., Latest Edition (IISS) • Morgenthau, Hans J., (1969), Politics Among Nations, Scientific Book Agency, Calcutta. • Palmer, Norman D. and Perkins, Howard C., (1968), International Relations, Scientific Book Agency, Calcutta. SIPRI Year Book Latest Edition. Chandra, P., (1979) International Politics, Vikas Publications, N. Delhi • Kumar, Mahendra, (1967) Theoretical Aspects of International Politics, Shiv Lal Agarwal, Agra. • Sprout and Sprout, (1962) International Politics, Princeton, NJ. • Wright, Quincy, (1980) A Study of International Relations, Irvington Publishers.

## **PAPER-II**

### **STRATEGIC THOUGHT**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Acquaint them with the concepts of strategic thinking as propounded by prominent classical and modern thinkers.
- Students will also develop analytical thinking regarding relevance of such thought to contemporary period.

### **CONTENTS**

#### **UNIT-1**

- i. Sun Tzu- The Art of war.
- ii. Kautilaya's Philosophy of war.
- iii. Kamandak and Shukra-Their views on State,King,Forts and Military System

#### **UNIT-2**

- iv. Clausewitz's theories on war.
- v. Jomini's views on Strategy,Tactics and Logistics
- vi. J.F.C. Fuller and Liddell Hart: Their views on warfare

#### **UNIT-3**

- vii. Mahan's Views on Sea Power and Naval Warfare.
- viii. Douhet and Mitchell: Their views on the Role of Air Power in Modern Warfare.

## UNIT-4

ix. **John Foster Dulles and Andre Beaufre** - Theories of Nuclear War and Deterrence.

x. **Mao-Tse-Tung's** views on Guerrilla warfare.

xi. **Mahatma Gandhi's** views on Conflict Resolution and World Peace.

**SUGGESTED READING** • Beaufre Andre ., (1965) Deterrence and Strategy, Faber & Faber, London. • Dass, S.T., (1987) An Introduction to the art of war, Sagar Publishers, New Delhi. • Earl, E.M., (1943) Makers of Modern Strategy, Princeton University Press, Princeton. • Fuller, J.F.C., (1992) The Conduct of war: : A Study of the Impact of the French, • Fuller, J.F.C., (1998) Armament and History: The Influence of Armament on History • from the Dawn of Classical Warfare to the End of the Second World War, Da Capo Press, New York • Mao-Te-Tung., (1967) On the protracted War: Selected works, Foreign Language Press, Peking. • Nasution, Abdul Haris., (1965) Fundamentals of Guerrilla Warfare, Fredrick A Praeger, New York. • Reid, Brian Holden., (1987) J.F.C.Fuller: Military Thinker, Palgrave MacMillan, UK. • Shyama Shastri., (2012) Kautilya's Arthashastra, Low Price Publications, New Delhi. • Tzu, Sun., (2015) The Art of War, Grapevine India Publishers, New Delhi.

## PRACTICAL

## **B.A./B.Sc.-III**

There shall be 3 or 4 theory papers ( depending upon the committee's decision considering the uniformity issue) and one practical in UG third year. First two papers will be CORE PAPERS while one or two others may be selected from the cluster of Optional papers.

### **CORE PAPER – 1**

#### **INDIA'S NATIONAL SECURITY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Equip the students with specific knowledge of India's threat perceptions;
- Assess at both internal and external level besides fair idea of problems the country faces as a nation state; and
- Understand the Non Traditional Threats India facing nowadays.

#### **CONTENTS**

##### **UNIT-1**

###### **i. National Security**

- a. Meaning and Definition
- b. Threat Perceptions
- c. Types of threats to India

###### **ii. India's Security Problems since independence.**

- a. Geo-political effects of partition.
- b. Effects of Armed Forces

##### **UNIT-2**

###### **iii. External Dimensions of India's security**

- a. Security problems related to Pakistan including Indo-Pak wars.

b. Security problems related to China including 1962 Sino-Indian war.

**iv. Internal dimension of India's security**

a. State Sponsored Terrorism in Jammu & Kashmir

b. Insurgency in North eastern states

c. Naxalism

**UNIT-3**

**v. Cyber Threat and National Security**

a. Threat typology

b. Impact on Armed Forces & Law enforcement Agencies' Information Systems –

c. Impact on National Economy/Market - Impact on Citizen Security.

**UNIT-4**

**vi. Environment Security** – Definition, concept and threats

**vii. Energy Security** – Definition, concept and threats

**SUGGESTED READING** • Bajpai, U.S., (1986) India and its Neighbourhood, Lancer International, New Delhi. • Bobbing, Ross and Gordon, Sandy, (1992) India's Strategic Future, Oxford University Press. Delhi • Chatterjee, R.K. (1978) India's Land Borders- Problems and Challenges: New Delhi, Sterling Publishers. • Chaudhury, Rahul Roy, (1995) Sea Power and India's Security, Brassey's, London, • Dass, S.T., (1987) National Security in Perspective Gyan Publishers, Delhi. • Kavic, Lorne J., (1967) India's Quest For Security: Defence Policies 1947-1965, University of California Press, Los Angeles.. • Nayar, V.K., (1992) Threats From Within, Lancer Publications, New Delhi,.. • Rao, Ramakrishna and Sharma, R.C., (1991) India's Borders, Scholars' Publishing Forum, New Delhi. • Singh, Jaswant (1999) Defending India, Palgrave Macmillan India Ltd, New Delhi.

## **CORE PAPER – II**

### **SCIENCE , TECHNOLOGY AND WARFARE**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Acquire knowledge on how significant the role of science and technology is to Society and to National Security.
- The paper also provides realization in contemplating on the military-industrial complex (MIC) of a nation; besides
- Understanding the concepts and applications of Electronics Warfare and Ballistic Missile Defence (BMD).

### **CONTENTS**

#### **UNIT-1**

- i. Science, Technology and National Security.**
- ii. Impact of Science and Technology on warfare in Napoleonic era.**  
Weapons and Tactics

#### **UNIT-2**

- iii. Impact of Science and Technology on warfare in world war-I.**  
Weapons and Tactics
- iv. Impact of Science and Technology on warfare in World War-II.**  
Weapons and Tactics

#### **UNIT-3**

- v. Revolution in Military Affairs and its impact on warfare**  
Technologies, Low Intensity Conflicts, New Weapons
- vi. Electronics Warfare: Concept and applications**

**vii. Ballistic Missile Defence (BMD): Concept and applications.**

**UNIT-4**

**viii. Information Warfare: Concept and applications**

**ix. Technology Transfer**

- a. International interdependence
- b. Role of multinational corporations.

**SUGGESTED READING** • Anand. A. (2003) Information Technology: The future warfare weapons, Ocean Books, New Delhi. • Arcangelis, Mariode, (1990) Electronics Warfare, Ratna , New Delhi. • Jasbir R.K, (1987) Handbook of military science and Armament Technology, Natraj publications, Dehradun. • Johan Erickson (Ed.) (1966) The Military Technical Revolution: Its Impact on strategic and Foreign Policy, Frederick A Praeger, New York. • Macksey, Kenneth (1986) Technology in War: The impact of Science on weapon development and modern battle, Prentice Hall, New York. • Mann T.S., (1982) Transfer and Technology, Himalaya Publications House, Bombay. • Rajan,Y.S. (2001) Empowering India (with Economic Business & Technological strengths for the twenty First Century), Har Anand Publications, New Delhi,.



## **B.A./B.Sc.-III**

### **OPTIONAL PAPERS**

#### **OPTIONAL PAPER – 1**

##### **MILITARY PSYCHOLOGY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- To understand and appreciate psychological aspects of war making, military leadership and emotional issues that is faced by soldiers during war and peace.
- Apart from this, they will also learn the importance of leadership, discipline man management, motivation and morale factors in a soldiers' life.

##### **CONTENTS**

###### **UNIT-1**

###### **i. Military Psychology:**

Definition, Scope, Significance and its role during war and peace.

###### **ii. Psychological Weapons of War:**

Propaganda, rumor and indoctrination.

###### **UNIT-2**

###### **iii. Fear and Panic in War:**

Causes, Consequences and management.

###### **iv. Military Leadership:**

Meaning, attributes, importance and role of training.

###### **UNIT-3**

###### **v. Discipline:**

Definition, purpose and tools of maintaining discipline.

###### **vi. Motivation and Morale factors and their utilization in the armed forces.**

## UNIT-4

vii. **Man Management:-**Concept, importance and strategy vis-à-vis armed forces.

viii. **Emotional problems and adjustment during war and peace.**

**SUGGESTED READING** • Bartlett, F.C., (1927) *Psychology and the Soldier*, Cambridge University Press, Cambridge. • Baynes, John., (1967) *Morale: A study of Men and courage*, Cassell, London. • Boring, Edward G., (ed.), (1945) *Psychology for the Armed Services*, Natraj Publishers, Dehradun. • Chibber, M.L. (1986) *Military Leadership to Prevent Military Coup*, Lancer International, New Delhi. • Copeland, Norman, (1967) *Psychology and the Soldier*, English Book Depot, Dehradun. UGC Document on LOCF Defence Studies 38 • Hasnain Qamar, (1967) *Psychology for the fighting man*, English Book Depot, Dehradun. • Linebarger, P.M.A., (1954) *Psychological Warfare*, Combat Press, Washington, D.C. • Nidhi Maheshwari, (2016) *Military Psychology: Concepts, Trends and Interventions*, Sage Publication India Pvt Ltd, New Delhi. • Raj Narain, (1979) *Military Psychology*, National Psychological Corporation, Agra.

## OPTIONAL PAPER – 2

### INSURGENCY AND COUNTER INSURGENCY

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Differentiate between insurgency and other types of conflicts.
- Assess the causes for the successes and failures of several insurgency movements; and
- How counter insurgency operations are carried out worldwide and India in particular.

## **CONTENTS**

### **UNIT-1**

- i. Unconventional warfare in the Nuclear Age.**
- ii. Revolutionary war and Guerilla Warfare**

### **UNIT-2**

- iii. Theory of Guerilla warfare: Mao – Tse -Tung and Che Guevara.**
- iv. History of Guerilla Warfare**

### **UNIT-3**

- v. Characteristics, strategy and tactics of Guerrilla warfare**
- vi. Modern concepts -Urban Guerrilla warfare and its philosophers.**

### **UNIT-4**

- vii. Counter- insurgency: Basic principles of success of counter insurgency in the Mountains of Greece and in the jungles of Malaya.**
- viii. Counter Insurgency Operation in India.**

**SUGGESTED READING** • Das, S T (1970) An Introduction to the Art of War, Sagar Publications, New Delhi. • Galula, David (1971) Counterinsurgency Warfare, Sagar Publications, New Delhi. • Guevara, Che (1969) Guerrilla Warfare, Penguin, London. • Laqueur, Walter, (1977) Guerrilla: A Historical and Critical Study, Weidenfeld and Nicolson, London. • Lawrence, T.E. (1927) Revolt in the Desert, Jonathan Cape, London. • Osanka, Franklin Mark (ed.,) (1962) Modern Guerrilla Warfare, The Free Press of Glencoe, New York. • Palit, D.K. (1970) The Essentials of Military Knowledge, The English Book Depot, Dehradun. UGC Document on LOCF Defence Studies 76 • Pye, Lucian W., (1956) Guerrilla Communism in Malaya, Princeton University Press, Princeton, New Jersey. • S T Das, (1970) An Introduction to the Art of War, Sagar Publishers, New Delhi. • David Galula, (1971) Counterinsurgency Warfare, Sagar Publishers.

## **OPTIONAL PAPER – 3**

### **CONTEMPORARY STRATEGIC ENVIRONMENT**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Learn contemporary challenges to peace and stability in the world.
- The contemporary problems of international threats like ISIS, Uyghers, Jaish e Mohammed, Islamic fundamentalism and other issues threatening international peace and security; and
- The course also makes them learn to contemplate response mechanisms to solve conflictual issues.

### **CONTENTS**

#### **UNIT-1**

- i. Conflict in Korean Peninsula: Genesis and Contemporary Trends.**
- ii. Arab-Israel Conflict: Genesis and Contemporary Trends.**

#### **UNIT-2**

- iii. Afghanistan in Post Taliban Period and Contemporary Trends.**
- iv. Islamic Fundamentalism in Af-Pak region: Challenges and Responses.**

#### **UNIT-3**

- v. ISIS and Conflict in Iraq and Syria: Challenges and Responses.**
- vi. Conflict in South China Sea: Contemporary Trends.**

#### **UNIT-4**

- vii. State sponsored terrorism in Jammu & Kashmir: Genesis and Contemporary Trends.**
- viii. Uyghur Crisis in China: Genesis and Contemporary Trends.**

**SUGGESTED READING** • Buzan, Barry and Waever, Ole (eds) (2003) Regions and Powers, Cambridge. • Chauhan, Sharad S., (2003) War on Iraq;, APH Publishers, New Delhi. • Cooley, John K., (2000) Unholy Wars, Penguin Books, New Delhi. • Gilbert, Adrian, (2000) The Encyclopedia of Warfare, Grange Books, Kent. • Goldstein, Joshua S, (1994) International Relations, Harper-Collins New York. • Hiro, Dilip, (2002) War without End, Routledge, London. • Laqueur, Walter, (2003) No End to War, Continuum, New York. • Midlarsky, Manus I. (ed.) (1989) Handbook of War Studies, Unwin Hyman, London. • Moore, John Norton (ed) (1977) The Arab-Israeli Conflict, Princeton University Press.

## **OPTIONAL PAPER – 4**

### **INDIA'S DEFENCE MECHANISM**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Learn the Rank Structure of the Three Services and Recruitment methods for Defence Services.
- Know the Higher Defence Organizations of India; and
- Learn about the defence mechanism of India and evaluate its strengths and weaknesses.

### **CONTENTS**

#### **UNIT-1**

##### **i. The Indian Defence Forces**

- a. Rank Structure of the Three Services.
- b. Recruitment methods for Defence Services.
- c. Important training Institution of the Three Services.
- d. Second line defence [introduction to Paramilitary Forces in brief]

## **UNIT-2**

### **ii. Higher Defence Organizations of India**

- a. Power of the President of India in relation of Defence.
- b. Role and function of Ministry of Defence.
- c. Composition and function of Defence Committees/NSC.
- d. Chief of Staff and joint service Organization.

## **UNIT-3**

### **iii. Army Organization**

- a. Organization of army Headquarters (Role of COAS and PSOs).
- b. Static and Field formation of Indian Army.
- c. Arms and Services.

## **UNIT-4**

### **iv. Air Force Organization**

- a. Organization of Air Force Headquarters (Role of CAS and PSOs).
- b. Static and Field formation of Indian Air Force.

### **v. Navy Organization**

- a. Organization of Naval Headquarters (Role of CNS & PSOs).
- b. Static and Field formation of Indian Navy.

**SUGGESTED READING** ♣ Government of India, (1924) The Army of India and its Evolution, Calcutta. ♣ Ministry of Defence, Government of India, Indian Armed Forces Year Book, (Annual). ♣ Palit, D.K., (1989) Essentials of Military Knowledge, New Delhi. ♣ Singh, Nagendra., (1967) Defence Mechanism of Modern State, New Delhi. ♣ Venkateswaran, A.L., (1967) Defence Organisation in India, New Delhi: Government of India.

## **OPTIONAL PAPER – 5**

### **REMOTE SENSING AND NATIONAL SECURITY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- know the Significance of Remote Sensing for National Defence.
- Build capacity on the technical arena of remote sensing application to National Security and impart knowledge on benefits and pitfalls.
- Students will also get the feel of various remote sensing equipments.

### **CONTENTS**

#### **UNIT-1**

**i. Significance of Remote Sensing for National Defence.**

#### **UNIT-2**

**ii. Remote Sensing:**

Basic principles of remote sensing; aerial photography definition, scope, application.

#### **UNIT-3**

**iii. Concept of remote sensing:**

Generation of electromagnetic radiation; imaging system; interaction with atmospheres and Earth surface; sensing platform sensor system.

#### **UNIT-4**

**iv. Photogrammetry and its significance in remote sensing:**

Steps of image interpretations; image displacement, orientation etc.

**SUGGESTED READING** • C. S. Agarwal and P. K. Garg , (2002) Textbook on Remote Sensing, A.H Wheeler Publishing. • Cracknell A.P. (1990) Introduction to Remote Sensing, Taylor & Francis, London. • Curran, P.J. (1985) Principles of Remote Sensing, Longman, London. • Lueder, D.R., 1959 Aerial Photographic Interpretation, McGraw-Hill, New York. • Thomas M. Lilles and, Ralph W. Kiefer and Jonathan W. Chipman, (2015) Remote Sensing and Image Interpretation 7th edition, Wiley.

## **OPTIONAL PAPER – 6**

### **GEO POLITICS AND MILITARY GEOGRAPHY**

**Learning Outcomes** - After undergoing this course a student will be in a position to –

- Learn the concepts and relevant attributes of geo politics and military geography for national security.
- Concept and difference between Frontiers and Boundaries, its various types; and
- They shall be in a position to comprehend strategic policies for a nation state and most especially India in our case.

### **CONTENTS**

#### **UNIT-1**

##### **i. Introduction**

- a. Concept and meaning of Geo-politics
- b. Scope and importance of Geo-politics

##### **ii. Meaning, nature and scope of Military Geography.**

#### **UNIT-2**

- iii. **Elements of Military Geography** - size, shape, location, climate, topography & population etc.

#### **UNIT-3**

##### **iv. Evolution of Military Geography.**

- a. History & Development.
- b. Founders of Military Geography - A.T. Mahan, Mackinder, Karl Haushofer.

##### **v. Inter-State relations & Geographical factors.**

- a. Frontiers and Boundaries - meaning & differences; types; boundary making & function.
- b. Communication routes- land, sea and aerial- strategic scope.

#### **UNIT-4**

##### **vi. Geography and Foreign Policy of India.**



- a. India's Geo - strategic significance-location, size, shape, climate, topography, resources etc.
- b. India's borders - nature and characteristics of land border; maritime boundary.
- c. Indian Ocean territory and strategic significance.

**SUGGESTED READINGS :** ♣ Das, S.T., (1985) Geo-Strategies, Kitab Mahal, Allahabad. ♣ Black, Jeremy, Cambridge Illustrated Atlas, (1996) Warfare, Renaissance to Revolution: 1492-1792, Cambridge University Press, Cambridge. ♣ Chandler, David G., (1996) Atlas of Military Strategy : The Art, Theory and Practice of War, 1618-1878, Arms and Armour London. ♣ William D Puleston, (1939) The Life and Work of Alfred Thayer Mahan, U.N.S. (New Haven, CT,) ♣ Earl Meade, Edward, (1948) Makers of Modern Strategy: Military Thought from Machiavelli to Hitler, Princeton University Press, Princeton, NJ.

## **PRACTICAL**

## **CONTENT FOR PRACTICALS**

**Note** – The respective university/college are at the liberty to choose or decide the content for practicals as per the decision of Board of Studies in the discipline, however a tentative framework has been suggested for their perusal.

### **B.A./B.SC.- I**

1. Maps: Definition and Features; Classification and its utility for Military;
2. Conventional Signs: Military and Geographical
3. GRID System: Four Figure and Six figure Map References.
4. North: Types of North and finding out True North;
5. Scale: Definition, Methods of representing Scale: Inter-conversion of scale into Representative Fraction, construction of simple scale line and the comparative scale lines.
6. Bearing: Definition, Inter conversion of Bearing in detail.
7. Liquid Prismatic Compass (LPC): Features and functions of its various parts:
8. Slopes and Gradient – Determination of gradients.
9. Inter visibility – Determination of inter visibility in case of rise or fall of slope.
10. Route-Sketching
10. VIVA-VOCE
11. RECORD

## **B.A./B.Sc-II**

### **1. Sand Model Exercises**

- a. Battle of Panipat, 1526 A.D.
- b. Battle of Assaye, 1803 A.D.

### **2. Sketching of the Charts of Indian Battles**

- a. Battle of Zojilla, 1948.
- b. Battle of Thagla Ridge, 1962.
- c. Battle of Khem Karan, 1965.
- d. Battle of Shakargarh, 1971.
- e. Kargil Conflict, 1999

### **3. Sketching of Charts of Western Battles**

- a. Battle of Trafalgar, 1805.
- b. Battle of Somme, 1919.
- c. Battle of El- Alamin, 1942.
- d. Arab-Israel War, 1967.

### **4.VIVA-VOCE**

### **5.RECORD**

## **B.A./B.Sc.-III**

### **1. Strategic Maps of India:**

India and her neighbours; Indian States and Union Territories with Capitals; Strategic Raw Materials and Defence Industries and Atomic Reactors.

### **2. Strategic Maps of World:**

World Map in 1945, Countries of NATO, Non-Aligned Countries, Countries of South Asia, South East Asia, Far East and West Asia; Nuclear Nations, Indian Ocean Littoral States and World Sea Routes.

### **3. PAPER CLIPPINGS / SHORT PROJECT / FIELD REPORT**

### **4. VIVA VOCE**

11) अज्ञानविज्ञान BA डिग्री विज्ञान

**MINIMUM COMMON CURRICULLUM**

FOR

**BACHELOR OF ARTS (B.A.)**

**(THREE YEAR DEGREE COURSE)**

***Proposed Syllabus***

FOR

**SUBJECT**

**HOME SCIENCE**



DR. BHIM RAO AMBEDKAR UNIVERSITY, AGRA

**B.A. (HOME SCIENCE)**

**COURSE STRUCTURE**

<b>PAPER NUMBER</b>	<b>PAPER NAME</b>	<b>EXTERNAL MARKS</b>	<b>INTERNAL MARKS</b>	<b>TOTAL MARKS</b>	<b>GRAND TOTAL</b>
<b>FIRST YEAR</b>					<b>250</b>
Paper – 101	Food and Nutrition	80	20	100	
Paper – 102	Human Development	80	20	100	
Paper – 103	Practical	30	20	50	
<b>SECOND YEAR</b>					<b>250</b>
Paper – 201	Family Resource Management	80	20	100	
Paper – 202	Dietetics and Therapeutic Nutrition	80	20	100	
Paper – 203	Practical	30	20	50	
<b>THIRD YEAR</b>					<b>250</b>
Paper – 301	Extension and Communication	80	20	100	
Paper – 302	Textiles and Clothing	80	20	100	
Paper – 203	Practical	30	20	50	
<b>GRAND TOTAL</b>		<b>570</b>	<b>180</b>	<b>750</b>	<b>750</b>

## B.A. (HOME SCIENCE)

### FIRST YEAR DETAILED SYLLABUS

#### PAPER – 101: FOOD AND NUTRITION

MM:100

External:80

Internal:20

#### Learning Objectives:

This course will enable the students to understand-

1. The relationship between food, nutrition and health.
2. Functions of food.
3. Learn about various food groups.
4. Process of digestion, absorption and function of various nutrients and their sources.
5. Various methods of preparing food.

#### SYLLABUS

Unit I: Concept of Nutrition:

- (a) Definition – Food, Nutrition, Nutrients and Balanced Diet
- (b) Types of Nutrition – Optimum Nutrition, Under Nutrition, Over Nutrition
- (c) Classification and Functions of Food.

Unit II: Nutrients: Macro & Micro Nutrients Classification, Sources, Functions

- Recommended Dietary Allowances
- Deficiency and Excess (in brief)
- Digestion & Absorption of:

- a) Carbohydrates
- b) Fats
- c) Proteins
- d) Minerals

<u>Major</u>	<u>Trace</u>
Calcium	Iron
Phosphorus	Iodine
Sodium	Fluorine
Potassium	Manganese
Chloride	Zinc
Sulphur	Cobalt
Magnesium	Copper

- e) Vitamins
  - Fat soluble: A, D, E and K
  - Water soluble: Vitamin C, Thiamine, Riboflavin, Niacin, Folic acid, Pyridoxine, pantothenic acid, Vitamin B12

- f) Dietary fibre
- g) Water

Unit III: a) Basic Terminology Used in Food Preparation.

b) Basic Food Groups

Food Composition, Nutritional Contribution & Selection Factors for the following:

Cereals & Millets	Pulses
Fruits	Vegetables
Milk & Milk Products	Nuts & Oilseeds
Meat, Fish & Poultry	Eggs
Sugars	Condiments & Spices

c) Role of Beverages and appetizers in diet:

(i) Stimulating (ii) Refreshing (iii) Nutritious

Unit IV: Methods of Cooking, Their Advantages & Disadvantages and Effect on Nutritive value.

- a) Retention of Nutritive value of foods during preparation.
- b) Food Adulteration – meaning & common adulterants in Food.
- c) Food poisoning
- d) Improving Nutritional Quality of Foods: Germination, Fermentation, Supplementation, Substitution, Fortification and Enrichment.
- e) Role of Convenience Foods: Ready to use foods and Protein Supplements

**Internal Assessment:**

- Seminar on any one topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

**Reference Books:**

1. Aahaar Vigyan, Devina Sahai, New Age International Publishers, New Delhi, 2018.
2. Aahaar Vigyan, Suraksha avam Poshan, Punita Sethi & Poonam Lakda, Elite Publishing House, New Delhi, 2015.
3. Nutrition Science- B.Srilakshmi, New Age International Publishers, New Delhi, 2017.
4. Textbook of Nutrition- Ankita Gupta, Medico Refresher Publishers, Agra, 2018.
5. Food Science- B.Srilakshmi, New Age International Publishers, New Delhi, 2018.
6. Fundamentals of Food, Nutrition and Diet Therapy- Sumati R Mudambi, New Age International Private Limited; New Delhi, 6 th edition (2018)



**B.A. (HOME SCIENCE)**

**FIRST YEAR DETAILED SYALLBUS**

**PAPER – 102: HUMAN DEVELOPMENT**

**MM:100**  
External:80  
Internal:20

**Learning Objectives:**

- To understand the field of Human Development and significance of Human Development.
- To familiarize students with prenatal development, care of the mother and new born
- To understand physical, emotional, social and mental development from birth to childhood
- To develop an understanding of the concept of play and personality development.
- To develop an understanding of common behavioural problems among children and their remedies.

**SYLLABUS**

**Unit I: Introduction to Human Development**

- a) Definition, need & scope of human development
- b) Understanding growth & development
- c) General principles of development
- d) Stages of development & Developmental tasks of each stage [Prenatal period, Infancy (0-2 yrs.), Early childhood (2-6 yrs.), Middle childhood (6-12 yrs.), Adolescence (13-18 yrs.), Young adulthood (19-40 yrs.), Middle adulthood (41-60 yrs.), Late adulthood & Ageing (61 yrs. till death)].
- e) Factors affecting development

**Unit II: Prenatal and Postnatal Period**

- a) Female reproductive organs (internal)
- b) Define terms: Puberty, Menarche, Ovulation, Menstruation cycle, Ova, Sperm, Fertilization, Conception, Implantation & Menopause
- c) Stages of prenatal development (i) Zygotic (ii) Embryonic (iii) Foetal Stage.
- d) Signs of pregnancy
- e) Complications of pregnancy (i) Hyperemesis Gravid arum (ii) Abortions (iii)Toxaemia of Pregnancy (iv)Rh Factor (v) Anaemia
- f) Care of the pregnant mother
- g) Post-natal care of mother
- h) Care of the New born
- i) Immunization

Unit III: Growth & Development with characteristics from birth to 12 years

- a) Physical Development
- b) Emotional Development
- c) Social Development
- d) Mental Development

Unit IV: Play and Personality Development

- a) Definitions and characteristics of play
- b) Types of play, importance of play
- c) Personality – Meaning & factors affecting personality development
- d) Common behavioural problems among children and their remedies.

**Internal Assessment:**

- Seminar on any topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

**Reference Books:**

1. Berk, L. E. (2017). Child Development, IX edition, Pearson Education.
2. Gordon, I.J. (1970). Human development: From birth through adolescence. Joanna Cotler Books.
3. Hurlock, E.B. (2017). Child Development. VI edition. Indian edition, Tata McGraw Hill, Delhi.
4. Mussen, P. H., Conger, J. J., Kagan J. & Huston A. C. (1996). Child Development and Personality. New York: Harper & Row.
5. Papalia, D. E., Olds, S.W. & Feldman, R. D. (2017). Human Development. IX edition, Indian edition. N.Y.: Mc Graw Hills Book.
6. Santrock, J.W. (2007). Life Span Development. Tata Mc Graw Hill, New Delhi.
7. Srivastava, D. N. & Verma, P. (2014). Child Psychology: Child Development. Shri vinod pustak mandir.

**B.A. (HOME SCIENCE)**

**FIRST YEAR DETAILED SYALLBUS**

**PAPER – 103:      Practical**

**MM:50**  
External:30  
Internal:20

1. Food Preparation.

- a) Beverages – Fruit Punch, Milk shake and Soup
- b) Any 5 nutritious recipes using a combination of cereal and pulses.
- c) Vegetables- Dry vegetable (any one) and Curries of different types (any two)
- d) Fruits – Preparation of fruits and salads using different kinds of dressing and garnishing.
- e) Milk – Milk based simple dessert and puddings – one hot and one cold
- f) Baking- any two recipes

2. Fortification and Enrichment of Local recipes.

3. Preparation of teaching aid for various kinds of development stages of nursery school Children.

4. Story telling/ poem reciting and writing.

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## B.A. (HOME SCIENCE)

### SECOND YEAR DETAILED SYALLBUS

PAPER – 201:            FAMILY RESOURCE MANAGEMENT

MM:100  
External:80  
Internal:20

#### Learning Objectives:

- To develop ability to evaluate management efficiency in the family.
- To understand the significance of management process.
- To understand the process of financial management.
- To become familiar with the techniques of work simplification.
- To develop good taste in decoration.

#### SYLLABUS

Unit I: Management and motivating factors

- i) Basic Concepts of Management
- ii) Importance of Management
- iii) Obstacles of Management
- iv) Values – importance, classification, characteristics & changing values
- v) Goals – definition & types
- vi) Standards – Definition and Classification
  - Individual & Group
  - Conventional & Modern

Unit II: a) Money Management:

- (i) Income – sources of income & expenditure
- (ii) Budget – preparation of family budgets in view of family income.
- (iii) Saving – purpose of saving and different investment schemes (of L.I.C. & Bank), banking instruments (cheques & drafts) and services (loans, investments, fixed deposits)
- (iv) Guidelines of money management.

b) Time and Energy Management

- i) Definition
- ii) Time and Energy demand during various stages of family life cycle.
- iii) Tools of time management and fatigue.
- iv) Guidelines of time and energy management.
- v) Process and Techniques of work simplification

Unit III: a) Family Resources and Decision Making Process:

- i) Type of Resources
- ii) Factor affecting the use of resources.
- iii) Steps and role of decision making in management.

iv) Stages of family life cycle.

b) Housing

- i) Selection of House site
- ii) Factors to be considered while designing a house-
  - Orientation
  - Privacy
  - Grouping of User's Area
  - Roominess
  - Circulation
  - Sanitation
  - Light & Ventilation
  - Aesthetics
  - Flexibility
  - Cost

Unit IV: a) Introduction to Fundamentals of Art

- i) Elements of Art- Line, Form, Colour, Texture, Pattern, Light, Space
- ii) Principle of Art- Balance, Proportion, Rhythm, Emphasis, Harmony
- iii) Design – definition characteristics & types: structural & decorative
- iv) Study of Colours
  - Classification & Dimensions
  - Colour Schemes
  - Psychological effects of colours

**Internal Assessment:**

- Seminar on any topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

**Reference Books:**

- 1) Agan, T. (1970). The House, its Plan and Use. Pennsylvania, U.S.A., J.P. Lippincott Publishing Co.
- 2) Craig, H. and Rusha, O.(1969). Homes with Character. New Delhi. Universal Book Store.
- 3) Goldstein, H. and Goldstein, V. (1960). Art in Everyday Life. New York. The MacMillan Company.
- 4) Gross Irma H., and Elizabeth W. Crandall, Management for Modern Families, Second Edition, New York: Appleton-Century-Crofts, 1963, Chapter 8
- 5) Mann, M.K. (1980). Home Management for Indian Families. New Delhi. Kalyani Publishers.
- 6) Nadler, Gerald. (1957). Work Simplification. New York. Mc-Graw Hill Book Company, Inc.
- 7) Nickell, Paulena and Jean Muir Dorsey, Management in Family Living, Third Edition, New York: Wiley 1959

**B.A. (HOME SCIENCE)**

**SECOND YEAR DETAILED SYLLABUS**

**PAPER – 202: DIETETICS AND THERAPEUTIC NUTRITION**

**MM:100**  
External:80  
Internal:20

**Learning Objectives:**

This course will enable the students to understand:

1. The principles of planning of nutritionally adequate meal
2. Principles of diet therapy
3. Modifications of normal diet for Therapeutic purposes.
4. Dietary management of common diseases.

**SYLLABUS**

- Unit I: a) Definition of Health, Dietetics & Therapeutic Nutrition  
b) Facts about fast foods/Junk foods.  
c) Recommended Dietary allowances for all age group (ICMR)  
d) Factors affecting energy requirements- BMR, Activity, Age, Climate, Diet, Physiological Conditions
- Unit II: Concept of Nutritionally adequate diet & meal planning.  
a) Importance of Meal Planning  
b) Factors affecting meal planning: Nutritional, Socio cultural, Religious, Geographic, Economic, Availability of time & material resources  
c) Meal Planning for special occasions, like Festival and Birthday party  
d) Use of Exchange list for meal planning
- Unit III: Nutrition through the life cycle at different activity & socio- economic levels, requirements, nutritional problems, food selection.  
a) Infancy  
b) Preschool  
c) School Age  
d) Adolescence  
e) Adulthood  
f) Special Conditions – Pregnancy and Lactation  
g) Old Age
- Unit IV: Principles of diet therapy.  
a) Importance of diet therapy  
b) Modification of normal diets for therapeutic purposes.  
c) Different type of diets  
    > Normal Diet  
    > Soft Diet  
    > Fluid Diet  
    > Bland Diet  
d) Different feeding methods  
    > Oral feeding  
    > Tube feeding

➤ Intravenous feeding

- e) Nutritional Management in common ailments: Requirements and diet planning.
  - i) Diarrhoea
  - ii) Constipation
  - iii) Fevers
  - iv) Weight Management- Overweight and Underweight
- f) Therapeutic Diets
  - i) Diabetes
  - ii) Hypertension

**Internal Assessment:**

- Seminar on any topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

**Reference Books:**

1. Nutrition and Dietetics- Shubhangini A Joshi, Mc Graw Hill Education Private Limited, New Delhi.2013.
2. Textbook of Nutrition and Dietetics- Kumud Khanna, Elite Publishing House Pvt Ltd, New Delhi. 7<sup>th</sup> Edition. 2013.
3. Nutrition and Diet Therapy- Sheel Sharma, Peepee Publishers, New Delhi. 2014.
4. Textbook of Nutrition- Ankita Gupta, Medico Refresher Publisher. Agra. 2018.
5. Fundamentals of Food, Nutrition and Diet Therapy- Sumati R Mudambi, New Age International Private Limited; New Delhi, 6th edition (2018)
6. Dietetics- B.Srilakshmi, New Age International Publishers, New Delhi, 201

**B.A. (HOME SCIENCE)**

**SECOND YEAR DETAILED SYALLBUS**

**PAPER – 203: Practical**

**MM:50**  
External:30  
Internal:20

1. Planning and preparation of Therapeutic & modified diets for the following conditions:
    - a) Diarrhoea
    - b) constipation
    - c) Fever
    - d) Overweight & Under weight
    - e) Diabetes
    - f) Hypertension
  2. Project work- How to open various bank accounts-Filling of slips/ forms of bank, making a draft, filling cheques and with drawl slips.
  3. Making Alpana / Rangoli using Principles of art.
- .....



## B.A. (HOME SCIENCE)

### THIRD YEAR DETAILED SYALLBUS

#### PAPER – 301:           EXTENSION AND COMMUNICATION

MM:100  
External:80  
Internal:20

#### Learning Objectives

- To enable the student to become a good extension worker.
- To help the student to plan the Extension programme, to work in the community and to use the audio - visual aids.
- To provide the opportunities for entrepreneurship development among women entrepreneurs.

#### SYLLABUS

##### Unit I: Concept of Extension

- a) Meaning and philosophy of extension
- b) Principles, scope, limitations
- c) Extension worker
  - i)Role of Extension worker
  - ii)Qualities
  - iii)Training

##### Unit II: Extension education process

- (a) Teaching and learning, role of the educator, role of the people in the Learning and development
- (b) Communication - concept, nature, key elements and models.
- (c) Extension techniques and methods – Individual, Group and Mass methods.
- (d) Audio Visual Aids in Extension
  - Classification and importance
  - Selection, preparation and effective use of A.V. Aids in extension work.

##### Unit III: a) Programme planning Programme, planning cycle and its components

- i) Designing the project – defining objectives, identifying resources, methods/ approach, feasibility and work plan
  - ii) Implementing
  - iii) Monitoring and evaluation
- b) Recent Community Development Programs for: Women, Children and Family.

Unit IV: Women and Development

- a) Capacity building for women: education, decision making abilities and opportunities, awareness and information on legal and political issues
- b) Women's organizations and collective strength: Women's action groups, women's participation in development initiative.
- c) Entrepreneurship development for women empowerment

**Internal Assessment:**

- Seminar on any topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

**Reference Books:**

1. Directorate of Extension Education,
2. G. L. Ray, "Extension and Management Communication" Naya Prakash.
3. Jaipal Singh, "Extension Education and Rural Development" SR Scientific publications. 8 gandhi nagar near paliwal park Agra.
4. O. P. Dhama & O.P. Bhatnagar, "Education & Communication for Development" Oxford IBH Publishing Co. Pvt. Ltd, New Delhi.
5. Anoop Singh Sandhu, "Extension program planning"
6. P. N. Kalla & Achla Gakkhar, "New dimension of Extension Education" Hindi Granth Academy, jaipur.
7. Achla Gakkhar & P. N. Kalla, "New dimension of Extension and Communication" University Book house Jpr.
8. Jitendra Chauhan, "Prashar Shiksha Evam Suchna Tantra" Bio- Green publication.

**B.A. (HOME SCIENCE)**

**THIRD YEAR DETAILED SYALLBUS**

**PAPER – 302:**

**TEXTILES AND CLOTHING**

**MM:100**

External:80

Internal:20

**Learning Objectives:**

This course will enable the students to understand-

1. Sources and types of fabrics available and their uses.
2. How finishing a fabric can enhance its appearance, properties and uses.
3. Selection of fabrics and garments according to their end use and in the available budget.
4. Rights and duties of consumers.

**SYLLABUS**

**Unit I: Classification of Textiles**

- a) Introduction and classification of textiles.
- b) Terminology in textiles
- c) General Properties of fibre
- d) Composition, Types, Properties and uses of:

Cotton	Silk
Wool	Nylon
Rayon	Polyester

**Unit II: Study of Yarns & Fabrics**

- a) Twist and yarn number- their effect on fabric properties
- b) Simple yarns
- c) Weaving – Basic Weaves
- d) Knitting-properties of knitted fabrics

**Unit III: Fabric Finishing**

- a) Definition, aims and classification of finishes
- b) Bleaching, Tentering, Calendering, Mercerizing, Sanforizing, Sizing, Glazing, Embossing, Singeing, Schreinerizing, Napping,.
- c) Crease Resistant Water Proofing, Flame Proofing, Moth and Mildew Proof
- d) Dyeing and Printing:
  - i) Resist Dyeing Techniques- Tie & Dye, Batik
  - ii) Hand Printing Techniques – Block Printing, Screen Printing, Stencil Printing
  - iii) Machine Printing Technique- Roller Printing, Discharge Printing, Duplex Printing

#### Unit IV: Consumer Awareness and Education

- a  
 ) Selection of fabric for household linen and Apparel for various end uses
- b) Selection of Readymade Garments for different age groups, seasons, occupation and occasion- based on their cost and quality assessment.
- c  
 ) Storage and care of fabrics
- d  
 ) Problems faced by consumers while buying fabric and readymade garments.
- e) Knowledge of Standardization Marks, Advertisement, Packing and Labels.
- f) Consumer Rights and Duties

#### **Internal Assessment:**

- Seminar on any topic from the above syllabus
- Test with Multiple Choice Questions / short and long answer questions.
- Preparation of an Audio-visual aid
- Attendance

#### **Reference Books:**

1. Manju Patni 'Family Clothing' star Publication, Agra, 3<sup>rd</sup> edition 1993.
2. Susheela Dantiyagi. 'Fundamentals of Textiles and their care'. Orient Longman Limited, New Delhi.
3. Manju Patni and Pratibha Rastogi. 'Fiber Science and Clothing'. Star Publications, Agra.
4. Alka Agarwal and Manju Patni. 'Fiber science and Clothing'. Star Publications, Agra.
5. Neerja Yadav. 'Textiles and Clothing'. Sahitya Publications, Agra.
6. Pramila Verma. 'Vastra Vigyan avum Paridhan' Madhya Pradesh Hindi Granth Academy, Bhopal
7. Marjory L. Joseph 'Introductory Textile Science' Holt, Rinehart and Winston, NY.
8. Isabel B. Wingate and June F. Mohler. 'Textile Fabrics and Their Selection'

**B.A. (HOME SCIENCE)**  
**THIRD YEAR DETAILED SYALLBUS**  
**PAPER – 303:      PRACTICAL**

**MM:50**  
External:30  
Internal:20

**SECTION-A**

1.
  - a) Dyeing - Tie & Dye / Batik
  - b) Printing – Block / Stencil
2. Drafting cutting & Stitching-
  - i) Girl's frock (3-5 yrs.) with variations
  - ii) Petticoat
  - iii) Ladies Kurta
3. One embroidery article with at least 3 stitches.

**SECTION – B**

- 1.Planning of program for a selected community-
    - a) Survey for Need Identification
    - b) Formulating Need Based Objectives
    - c) Designing Methods and Materials for implementation of program.
    - d) Evaluation and Reconsideration.
- .....

11) एजे. वि. वि. BSc. वि. वि. वि. वि.

**COMMON MINIMUM CURRICULLUM**

FOR

**BACHELOR OF HOME SCIENCE**

**(THREE YEAR DEGREE COURSE)**

***Proposed Syllabus***



DR. BHIM RAO AMBEDKAR UNIVERSITY, AGRA

## COURSE STRUCTURE

COURSE No.	COURSE NAME	Marks			
		Theory	Practical	Sessional	Total
<b>FIRST SEMESTER</b>					
101	Applied Sciences	60	40	X	100
102	Human Physiology	60	40	X	100
103	Personal Finance and Consumer Studies	60	X	40	100
104	Human Development-I	60	40	X	100
<b>SECOND SEMESTER</b>					
105	Computer skills & English Communication	60	40	X	100
106	Biochemistry	60	40	X	100
107	Early childhood care and Education	60	40	X	100
108	Concepts and Principles of Home Management	60	X	40	100
<b>THIRD SEMESTER</b>					
201	Fundamentals of Food and Nutrition	60	40	X	100
202	Fundamental of Textiles	60	40	X	100
203	Human Development-II	60	X	40	100
204	Extension Education & Community Development	60	40	X	100
<b>FOURTH SEMESTER</b>					
205	Nutrition for the Family	60	40	X	100
206	Textile Designing	60	X	40	100
207	Marriage and Family Dynamics	60	X	40	100
208	Teaching Methods and Media	60	40	X	100
<b>FIFTH SEMESTER</b>					
301	Diet Therapy	60	40	X	100
302	Fashion And Retailing	60	X	40	100
303	Family Housing	60	40	X	100
204	Programme Planning for Rural Development	60	X	40	100
<b>SIXTH SEMESTER</b>					
305	Public Nutrition	60	X	40	100
306	Family Apparel Construction	60	40	X	100
307	Interior Designing and Home Decoration	60	40	X	100
308	Communication Process and Adoption	60	40	X	100
<b>GRAND TOTAL</b>					2400

**B.Sc.**  
**(Home Science)**  
**First Semester**



**B.Sc. (Home Science) First Semester**  
**Course - 101**  
**APPLIED SCIENCES**

Theory – 60  
Practical – 40

**Objectives:**

1. To prepare the students to understand number system.
2. To equip the students in doing basic arithmetic calculations
2. To provide the students the basic knowledge of chemistry essential to understand Food Science, Nutrition & other applied courses.

**Unit I Number System**

1. Natural numbers, Whole numbers, Integers (positive, negative, zero) Rational numbers, Irrational numbers, Prime, Odd, Even numbers, Composite numbers.
2. Test of Divisibility
3. LCM, HCF, Application of numbers (Square root, Cube root)
4. Simplification of expressions (BODMAS).

**Unit II General Arithmetic**

1. Simple and compound interest
2. Unitary method, work, time and speed
3. Percentage: Conversion of percentage into least fraction, conversion of simple fraction into percentage. Simple problems based on percentage.
4. Profit Loss and Discount: Concept of Cost price, Selling price, Profit, Loss, Discount, Net price and Marked Price etc. Simple Problems based on it.

**Unit III Solutions, Acids, Bases & Salts**

1. Types of solutions, different ways of expressing concentration of solution, colloids and its properties, types of colloids, colloids in daily life.
2. Concept of acid, base and salt, neutralization reaction, pH and pH scale, buffer solutions, Applications in everyday life.
3. Redox Reactions : Concept of oxidation and reduction and its applications in daily life

**Unit IV Household Chemicals**

1. Chemicals in foods- preservatives and colourants.
2. Antiseptics and disinfectants
3. Soaps and detergents
4. **Green Chemistry:** Need for green Chemistry, 12 principles of green Chemistry, examples of green synthesis: ibuprofen and paracetamol.

**Practical**

1. Preparation of standard solutions
2. Determination of pH of different solutions
3. Volumetric analysis

- a. Titration of strong acid vs strong base (Acid-base titration)
- b. Titration of potassium permanganate vs Mohr's salt (Redox titration)

### **Reference Books**

1. R.S.Agarwal. Quantitative Aptitude. S.Chand Publishing. 2017
2. T.Jacob, 1979, Textbook of Applied Chemistry by McMillan India Ltd.
3. Puri, Sharma and Pathania, 2008, Principles of Physical Chemistry by Vishal Publishing House.
4. Ahluwalia, V. K., Dhingra, S., Gulati, A., 2005, College Practical Chemistry University Press India Pvt. Ltd .

## **B.Sc. (Home Science) First Semester**

### **Course - 102**

## **HUMAN PHYSIOLOGY**

Theory – 60  
Practical – 40

### **Objectives:**

1. To familiarize students with specific terminology.
2. To enable the students to learn structure and functions of organs.
3. To prepare the students to understand the physiology based courses.

### **UNIT-I Cell & Reproductive System**

1. Cell as a unit of the body
  - (a) Cell organelles and their functions
  - (b) Cell division
  - (c) Tissues-types, structure and functions.
2. Reproductive System
  - (a) Structure and function of Sex glands and organs including hormones
  - (b) Menstrual Cycle
  - (c) Physiology of pregnancy, parturition, lactation and menopause.

### **UNIT-II Organ Systems**

1. Digestive System
  - (a) Major organs of the digestive system.
  - (b) Anatomy of the alimentary canal.
2. Respiratory System :
  - (a) Major organs of the respiratory system.
  - (b) Anatomy of respiratory system.

### **UNIT-III Excretory & Circulatory Systems**

1. Urinary System :
  - (a) Anatomy of the organs
  - (b) Morphology of nephron.
2. Circulatory system
3. Blood
  - (a) Blood and its composition
  - (b) Blood groups

### **UNIT-IV**

1. Sensory organs
  - (a) Organ of taste
  - (b) Organ of sight
2. Musculoskeletal System

- (a) Types of muscles, functions.
- (b) Skeletal system – formation of bone and teeth

### **Practical**

#### **Demonstrations and study of models of**

- i) digestive,
- ii) excretory
- iii) female reproductive system
- iv) Human heart, eye and ear.
- v) Microscopic examination of prepared slides of different human body system as well as tissue of different body organs.
- vi) Skeletal system
- vii) Structure of cell

### **Reference Books**

1. Text book of Biology for 10+2 students (NCERT)
2. Chatterjee, C.C., Human Physiology. Vols. I, II. Medical Allied Agency.
3. Guyton, A.C., Text Book of Medical Physiology. WB Saunders.
4. Mukherjee, K.L., Medical Laboratory Technology. Vol I. Tata McGraw Hill.
5. Wilson, KJW & Ross JS., Anatomy and Physiology in Health and Illness. 6th Ed. Churchill Livingstone.

**B.Sc. (Home Science) First Semester**  
**Course - 103**  
**PERSONAL FINANCE AND CONSUMER STUDIES**

Theory- 60  
Sessional- 40

**Objectives:**

- To become familiar with the techniques of financial management.
- To become aware of the financial management.
- To sensitize the students with the need for consumer education.

**Unit I: Family Finance and Family Income**

- (a) Meaning, Definition and importance of family finance.
- (b) Standard of Living: Meaning, Definition, types and factors determining.
  - Causes of low standard of living and remedial measures
- (c) Meaning, Definition, Sources and Types of family income

**Unit II: Budget & Saving**

- (a) Budget – Meaning, Definition, Types, Characteristics, Advantages and Disadvantages.
- (b) Saving – Meaning, Importance and methods to save.

**Unit III: Consumer Education**

- (a) Meaning, Definition, Objectives and need of consumer education in India.
- (b) Meaning, Definition and characteristics of consumer.
- (c) Consumer rights and responsibilities in today's world.

**Unit –IV: Consumer and the Market**

- (a) Basic concept of market and types of market.
- (b) Consumer choice: Factors influencing consumer decisions.
- (c) Problems of consumer.

**Sessional Work**

- a. Study on income and expenditure pattern of various income groups.
- b. Visit to Saving Institutes.
- c. Problems of consumer- small survey report.

### **Reference Books**

1. Family Finance: H.F. Bigelow
2. Elements of Modern Economics: Meyere
3. Fundamentals of Economics: J.K.Mehta
4. Modern Economics: M.L. Seth.
5. The Economics of Consumption: L.J. Garelen.
6. Management in Family living: Nickell and Dorsey
7. Management for Modern Families: Gross and Crandall
8. Paribaric Vitt: Saraswati Verma and Asha Pandey.

**B.Sc. (Home Science) First Semester  
Course - 104  
HUMAN DEVELOPMENT-I**

Theory: 60 Marks  
Practical: 40 Marks

**Objectives:**

1. To get an overview of infancy and infant development as a first stage in the life span development process.
2. To form a meaningful and practical understanding of infancy with special reference to Indian context.

**Unit-1 Meaning, determinants and principles of Human Development**

- (a) Meaning and scope of human development, Contribution of allied fields and their importance, Stages of human development
- (b) Principles of growth and development
- (c) Determinants of Development
  - (i) Heredity Vs Environment
  - (ii) Maturation Vs Learning

**Unit II – Prenatal development and Care of the neonate**

- (a) Menstrual cycle, fertilization
- (b) Stages of Prenatal development, factors affecting prenatal development
- (c) Antenatal Care
  - (i) Signs and Symptoms of Pregnancy
  - (ii) Discomforts of pregnancy
  - (iii) Prenatal diagnostic tests
  - (iv) Calculation of expected Date of delivery (EDD)
  - (v) Labor and its stages
  - (vi) Types of birth
- (d) (i) Care of the newborn
  - (ii) Puerperium period
  - (iii) Immunization

**Unit III – Infancy (0 – 2 yrs)**

- (a) Developmental tasks and characteristics
- (b) (i) Physical and motor development
  - (ii) Sensory and perceptual development

- (iii) Cognitive development
- (iv) Early language development

#### **Unit IV – Childhood Period**

- (a) Developmental Tasks and characteristics of early childhood period (2 - 6 yrs) and late childhood period (7-11 years)
- (b) Development during early and late childhood
  - (i) Physical and motor development
  - (ii) Social emotional development
  - (iii) Cognitive development
  - (iv) Language development

#### **Practical**

1. Visit to maternity and baby clinics.
2. Preparation of teaching aids for early childhood
3. Preparation of a toy for infants.
4. Planning and organization of competitive games for late childhood.

#### **References**

1. Dolloff P.B. and Resnick M.R. 1972. Patterns of life : Human growth and Development, Charles E Merrill Publishing Co. Ohio.
2. Bee H. 1985. The Developing Child, Harper and Row Publishers New York. Elkind D, 1978, Development of the child, John Wily and Sons.
3. Hawkes G.R. and Pease D. 1962. Behaviour and Development from 5 – 12, Harper Internationa.
4. Ambron 1978. Child Development, Holt Rinchart and Winston.
5. Berke L.E. 1995. Child Development, Allyn and Bacon.
6. Hurlock E.B. 1978. Child Development, Mcgraw Hill Publishing Co.



**B.Sc.**  
**(Home Science)**  
**Second Semester**

**B.Sc. (Home Science) Second Semester**  
**Course - 105**  
**COMPUTER SKILLS AND ENGLISH COMMUNICATION**

Theory: 60 Marks  
Practical: 40 Marks

**Objectives**

1. To impart basic communication skills in English to enable them to function confidently and effectively in that language in the personal and professional sphere of their life.
2. To enable the undergraduate students to have a reasonable command over English in terms of acquiring effectiveness while speaking and grammatically correct writing skills.
3. To acquaint the students with fundamentals of computers and introducing them to word processing.

**UNIT I- Computer Fundamentals**

1. Introduction to Computer: Characteristics of Computers, Uses of Computers, Types and generations of Computers.
2. Basic Computer Organization – Units of a computer, CPU, ALU, memory hierarchy, registers, I/O devices
3. User Interface with the Operating System, System Tools
4. Types of network, router, switch, server-client architecture

**UNIT II- MS Office**

Introduction to various functions and editing tools available with MS Office

- Introduction to MS-Office
- Word Processing- MS Word, Openoffice
- MS PowerPoint
- MS Excel

**UNIT III- Vocabulary, Grammar and Comprehension**

- Synonyms and Antonyms
- Tense and their Usage
- Prepositions
- Concord
- Comprehension Passages

**UNIT IV- Writing Skills**

- Paragraph Writing
- Relating and analyzing ideas in Paragraphs and Passages
- Creative Writing (writing stories from the outlines)
- Developing the art of writing summary

- Letter Writing (formal/informal letters)
- Writing Reports
- Writing Curriculum-Vitae

**Practical:**

1. Familiarizing with the Operating System, Control Panel, Networking Configuration , Firewall setting.
2. Spreadsheet Handling, Working with worksheets, Creating a spreadsheet, entering and formatting information, basic functions and formulas, creating charts, tables and graphs.
3. Identification of phonetic sounds and symbols
4. Speaking English
5. Letter writing
6. Report writing

**References:**

1. Anita Goel, **Fundamentals of Computers:** Pearson –Education
2. V Rajaraman, **Fundamentals of Computers,** Fourth Edition, PHI.
3. Inthira, S.R. and Saraswathi, V. *Enrich Your English Book-1: Communication Skills,* Central Institute of English and Foreign Languages, Hyderabad: Oxford University University Press, 2007.
4. Inthira, S.R. and Saraswathi, V. *Enrich Your English Book-1: Academic Skills,* Central Institute of English and Foreign Languages, Hyderabad: Oxford University University Press, 2009
5. Sharma, Madhu. *Selected Letters For All Occasions,* New Delhi: Manu Graphics,
6. Tickoo, M.L., Subramanian, A.E. and Subramanian, P.R. *Intermediate Grammar Usage and Composition,* Hyderabad: Orient Longman Private Limited, 2008

**B.Sc. (Home Science) Second Semester**  
**Course - 106**  
**NUTRITIONAL BIOCHEMISTRY**

Theory – 60  
Practical – 40

**Objectives:**

1. To develop an understanding of the principles of biochemistry.
2. To obtain an insight into the chemistry of major nutrients and physiologically important compounds.
3. To apply the knowledge in the field of human nutrition and dietetics.

**UNIT-I**

1. Introduction to biochemistry and interrelationship between biochemistry and other biological sciences.
2. **Carbohydrates-**
  - Introduction, classification, structure, general properties of monosaccharide.
  - Digestion and absorption of carbohydrates in human body
3. **Metabolism-Glycolysis and Kreb's Cycle**

**UNIT-II**

1. **Lipids-**
  - Composition, classification, general properties.
  - Analysis of fats and oil- acid value, iodine value, saponification value, acetyl number, hydrogenation and rancidity, Digestion and absorption of lipids in human body.
2. **Lipid metabolism**
  - Beta oxidation theory with its energetic
  - Elementary knowledge of different sterols e.g. cholesterol, phytosterol and ergosterol

**UNIT-III**

1. **Proteins-**
  - Definition, composition,, classification, general properties- solubility, amphoteric nature, colloidal nature of proteins, denaturation of protein
  - Classification of amino acids including essential amino acid and non essential amino acids
2. Digestion and absorption of proteins

**3. Protein metabolism-** Brief idea of Deamination, Transamination, Decarboxylation, Transmethylation

#### **UNIT-IV**

**1. Vitamins-** definition, classification absorption, storage, functions and excretion of vitamin A, D, E, K, Thiamine, Riboflavin, Niacin, Ascorbic Acid

**2. Minerals-** brief idea of calcium, phosphorus, iron, iodine, sodium, chlorine, potassium, their storage, absorption, function, and excretion

#### **Practical**

##### **1. Carbohydrates**

- Qualitative tests for mono-, di-, and poly-saccharides and their identification in unknown mixtures
- Estimation of reducing (glucose, lactose) and non reducing (sucrose) sugars by titration

##### **2. Lipids**

- Qualitative tests for identification of lipids

##### **3. Proteins**

- Qualitative tests for identification of amino acids and proteins

##### **4. Minerals**

- Estimation of calcium using EDTA by titration

#### **References:**

1. Lehninger A L, Nelson D L and Cox M M (2009). Principles of Biochemistry, 6th Ed. CBS Publishers and Distributors.
2. Murray R.K, Granner D K, Mayes P A and Rodwell V W (2009). Harper's Biochemistry, 28th Ed, Lange Medical Book.
3. Satyanarayana U and Chakrapani U (2010). Biochemistry. Books and Allied (P) Ltd., Kolkata.
4. Sharma S (1993). Practical Biochemistry (1st ed.). Published by Jaipur : Classic Publishing House.

**B.Sc. (Home Science) Second Semester**  
**Course – 107**  
**EARLY CHILDHOOD CARE AND EDUCATION**

Theory: 60 Marks  
Practical: 40 Marks

**Objectives:**

1. To gain knowledge and insight regarding principles of early childhood care and education
2. To develop the skills and techniques to plan activities at ECCE centres
3. To conduct activities in early childhood care and education and to work affectively with parents and community

**Unit I – Introduction**

- (a) Meaning and importance of early childhood education
- (b) Recent trends and achievements in ECCE
- (c) Curriculum for ECCE
  - (i) Meaning of Curriculum
  - (ii) Basic Principles of Curriculum Construction
  - (iii) Formation of Curriculum
  - (iv) Types of Curriculum

**Unit II – Play**

- (a) Play as means of development and learning.
- (b) Theories of Play – Surplus energy theory, relaxation theory, Recapitulation theory
- (c) Types of play
- (d) Development stages of play
- (e) Functions of play in language and cognitive development.
- (f) Teachers role in promoting and fostering play

**Unit III – Literature for Children – Understanding need of literature**

- (a) Types of literature and criteria for selection
- (b) Books for preschoolers: (i) Picture books (ii) Story books,
  - (iii) Information books (iv) Concept books
  - (v) Number and Alphabet books
- (c) Techniques of storytelling :- (i) Reading of story books,
  - (ii) Narration with the help of aids like flash cards, flannel board puppets, Modulation and speech, use of gestures, role play.

**Unit – IV Activities in the pre-school**

- (a) Creative activities :- (i) Painting (ii) Drawing  
(iii) Tearing cutting (iv) Pasting, (v) Collage  
(vi) Modeling (Dough, clay, plasticine sand and mud.)
- (b) Music and dance - (i) their educational values  
(ii) Role of teacher in organizing the activities
- (c) Science Experiences and activities to develop mathematical concept.
- (d) Nature study and field Trips :- (i) Planning of field trips  
(ii) Preparation of field trips and its importance

### **Practical**

1. Preparation of the material to be used with children in school. Each student to use at least 5 materials.
2. Organizing activities for children.
3. Preparation of rhymes books, science activities and games.
4. Collecting national folk songs for children.
5. Visit to nursery school.
6. Organizing pre writing activities.

### **References**

1. Spodek B. 1978. Teaching in the Early Years (Second Edition) Prentice – Hall Inc. Inglewood Cliffs New Jersey.
2. Jain K. 2003. Preschool Education, Mohit Publication, New Delhi.
3. Green M.M. and Woods E.L. 1969. A nursery School Handbook for Teachers and parents. Universal Books, Delhi, Kanpur.
4. Read K.H. 1967. The Nursery School. A Human Relationship Laboratory, Oxford Publishing Co.
5. Grewal J.S. 1984. Early Childhood Education, National Psychological Corporation, Agra.

**B.Sc. (Home Science) Second Semester**  
**Course – 108**  
**CONCEPTS AND PRINCIPLES OF HOME MANAGEMENT**

Theory: 60Marks  
Sessional: 40Marks

**Objectives:**

- To develop the ability to evaluate the management efficiency and effectiveness in the family.
- To understand the significance of management of resources.
- Know the conceptual, human and scientific aspects of management functions.

**Unit – I: Introduction of Home Management**

- (a) Definition, Philosophy and Concepts of Home Management.
- (b) Importance and factors affecting home management.
- (c) The management process – Planning, organizing, controlling and Evaluation.
- (d) Management cycle
- (e) System approach to management - Meaning , Definition , The family and its environment as system

**Unit – II: Decision making**

- (a) Its importance and role.
- (b) Decision making process.
- (c) Classification of decisions.
- (d) Factors affecting decision making.

**Unit – III: Motivational Factors of Management**

- (a) Values – Origin, Classification and Characteristics.
- (b) Goals – Types and Characteristics.
- (c) Standards – Types, Conventional of flexibility standard & Quantitative and Qualitative Std.
- (d) Interrelatedness of values, Goals & Standard.

**Unit – IV: Family Resources**

- (a) Family resources – Classification, Characteristics and Objectives of use of resources.
- (b) Factors affecting resources- Scarcity, utility, accessibility exchange, transferability, substitution, Manageability, Interchangeability

**Sessional work**

- a. Identification of values and goals.
- b. Identification of resources



## References

1. Home management for Indian families : M.K. Mann
2. Management for modern families : Gross and Crandall
3. Management in daily living :Hood Year and Khlora
4. Management in family living : Nickell and Dorsey
5. Home management and family finance :Maneesha Shukul and Gandotra

**B.Sc.**  
**(Home Science)**  
**Third Semester**

**B.Sc. (Home Science) Third Semester**  
**Course – 201**  
**FUNDAMENTALS OF FOOD AND NUTRITION**

Theory – 60  
Practical – 40

**Objectives:**

1. Understand the relationship between food, nutrition and health.
2. Understand the functions of food.
3. Learn about various food groups, balanced diet and principles of meal planning.
4. Learn about the various methods of preparing food.

**Unit I Basic concepts in food and nutrition**

- Basic terms used in study of food and nutrition
- Understanding relationship between food, nutrition and health
- Functions of food-Physiological, psychological and social

**Unit II Nutrients**

Functions, dietary sources and clinical manifestations of deficiency/ excess of the following nutrients:

- Carbohydrates, lipids and proteins
- Fat soluble vitamins-A, D, E and K
- Water soluble vitamins – thiamin, riboflavin, niacin, pyridoxine, folate, vitamin B12 and vitamin C
- Minerals – calcium, iron and iodine

**Unit III Food Groups**

Selection, nutritional contribution and changes during cooking of the following food groups:

- Cereals
- Pulses
- Fruits and vegetables
- Milk & milk products
- Eggs
- Meat, poultry and fish
- Fats and Oils

**Unit IV Methods of Cooking and Preventing Nutrient Losses**

- Dry, moist, frying and microwave cooking
- Advantages, disadvantages and the effect of various methods of cooking on nutrients

- Minimizing nutrient losses

## **PRACTICAL**

1. Weights and measures; preparing market order and table setting
2. Food preparation, understanding the principals involved, nutritional quality and portion size:
  - Beverages: Hot tea/coffee, Milk shake/ lassi, fruit based beverages
  - Cereals: Boiled rice, pulao, chapatti, parantha, puri, pastas
  - Pulses: Whole, dehusked
  - Vegetables: curries, dry preparations
  - Milk and milk products: Kheer, custard
  - Meat, Fish and poultry preparations
  - Egg preparations: Boiled, poached, fried, scrambled, omelettes, egg pudding
  - Soups: Broth, plain and cream soups
  - Baked products: Biscuits/cookies, cream cakes, sponge cake preparations, tarts and pies
  - Snacks:pakorras, cutlets, samosas, upma, poha, sandwiches
  - Salads: salads and salad dressings.

### **References:**

1. Khanna K, Gupta S, Seth R, Mahna R, Rekhi T (2004). The Art and Science of Cooking: A Practical Manual, Revised Edition. Elite Publishing House Pvt Ltd.
2. Raina U, Kashyap S, Narula V, Thomas S, Suvira, Vir S, Chopra S (2010). Basic Food Preparation: A Complete Manual, Fourth Edition. Orient Black Swan Ltd.
3. Bamji MS, Krishnaswamy K, Brahmam GNV (2009). Textbook of Human Nutrition, 3rd edition. Oxford and IBH Publishing Co. Pvt. Ltd.
4. Srilakshmi (2007). Food Science, 4th Edition. New Age International Ltd.
5. Wardlaw and Insel MG, Insel PM (2004). Perspectives in Nutrition, Sixth Edition. Mosby.
6. Chadha R and Mathur P (eds). Nutrition: A Lifecycle Approach. Orient Blackswan, Delhi. 2015

## **B.Sc. (Home Science) Third Semester**

### **Course – 202**

## **FUNDAMENTALS OF TEXTILES**

Theory- 60  
Practical-40

### **Objectives:**

This course will enable the students to understand-

1. Types of fabrics available, their properties and their uses.
2. Selection of fabrics and garments according to their end use and in the available budget.
3. Rights and duties of consumers.

### **Unit I: Classification of Textiles**

- a) Introduction and classification of textiles.
- b) Terminology in textiles
- c) General Properties of fibre
- d) Composition, Types, Properties and uses of:

Cotton	Silk
Wool	Nylon
Rayon	Polyester

### **Unit II: Study of Yarns & Fabrics**

- a) Twist and yarn number- their effect on fabric properties
- b) Simple yarns
- c) Weaving – Basic Weaves
- d) Knitting-properties of knitted fabrics

### **Unit III: Fabric Finishing**

- a) Definition, aims and classification of finishes
- b) Bleaching, Tentering, Calendering, Mercerizing, Sanforizing, Sizing, Glazing, Embossing, Singeing, Schreinerizing, Napping,.
- c) Crease Resistant Water Proofing, Flame Proofing, Moth and Mildew Proof

### **Unit IV: Consumer Awareness and Education**

- a) Selection of fabric for household linen and Apparel for various end uses
- b) Selection of Readymade Garments for different age groups, seasons, occupation and occasion- based on their cost and quality assessment.
- c) Storage and care of fabrics
- d) Problems faced by consumers while buying fabric and readymade garments.

- e) Knowledge of Standardization Marks, Advertisement, Packing and Labels.
- f) Consumer Rights and Duties

**Internal Assessment:**

- Seminar on any topic from the above syllabus
  - Test with Multiple Choice Questions / short and long answer questions.
  - Preparation of an Audio-visual aid
- Attendance

**PRACTICAL**

1. Fiber Identification tests –Visual, burning, microscopic and chemical
2. Yarn Identification – Single, ply, cord, Novelty yarns and Collection and study of 15 samples of yarns.
3. Thread count and balance
4. Dimensional stability
5. Weaves- Identification, design interpretation on graph and Collection of different weaves-basic and decorative.
6. Fabric analysis of light, medium & heavy weight fabrics for various end uses.
7. Collection of 5 fabric samples made with different techniques of fabric construction.

**Reference Books:**

1. Manju Patni 'Family Clothing' star Publication, Agra, 3<sup>rd</sup> edition 1993.
2. Susheela Dantiyagi. 'Fundamentals of Textiles and their care'. Orient Longman Limited, New Delhi.
3. Manju Patni and Pratibha Rastogi. 'Fiber Science and Clothing'. Star Publications, Agra.
4. Alka Agarwal and Manju Patni. 'Fiber science and Clothing'. Star Publications, Agra.
5. Neerja Yadav. 'Textiles and Clothing'. Sahitya Publications, Agra.
6. Pramila Verma. 'Vastra Vigyan avum Paridhan' Madhya Pradesh Hindi Granth Academy, Bhopal
7. Marjory L. Joseph 'Introductory Textile Science' Holt, Rinehart and Winston, NY.
8. Isabel B. Wingate and June F. Mohler. 'Textile Fabrics and Their Selection'

# B.Sc. (Home Science) Third Semester

## Course – 203

### HUMAN DEVELOPMENT-II

Theory: 60 Marks  
Sessional: 40 Marks

#### Objectives:

1. To study the stages of adulthood and old age
2. To develop awareness about important aspects of adulthood and old age
3. To understand the problems and their adjustment during adulthood and old age.

#### Unit I – Puberty and Adolescence (10 to 19 years)

- (a) Development tasks and characteristics. Physical development: Puberty, growth spurts, primary and secondary sexual characteristics, secular trends.
- (a) Identity: Definition, Identity status, Factors influencing Identity development.
- (b) Social relationships and heterosexual relationship, Importance.
- (c) Adolescent's Emotions: - Meaning, Causes, expression, characteristics of emotional maturity.
- (d) Problems – Drug and Alcohol abuse, STD, HIV AIDS, Teenage pregnancy.

#### Unit II – Young Adulthood (20 to 35 years)

- (a) Definition of an adult, its characteristics, Development task of a young adult.
- (b) Responsibilities and adjustments-educational, occupational, marital and parenthood.
- (c) Choosing a Career - Stages, factors affecting selection for career.

#### Unit III – Middle Adulthood (35 to 55 years)

- (a) Characteristics, Developmental tasks, physical changes.
- (b) Reproductive Changes- Menopauses, climetric syndrome and associated health risks.
- (c) Stresses in middle age- family, workplace, occupation and coping strategies.
- (d) Preparation for retirement- physical, social, financial and occupational

#### Unit IV – Late adulthood (55– 65 years) and Old Age (65 years onwards)

- (a) Characteristics, developmental tasks, physiological changes and health problems, cognitive, memory and personality changes.
- (b) Retirement – effect of retirement (emotional, economic, self and family), changes in relationship with family.
- (c) Issues: - Old age homes, elderly abuse, loneliness and post parental status.
- (d) National Policies and legal provisions for elderly.

#### Sessional

1. Case study of any one stage.
2. Visit to old age home/Widow Home.

3. Establishing one day camp for the aged to give them opportunity of association and submitting a report of the same.
4. Assessment of problems of any two stages.
5. An intervention to study middle crises and retirement blues and submitting its report.

#### References

1. Monaster G.J. 1977. Adolescent Development Life Tasks. Mc.Graw Hill.
2. Ambron S.R. 1978. Child Development (IInd Edition) Holt, Renchart and Winston.
3. Papalia D.E. Olds S.W. 1975. A childs World-impact Through Adolescence, Mcgraw Hill Co.
4. Boeknek G. 1980. Human Development Brook and Cole Publishing Company.
5. Perkins V.H. 1975. Human Development Wadword Publishing Company California.
6. Rayner E. 1971. Human Development (IInd Edition) George Allen and Unwin.
7. Mussen P.H. Conger J.J. Kagan J and Huston A.C. 1984. Child Development and Personality (VI Edition) Harper and Row Publishers.



**B.Sc. (Home Science) Third Semester**  
**Course – 204**  
**EXTENSION EDUCATION AND COMMUNITY DEVELOPMENT**

Theory – 60 Marks

Practical – 40 Marks

**Objectives:**

- a) To make students understand the basics of extension education.
- b) To make students aware about community development efforts.

**Unit I. Extension Education:**

- a) Meaning, philosophy, objectives, functions, elements and scope of Extension Education.
- b) Difference between Formal education and non-formal education.
- c) Difference between Extension education, adult education, social education and functional literacy.
- d) Role of Home Science Extension Education in National development.
- e) Role and qualities of Extension Personnel.

**Unit II. Historical Perspective:**

- a) Extension activities in India-pre-independence and post-independence (NES)

**Unit III. Community Development and Panchayati Raj:**

- a) Community-Meaning, characteristics and types.
- b) Community development –concept, elements, faiths, philosophy & objectives.
- c) Community development Programme- origin, principles, Organizational setup and functions of the programme at various levels.
- d) Types of Community Development Programme in India: Integrated type, Adaptive type, and Project type.
- e) Institutions for Community Development in India: School; Panchayat-Panchayati Raj System – origin, 73<sup>rd</sup> Amendment Act; Cooperatives; youth clubs; mahila mandals, SHGs

**Unit IV. Support Structures and their functions:**

- a) GO's and NGO's
- b) Central Social Welfare Board.
- c) State Social Welfare Board.
- d) National Level Voluntary Agencies like DRDA, CAPART, KVK's, KVIC and NIPCCD.
- e) Local Level Voluntary Agencies, people's organizations at grass roots.

**Practical:**

1. Visit and survey of nearby slum and rural areas to get acquainted with their social and cultural problems and other specific problems.
2. Submission of project related to the survey.
3. Preparation of activities under various extension teaching models.

**References**

1. Directorate of Extension Education,
2. A. S. Sandhu, "Agricultural communication"
3. G. L. Ray, "Extension and Management Communication" Naya Prakash.
4. S. K. Wag mare, "Teaching Extension Education"
5. P. Dhama & O.P. Bhatnagar, "Education & Communication for Development"  
Oxford IBH Publishing Co. Pvt. Ltd, New Delhi.

**B.Sc.**  
**(Home Science)**  
**Fourth Semester**

**B.Sc. (Home Science) Fourth Semester**  
**Course – 205**  
**NUTRITION FOR THE FAMILY**

Theory – 60

Practical – 40

**Objectives:**

1. To understand the importance of healthy meals at various stages of lifecycle.
2. To know nutritional requirements during the lifecycle and the RDA for various age groups.
3. Learn skills of meal planning for different physiological groups

**Unit I Basic concepts meal planning**

- Food groups and concept of balanced diet
- Food exchange list
- Concept of Dietary Reference Intakes
- Factors effecting meal planning and food related behaviour.
- Dietary guidelines for Indians and food pyramid

**Unit II Nutrition during pregnancy & lactation**

Physiological changes, RDA, nutritional guidelines, nutritional concerns and healthy food choices

- Pregnant woman
- Lactating mother

**Unit III Nutrition during Infancy and childhood**

Growth and development, growth reference/ standards, RDA, nutritional guidelines, nutritional concerns and healthy food choices

- Infants: Planning for safe and nutritious complementary and indigenous foods: low and High income groups.
- Preschool children
- School children
- Adolescents

**Unit IV Nutrition for adults and elderly**

- Adult nutrition- Planning for diets for healthy living for men and women of LIG, MIG and HIG.

- Geriatric nutrition – Ageing and nutritional needs, recommended dietary allowances, special considerations in planning meals for the geriatric group, special care of old people.

### **Practical**

#### **1. Food exchange system and standardization of raw to cooked foods**

- Conversion of Weights and Volumes of Raw Foods to Cooked Foods.
- Food Exchange system and its applications.
- Practical applications of Food Pyramid.

#### **2. Planning and preparation of diets from infancy to adolescence at different socio- economic groups in relation to special nutrient requirements**

- Complementary foods (CF) for infants.
- Enhancing micronutrient content of CF.
- Packed tiffins for School Going Child.
- Healthy snacks for adolescents
- Meal Planning for Pregnant and lactating women.
- Planning meals for Geriatric groups

### **References:**

1. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.
2. Wardlaw GM, Hampi JS, DiSilvestro RA (2004). Perspectives in Nutrition, 6th edition. McGraw Hill.
3. ICMR (2011) Dietary Guidelines for Indians. Published by National Institute of Nutrition, Hyderabad.
4. ICMR (2010) Recommended Dietary Allowances for Indians. Published by National Institute of Nutrition, Hyderabad.
5. Chadha R and Mathur P. Nutrition: A Lifecycle Approach. Orient Blackswan, New Delhi. 2015.
6. Gupta A. (2019). Textbook of Nutrition. Medico Refresher Publication, New Delhi.

**B.Sc. (Home Science) Fourth Semester  
Course – 206  
TEXTILE DESIGNING**

Theory- 60  
Sessional -40

**Objectives:**

1. Students will learn the concept of aesthetically good design.
2. They will learn to create new designs using various techniques.
3. Students will learn about rich Indian heritage of traditional Textiles.

**Unit I: Fundamentals of Design**

- (a) Elements of Design as applied to Textiles and Apparel
- (b) Principles of Design as applied to Textiles and Apparel
- (c) Types of Design-Structural & Applied
- (d) Textile Design motifs and their features –Natural, Stylized, Geometric and Abstract.
- (e) Repeats and layouts.

**Unit II : Designing by Weaving**

Traditional woven fabrics- Brocades, Bluchers', Patola, Ikat, and Shawls of Kashmir.

**Unit III: Designing by Colour**

A - Dyeing

- (a) Dyes –
  - (i) Natural dyes – Sources
  - (ii) Synthetic dyes – Classification, types and uses of acid, basic, direct, azoic, sulphur, disperse, vat, Pigment.
- (b) Methods of dyeing – Solution, fiber, yarn, fabric and piece dyeing.
- (c) Textiles and Environment –
  - (i) Health Hazards to workers and consumer, toxicity of chemicals used in textiles (during growth, manufacture, finishing and use)
  - (ii) Textiles as a source of air and water pollution.
  - (iii) Health hazards caused by synthetic dyes.

B – Printing

- (a) Methods of Printing –

- (i) Automatic Printing: Roller, screen, duplex, discharge, photographic
- (b) Styles of printing
  - (i) Direct Printing- Block, Screen, Stencil                      (ii) Transfer Printing
  - (i) Discharge Printing
  - (ii) Resist Printing – Batik and tie & dye
- (c) Traditional painted /printed and dyed fabrics- Sangneri, Bhagru, Kalamkari, Madhubani, and Bandhani

#### **Unit IV : Designing by Embroidery**

- (a) Fabrics with Traditional Embroidery of different states- Phulkari, Kantha, Kasuti, Kutch & Sindhi, Kasidakari, Chikankari and Zardozi.
- (b) Contemporary Embroidery

#### **Sessional**

1. Sketching of-different lines to see the effects produced by them.
2. Making of different Colour schemes and to study the effect produced by different colours and colour schemes.
3. Development of design- Motif, design, pattern, repeat- drop repeat (full drop,  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{2}{3}$ ,  $\frac{3}{4}$  drop), brick and mirror (vertical and horizontal) repeat
4. Sketching of designs with different motifs (Natural, Stylized, Geometric and abstract.)
5. Textile Design with thread-
  - a) Traditional Embroidery
  - b) Contemporary Embroidery
6. Textile Design through color application
  - (i) Dyeing- Tie and dye, Batik
  - (ii) Printing- Resist, Block, Screen, Stencil
7. a) Collection of different types of Stripes, Checks, plaids. Effects produced by each and by mixing of these.
- b) Collection of different types of textures (Stretch fabrics, velvet, leather, fur and lace, non – woven). Effects produced by each and by mixing these textures.

#### **References:**

1. Juracek, A. Judy, 2000, Soft Surface, Thames & Hudson Ltd.
2. Milne D'Arcy Jean, 2006, Fabric Left Overs, Octopus Publishing Group Ltd.
3. Singer Margo, 2007, Textile Surface Decoration-Silk & Velvet, A&C Black Ltd

**B.Sc. (Home Science) Fourth Semester**  
**Course – 207**  
**MARRIAGE AND FAMILY DYNAMICS**

Theory: 60 Marks

Sessional: 40 Marks

**Objectives:**

1. To gain the knowledge about the dynamics of contemporary marriage and family system in India
2. To know the concepts, goals and areas of adjustment in marital life.
3. To introduce the students to the key theories in family studies

**Unit 1- Marriage in Indian Society**

- (a) Meaning, goals, characteristics of marriage, prevalent forms of marriage restrictions on marriage
- (b) Readiness for marriage (i) Psychological (ii) Social  
(iii) Physiological (v) Economical
- (c) Preparation for marriage - (i) Selecting a suitable partner, Theories on mate selection  
(ii) Premarital association (iii) Premarital guidance and counseling
- (d) Presents trends in marriage

**Unit II- Marital Adjustment**

- (a)Types of adjustment-physical, financial, in-laws and social
- (b) Marital adjustment at different stages of family life cycle and occupational cycle
- (c)Factors affecting marital adjustment

**Unit III- Legal laws related to marriage in India :-**

- (a) The Hindu Marriage Act
- (b) Special Marriage Act
- (c) The Dowry Prohibition Act.
- (d) The Child Marriage Restraint Act.
- (e) Christian Act, Muslim Act.

**Unit IV- Family**

- (a) Meaning, definition, structure (Joint family and nuclear family), functions of family, sociological significance of family



- (b) Changes in family structure, factors responsible, advantages and disadvantages of change in family structure, effects of different family structures on changing roles of family.
- (c) Modern trends in family - single parent families, childless families, dual earner families, nuclear families, DINK families, liv-in-relationship.
- (d) Family counseling-
  - (i) Meaning, principles, importance and techniques of family counseling.
  - (ii) Skills, competencies and role of counselor.

**Sessional work**

1. Term paper on any topic from the course.
2. Critical analysis of relevant news articles on marriage and family issue.
3. Identification of risk family and assessment of their needs.

**References:**

1. Rice F.P. Marriage and Parenthood. Allyn and Bacon Inc. Toronto.
2. Rice F.P. 1983. Contemporary Marriage. Allyn and Bacon Inc. Toronto.
3. Reddy VNK, 1978. Marriages in India. The Academic Press Gurgaon.
4. Landis and Landis 1968. Building as Successful Marriage Prentice Hall Enc.
5. Duval I.M. 1962 Family Development J.P. Lippincot Co.
6. Winch R.F. 1963. The modern Family Holt Rinehart and Winston.

**B.Sc. (Home Science) Fourth Semester  
Course – 208  
TEACHING METHODS AND MEDIA**

Theory – 60 Marks  
Practical- 40 Marks

**Objectives:**

To help students to understand the preparation and use of Media in extension activities.

**Unit I. Teaching Learning Process**

Meaning, principles, characteristics, factors affecting teaching and learning.

Adult learning-Characteristics of adult learner and factors affecting adult learning.

**Unit II. Types of Media**

a) Approaches in Extension Education: individual, group and mass.

b) . Media – concept, types and importance.

1. Folk media.

2. Print media.

3. Electronic media.

**Unit III. Methods of Extension Education**

Methods of Extension Education according to approaches – concept, use, importance, selection and limitations.

**Unit IV. Audio-visual Aids**

Audio-visual Aids for teaching learning process – meaning, importance, classification, criteria for selection and use of audio-visual aids.

**Practical:**

1. Preparation and use of audio-visual aids – display, distribution and use with teaching methods.
2. Preparation and presentation of any one media.
- 3.

**References:**

1. Directorate of Extension Education,
2. A. S. Sandhu, "Agricultural communication"
3. G. L. Ray, "Extension and Management Communication" Naya Prakash.
4. S. K. Wag mare, "Teaching Extension Education"
5. P. Dhama & O.P. Bhatnagar, "Education & Communication for Development" Oxford  
IBH Publishing Co. Pvt. Ltd, New Delhi.

**B.Sc.**  
**(Home Science)**  
**Fifth Semester**

**B.Sc. (Home Science) Fifth Semester**  
**Course – 301**  
**DIET THERAPY**

Theory – 60

Practical – 40

**Objectives:**

This course will enable the students to understand:

1. Principles of diet therapy.
2. Modification of the normal diet for therapeutic purposes.
3. Dietary management in some common disorders / diseases.

**Unit I Introduction to Diet Therapy**

- Basic concepts of diet therapy
- Therapeutic modifications of the normal diet
- Introduction to enteral and parenteral nutrition

**Unit II Nutritional management of common disorders**

Etiology, clinical features and nutritional management of:

- Infections and Fevers – Short term and long term (Typhoid, Tuberculosis and HIV / AIDS)
- Stomach disorders – Gastritis and Ulcers
- Small and Large Intestines disorders – Diarrhoea, Constipation, Lactose intolerance, Steatorrhea and Celiac disease
- Liver disorders– Infective hepatitis

**Unit III Weight Management**

Etiology, clinical features, basic diagnosis, complications, nutritional and life style modifications and dietary counselling in Weight management

- Overweight and obesity
- Underweight
- Eating disorders: anorexia nervosa and bulimia

**Unit IV: Cardio-vascular and Common Metabolic Disorders**

Etiology, clinical features, basic diagnosis, complications, nutritional management, life style modifications and dietary counselling in cardio-vascular/ common metabolic disorders.

- Cardio-vascular Disorders
  - Hypertension

- Hyperlipidemias, Atherosclerosis
- Introduction to Myocardial Infarction and Congestive Heart Failure
- Diabetes Mellitus - Type 1 and Type 2
- Gout

**Practical:**

1. Planning, calculation, preparation, service and evaluation of diets for the patients suffering from the following diseases/ disorders:

(a) Therapeutic Diets

- i. Normal diet with a 3- day cycle menu
- ii. Soft Diet
- iii. Liquid diets – Clear and full fluid

(b) Diets in fevers: acute and chronic

(c) Diets in GI Tract disorders:

- i. Diarrhoea
- ii. Constipation

(d) Diet in Infective Hepatitis

2. Planning, calculation, preparation, service and evaluation of diets for the patients suffering from following:

- Overweight/Obesity and Underweight
- Type 2 Diabetes Mellitus
- Cardiovascular Disorders:
  - Hypertension
  - Atherosclerosis

**References:**

1. Srilakshmi B.(2011). Dietetics. New Age International Publishers. Delhi
2. Joshi SA. 2010. Nutrition & Dietetics. 3rd Edition. Tata McGraw- Hill Education Pvt. Ltd
3. Khanna K, Gupta S, Seth R, Passi SJ, Mahna R, Puri S (1997). Textbook of Nutrition and Dietetics. Phoenix Publishing House Pvt. Ltd.
4. Mahan L K and Escott Stump S (2008). Krause's Food & Nutrition Therapy, 12th ed. Saunders-Elsevier.
5. Stacy Nix (2009). William's Basic Nutrition and Diet Therapy, 13th Edition. Elsevier Mosby.
6. Gupta A. (2019). Textbook of Nutrition. Medico Refresher Publication, New Delhi

## **B.Sc. (Home Science) Fifth Semester**

### **Course – 302**

### **FASHION AND RETAILING**

Theory: 60

Sessional: 40

#### **Objectives**

1. Students will learn about fashion and its influence in life
2. Knowledge of Retailing will give them options for jobs in this line and also for entrepreneurship.

#### **Unit I : Dynamics of fashion**

- (a) Dimensions of fashion
- (b) Nature of fashion
- (c) Environment of fashion
- (d) Movement of fashion – fashion cycles, length of fashion cycles, factors influencing movement of fashion, predicting movement of fashion.

#### **Unit II: Terminology**

- (a) .Fashion cycle
- (b) .Sources of fashion
- (c) .Factors favoring and retarding fashion

#### **Unit III: Fashion and Consumer**

- (a) Consumer groups and buying motives
- (b) Influences on fashion and consumer-social, political, economical, technological and seasonal.
- (c) Theories of fashion adoption
- (d) Individuality versus conformity.

#### **Unit IV: Fashion retailing**

- a) Types of retail outlets-specialty stores, departmental stores, promotional stores, single- and multiple- unit stores.
- b) Retail fashion sales promotion-fashion advertising, publicity, special events, discounts etc.
- c) Career options in fashion industry.

#### **Sessional-**

1. Survey of local retail markets to study their features.
2. Survey of various consumer groups to study the factors influencing their fashion following

3. Group discussion
4. Seminar on any topic from syllabus

### **References**

1. Carr H. and Letham B., The Technology of Clothing Manufacture, Blackwell Science limited, Oxford.
2. Cooklin G., Introduction to Clothing Manufacture, BSP Professional Books, Oxford.
3. Macalls Sewing Book, Random House, New York.
4. Chutler A. J., Introduction to Clothing Production Management, Blackwell Science UK, 1998.
5. Practical Dress Design- Irwin, Mable, New York, Macmillan Co.
6. Basic Fashion Design- Ireland, Patrick, London, BT, Baxford Limited



**B.Sc. (Home Science) Fifth Semester**  
**Course – 303**  
**FAMILY HOUSING**

Theory: 60Marks  
Practical: 40Marks

**Objectives:**

- Recognise the role of housing for national development.
- Be aware of the housing problems in India.
- Understand and apply the principles of design in housing.

**Unit – I: Housing**

- (a) Housing needs and importance.
- (b) Housing scenario in India.
- (c) Causes of shortage of housing.
- (d) Renting and ownership housing: advantages and disadvantages.

**Unit – II : House Planning**

- (a) Selection of site: Natural features, neighborhood and social consideration, availability of external and utility services.
- (b) Principles underlying planning of house.
- (c) Vastu Shastra.
- (d) Planning units of the house: Private, Work, Recreational, Service area.

**Unit – III: Construction and Building Material**

- (a) Types of plans :- Site plan, Floor plan, Cross section plan, Elevation and Perspective plan
- (b) Construction features of a house (brief description).
- (c) Building Materials

**Unit – IV: Housing Legislation and Schemes**

- (a) Building Codes
- (b) Bye-laws
- (c) NBO (National building organization).
- (d) Governmental housing schemes.

**Practical Work**

- a. Making different floor plans for various Income levels.
- b. Visit and Observation of a residential building under constructions.
- c. Market survey of different building material.

**Reference Books**

- a. Modern Ideal Home for Indians – R.S. Desh Pandey United Books Co.Poona.
- b. Cheap & Healthy Home for middle class – R.S. Desh Pandey, United Books Co. Poona.
- c. The House – its use and care – T. again, J.B.H. Publishing NewDelhi.
- d. Home with Character - Craig and Rush.
- e. House Plans of different living – Veena Gandotra Sarjoo Patel, Dominant pub & Distributor, New Delhi.

**B.Sc. (Home Science) Fifth Semester**  
**Course – 304**  
**PROGRAMME PLANNING FOR RURAL DEVELOPMENT**

Theory 60 Marks  
Sessional – 40 Marks

**Objectives**

- To make students understand the details of concept and process of program planning.
- To make them understand concept of leadership.

**Unit I - Programme Planning:**

1. Concept, Meaning and Objectives of Programme Planning.
2. Need of Programme Planning.
3. Principles of Programme Planning
4. Participatory planning- Concept, importance and approaches.

**Unit II - Steps in Programme Planning:**

- A. 1. Meaning and Importance of Plan of Work.  
2. Developing a Plan of Work  
3. Factors to be considered in preparing the Plan of Work
- B. Programme Execution-
  1. Aspects of execution.
  2. Steps of Programme Execution.
- C. Programme Evaluation:
  1. Concept, Importance, Criteria and types of Evaluation.
  2. Steps of Evaluation.

**Unit III - Leaders and Leadership:**

1. Meaning, qualities and role.
2. Types of leaders, identification and training of leaders.

**Unit IV. Rural Development Programmes**

Rural Development Programmes under Five Year Plans.

**Sessional:**

- a. Visiting community to identify needs of community through PRA techniques.
- b. Development of need-based programs – its implementation and evaluation.
- c. Writing report and its presentation.

## References

1. Anoop Singh Sandhu, "Extension program planning"
2. P. Dhama & O.P. Bhatnagar, "Education & Communication for Development"  
Oxford IBH Publishing Co. Pvt. Ltd, New Delhi.
3. Directorate of Extension Education, "Extension Education in community  
Development"
4. Dr. A. Adivi Reddy, "Extension Education"
5. Uham Kumar Singh, "Extension Education" G. L. Ray, "Extension and  
Management Communication" Naya Prakash.
6. S. K. Waghmare, "Teaching Extension Education"

**B.Sc.  
(Home Science)  
Sixth Semester**

**B.Sc. (Home Science) Sixth Semester**  
**Course – 305**  
**PUBLIC NUTRITION**

Theory – 60  
Sessional – 40

**Objectives:**

1. Understand the multi-faceted nature of malnutrition problem.
2. Assess the malnutrition problem at the community level.
3. Be familiar with the policy and intervention programmes operating in India to overcome malnutrition.

**Unit I Concept and scope of public nutrition**

- Understanding the concept of public nutrition
- Assessment of nutritional status: methods and application
  - Direct methods – anthropometry, biochemical and clinical examination
  - Indirect methods – dietary surveys, vital statistics

**Unit II Common nutritional deficiencies**

Etiology, prevalence, clinical features, prevention and management of nutritional deficiencies

- PEM
- Micronutrient deficiencies such as Vitamin A deficiency, Nutritional Anemias, Iodine Deficiency Disorders, Fluorosis

**Unit III Nutrition: Policy and programmes in India**

- National Nutrition Policy
- Objectives, target groups and intervention strategies of
  - a) ICDS
  - b) Mid Day Meal Programme (MDMP)
  - c) National programmes for prevention of Anaemia, Vitamin A deficiency, Iodine Deficiency Disorders

**Unit IV Nutrition Education**

- Objectives, principles and scope of nutrition and health education and promotion
- Behaviour change communication – concept, objectives and approaches

**Practical:**

1. Planning and demonstration of low cost nutritious recipes for infants, preschoolers, pregnant/nursing mothers for nutrition education communication activities among underprivileged sections of the population.
2. Assessment of nutritional status.
  - Anthropometric measurements – weight, height, MUAC
  - Plotting and interpretation of growth charts for children below 5 years.
  - Identification of clinical signs of common nutritional disorders.
  - Dietary assessment – 24 hour recall.
3. Planning and conducting a nutrition promotion activity.
4. Visit to an ongoing nutrition and health promotion programme.

**References:**

1. Bamji MS, Krishnaswamy K and Brahmam GNV (Eds) (2009). Textbook of Human Nutrition, 3<sup>rd</sup> edition. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
2. Park K (2009). Park's Textbook of Prevention and Social Medicine, 20th Edition. M/s Banarasidas Bhanot Publishers, Jabalpur, India.
3. Wadhwa A and Sharma S (2003). Nutrition in the Community-A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.
4. Vir Sheila (2011). Public Health Nutrition in Developing Countries published by Woodhead Publishing India. ISBN-13: 9780857090041, ISBN-10: 0857090046

**B.Sc. (Home Science) Sixth Semester**  
**Course – 306**  
**FAMILY APPAREL CONSTRUCTION**

Theory – 60  
Practical– 40

**Objectives**

1. To appreciate various methods of apparel construction.
2. To learn basics of quality sewing
3. To know proper selection of clothes for various end uses.

**Unit I:**

- (a) Psychological and Sociological aspects of clothing.
- (b) Clothing needs of the family at its various stages.

**Unit II:**

- (a) The three techniques of making garments – drafting, draping and pattern making.
- (b) Advantages, limitations and scope of each of the above.
- (c) Importance of taking body measurements – precautions, procedure, body levels and body marks.

**Unit III:**

- (a) Fabric grain
- (b) Preparatory steps- preshrinking, straightening and truing
- (c) Layouts for patterns- general guidelines, basic layouts- lengthwise, partial lengthwise, crosswise, double fold, open, combination fold
- (d) Pinning, marking and cutting
- (e) Layouts for fabrics- Unidirectional, bold and large prints, plaids, stripes and checks, various widths of fabrics

**Unit IV:**

- (a) Fabric faults /defects as related to stages of manufacture and their classification.
- (b) Selection of fabrics for various ends - uses keeping in mind: purpose, serviceability, maintenance, durability, economy, storage and appearance.
- (c) Selection of clothes keeping in view: age, sex, personality, figure, occupation, occasion and season.
- (d) Appropriate labels on fabrics and garments.



### **Practical-**

1. Drafting of child's basic bodice, panty and sleeve block.
2. Adopting the above to child's Frock and Romper. Stitching of both garments.
3. Drafting of Adult's basic bodice and sleeve block.
4. Drafting and stitching of adults' Petticoat and Blouse.

### **References-**

1. Basic Clothing Construction by Savitri Pandit
2. Bishop method of clothing construction by Bryte Edna Bishop, Marjarle Stoler Arch. Sir Issac Pitman & Sons Ltd , London
3. Handbook of Fashion Designing by Ritu Jindal. Mittal Publications.
4. Individuality in clothing selection & personal appearance. A. guide for consumer Marry Ketgan. Memillon publication co. coller memillon publisher

**B.Sc. (Home Science) Sixth Semester**  
**Course – 307**  
**INTERIOR DESIGN AND HOME DECORATION**

Theory: 60Marks

Practical: 40Marks

**Objectives:**

- Understand elements and principles of arts and designs.
- Develop an understanding to the application of art principles in design.
- Develop skill in creating designs and making art objects.

**Unit – I: Interior design and Home decoration**

- a. Meaning, Factor affecting interior design.
- b. Interior design: Traditional and modern overview.
- c. Design: Objectives, Types, Elements and Principles of design

**Unit – II: Colour**

- a. Colour Theory – Chemist, Physicist and Psychologist.
- b. Colour System- Prang colour system and Munsell colour system.
- c. Dimensions of colours ; Hue, value and Chroma.
- d. Colour Wheel – Primary, Binary, Intermediate, Tertiary and Quaternary colour, Warm and Cool colour and their effect.
- e. Colour Schemes – Similar and contrasting colour schemes, planning of colour schemes for different areas in the house.

**Unit – III: Furnishing**

- a. Furnishings: Classification of furnishing–Curtain, Draperies, Upholstry, Carpet.
  - (i) Factors influencing the selection of furnishings for the home-family needs and preference, availability, climatic condition, income, home maker taste etc.
  - (ii) Window treatment.
- b. Light: Natural and artificial light, lighting in various rooms and for different activity centers.

**Unit – IV: Flower arrangement**

- a. Equipment's used in Flower arrangement.
- b. Types of Flower arrangement using elements and principles of art and design.

**Practical Work**

- a. Making any one decorative article for the home i.e. bed cover, table net, cushion cover, lampshade etc.
- b. Floor decoration with flower, rice powder, chalk powder and poster colours. (Alpana, Mandana, Rangoli).
- c. Artificial flower making and their arrangements.

### Reference Books

- a. Art in everyday – Goldstein and Goldstein
- b. Home with characters – Craig and rush
- c. Home furnishing – A.H. Rull
- d. Grah Vyavastha awam grah Kak G.P. Sherry.
- e. Grah Prabandh – Sharma and Verma
- f. Interior Architecture – J. Rosemary Riggs
- g. Colours in your home – Tera Eve Legh
- h. Colour Forecasting – Tracy Dianne

**B.Sc. (Home Science) Sixth Semester**  
**Course – 308**  
**COMMUNICATION PROCESS AND ADOPTION**

Theory – 60 Marks  
Practical – 40 Marks

**Objective:**

To help students learn to communicate in communities effectively.

**Unit I. Communication:**

1. Meaning, nature and importance of communication.
2. Factors influencing effective communication.
3. Key elements in the communication process.
4. Models of communication.

**Unit II.**

1. **Types of Communication** – Upward-Downward; Interpersonal -Intrapersonal; One way- Two way; Individual- Group- Mass, Localite - Cosmopolite.
- 2 **Barriers** of communication and ways to overcome them.

**Unit III**

**Development communication-** Nature, Definition, Role & significance.

**Unit IV.**

**Innovation and Diffusion and Adoption.**

1. Concept of Innovation and Diffusion.
2. Characteristics of innovation and applicability of each characteristic to homestead technologies.
3. Consequences of innovation.
4. Innovation decision process.
5. Elements of diffusion-social agents, opinion leaders and change agents.
6. Concept, adoption stages, adopter categories, rate of adoption, discontinuance.

**Practical :**

1. Formulating communication strategies for home science development programmes.
2. Development of Communication Skills using different Approaches.

**References**

1. P. Dhama & O.P. Bhatnagar, "Education & Communication for Development" Oxford IBH Publishing Co. Pvt. Ltd, New Delhi.
2. Directorate of Extension Education, "Extension Education in community Development"7
3. A. S. Sandhu, "Agricultural communication"
4. G. L. Ray, "Extension and Management Communication" Naya Prakash.
5. B. N. Ahuja, "Theory & Practice Journalism"
6. S. K. Waghmare, "Teaching Extension Education"
7. Lady Irwin College, "Studies of the Rural Community"
8. Larry L. Barker, "Communication"

11) 2/1/2018

# **Common Minimum Curriculum**

**(NEW AND RESTRUCTURED)**

**UNDER GRADUATE CURRICULA & SYLLABUS**

**B.Sc.(Ag.) / B.Sc.(Ag.)Hons.**

**Semester System as per ICAR  
V<sup>th</sup> Deans Committee Report**

**Submitted By :**

**Dr. B.R. Ambedkar University, Agra**

Ist Semester			
Fundamentals of Agronomy	3	AG-101	
Fundamentals of Genetics	3	AG-102	
Fundamentals of Soil Science	3	AG-103	
Fundamentals of Horticulture	2	AG-104	
Rural Sociology & Educational Psychology	2	AG-105	
Introduction to Forestry	2	AG-106	
Introductory Animal Husbandry	3	AG-107	
Comprehension & Communication Skills in English	2	AG-108	
Agricultural Heritage	1	AG-109	
Introductory Biology/Basic Agriculture-I	2	AG-110A /AG-110B	
Elementary Mathematics/ Basic Agriculture-II	2	AG-111A/ AG-111B	
NSS/NCC/Physical Education & Yoga Practices	2	AG-112A/ AG-112B/ AG-112C	27
II <sup>nd</sup> Semester			
Semester Fundamentals of Crop Physiology	3	AG-201	
Fundamentals of Plant Biochemistry	3	AG-202	
Fundamentals of Entomology-I	3	AG-203	
Fundamentals of Agricultural Economics	2	AG-204	
Principles of Organic Farming	2	AG-205	
Fundamentals of Plant Pathology	4	AG-206	
Production Technology for Vegetables and Spices	2	AG-207	
Fundamentals of Agricultural Extension Education	3	AG-208	
Food Processing and Safety Issues	3	AG-209	
Human Values & Ethics	1	AG-210	26

<b>III<sup>rd</sup> Semester</b>			
Crop Production Technology -I ( Kharif crops)	2	AG-301	
Practical Crop Production -I (Kharif crops)	2	AG-302	
Fundamentals of Plant Breeding	3	AG-303	
Agricultural Microbiology	2	AG-304	
Agricultural Finance and Co-Operation	3	AG-305	
Farm Machinery and Power	2	AG-306	
Principles of Integrated Disease Management	3	AG-307	
Environmental Studies & Disaster Management	3	AG-308	
Statistical Methods	2	AG-309	
Soil and Water Conservation Engineering	2	AG-310	
Dairy Science	3	AG-311	
Fundamentals of Entomology-II	2	AG-312	29
<b>IV<sup>th</sup> Semester</b>			
Crop Production Technology - II (Rabi crops)	2	AG-401	
Practical Crop Production - II (Rabi crops)	2	AG-402	
Principles of Seed Technology	3	AG-403	
Problematic soils and their Management	2	AG-404	
Renewable Energy and Green Technology	2	AG-406	
Production Technology for Ornamental Crops, MAP and Landscaping	2	AG-407	
Entrepreneurship Development and Business Communication	2	AG-408	
Introductory Agro-meteorology & Climate Change	2	AG-409	
Agri- Informatics	2	AG-410	
Poultry Production & Management	3	AG-411	22



<b>V<sup>th</sup> Semester</b>			
Rainfed and dryland Agriculture	2	AG-501	
Crop Improvement-I (Kharif crops)	2	AG-502	
Pests of Crops and Stored Grain and their Management	3	AG-503	
Agricultural Marketing Trade & Prices	3	AG-504	
Protected Cultivation and Secondary Agriculture	2	AG-505	
Diseases of Field and Horticultural Crops and their Management-I	3	AG-506	
Production Technology for Fruit and Plantation Crops	2	AG-507	
Communication Skills and Personality Development	2	AG-508	
Intellectual Property Rights	1	AG-509	
Principles of Food Science & Nutrition	3	AG-510	
Geo-informatics and Nanotechnology	2	AG-511	
Elective-1 (AGE-51/ ACE-52/ AGE-53/ AGE-54/ AGE-55/ AGE-56)	3	AGE	28
<b>VI<sup>th</sup> Semester</b>			
Farming System, Precision Farming & Sustainable Agriculture	2	AG-601	
Crop Improvement-II (Rabi crops)	2	AG-602	
Manures, Fertilizers and Soil Fertility Management	3	AG-603	
Farm Management, Production & Resource Economics	2	AG-604	
Diseases of Field and Horticultural Crops and their Management-II	3	AG-605	
Post-harvest Management and Value Addition of Fruits and Vegetables	2	AG-606	
Watershed and Wasteland Management	2	AG-607	
Beneficial insects and Pest of Horticultural Crops and their Management	3	AG-608	
Elective-2(AGE-61/ ACE-62/ AGE-63/ AGE-64/ AGE-65/ AGE-66)	3	AGE	
Educational Tour	2	AGT-99	24

## VII<sup>th</sup> Semester

S.No.	Rural Agricultural Work Experience and Agro-industrial Attachment (RAWE & AIA)		
	Activities	No. of weeks	Credit Hours
1	General orientation & On campus training by different faculties	1	14
2	Village attachment	8	
	Unit attachment in Univ./ College. KVK/ Research Station Attachment	5	
3	Plant clinic	2	02
4	Agro-Industrial Attachment	3	04
	Project Report Preparation, Presentation and Evaluation	1	
Total weeks for RAWE & AIA		20	20

### RAWE Component -II

#### Agro Industrial Attachment

- Students shall be placed in Agro-and Cottage industries and Commodities Boards for 03 weeks.
- Industries include Seed/Sapling production, Pesticides-insecticides. Post harvest-processing- value addition, Agri-finance institutions. etc. Activities and Tasks during Agro-Industrial Attachment Programme
- Acquaintance with industry and staff
- Study of structure, functioning, objective and mandates of the industry
- Study of various processing units and hands-on trainings under supervision of industry staff
- Ethics of industry
- Employment generated by the industry
- Contribution of the industry promoting environment
- Learning business network including outlets of the industry
- Skill development in all crucial tasks of the industry
- Documentation of the activities and task performed by the students
- Performance evaluation appraisal and ranking of students

### VIII<sup>th</sup> semester

**Modules for Skill Development and Entrepreneurship:** A student has to register 20 credits opting for two modules of (0+10) credits each (total 20 credits) from the package of modules in the VIII sem.

<b>Sr. No.</b>	<b>Title of the module</b>	<b>Credits</b>
1.	Production Technology for Bioagents and Biofertilizer	0+10
2.	Seed Production and Technology	0+10
3.	Mushroom Cultivation Technology	0+10
4.	Soil, Plant, Water and Seed Testing	0+10
5.	Commercial Beekeeping	0+10
6.	Poultry Production Technology	0+10
7.	Commercial Horticulture	0+10
8.	Floriculture and Landscaping	0+10
9.	Food Processing	0+10
10.	Agriculture Waste Management	0+10
11.	Organic Production Technology	0+10
12.	Commercial Sericulture	0+10

## Evaluation of Experiential Learning Programme

<b>Sr. No.</b>	<b>Parameters</b>	<b>Max. Marks</b>
1	Project Planning and Writing	10
2	Presentation	10
3	Regularity	10
4	Monthly Assessment	10
5	Output delivery	10
6	Technical Skill Development	10
7	Entrepreneurship Skills	10
8	Business networking skills	10
9	Report Writing Skills	10
10	Final Presentation	10
	Total	100

### Discipline-wise summary of credit hours

Sr. No.	Group	Credits
1	Agronomy	21
2	Genetics & Plant Breeding	13
3	Soil Science & Agricultural Chemistry	17
4	Entomology	11
5	Agricultural Economics	10
6	Agricultural Engineering	10
7	Plant Pathology	13
8	Horticulture	10
9	Agricultural Extension	9
10	Soil conservation	6
11	Statistics. Computer Application and I.P.R.	4
12	Animal Husbandry and Dairying	15
13	English	2
14	Remedial Courses*	05 (Bio/Math); 05 (Agriculture)
15	NSS/NCC/Physical Education & Yoga Practices**	2
16	Human Values and Ethics**	1
17	Educational Tour**	2
	Total	141+5*+5**+6 credits elective = 157
	RAWE	20 + 20
	ELP	
	Grand Total	157+20+20=197

\* Remedial courses

\*\* Non-gradual courses

**Elective Courses : A student can select two elective courses out of the following and offer during 5th and 6th semesters.**

<b>S.N.</b>	<b>Courses</b>	<b>Credit Hours</b>	
1	Agribusiness Management	3(2+1)	AGE-51
2	Agrochemicals	3(2+1)	AGE-52
3	Commercial Plant Breeding	3(1+2)	AGE-53
4	Landscaping	3(2+1)	AGE-54
5	Food Safety and Standards	3(2+1)	AGE-55
6	Biofertilizers & Biopesticides	3(2+1)	AGE-56
7	Protected Cultivation	3(2+1)	AGE-61
8	Hi-tech. Horticulture	3(2+1)	AGE-62
9	Weed Management	3(2+1)	AGE-63
10	System Simulation and Agro-advisory	3(2+1)	AGE-64
11	Agricultural Journalism	3(2+1)	AGE-65
12	Composition cum Duck/ (and) Quail/ (and) Rabbit culture.	3(2+1)	AGE-66

## DEPARTMENT OF AGRONOMY

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-101	Fundamentals of Agronomy	3(2+1)
AG-205	Principle of Organic Farming	2(1+1)
AG-301	Crop Production Technology-I (Kharif Crops)	2(1+1)
AG-302	Practical Crop Production-I (Kharif Crops)	2(0+2)
AG-401	Crop Production Technology-II (Rabi Crops)	2(1+1)
AG-402	Principal Crop Production-II (Rabi Crops)	2(0+2)
AG-403	Principles of Seed Technology	3(2+1)
AG-501	Rain Fed and Dryland Agriculture	2(1+1)
AG-509	Intellectual Property Right	1(1+0)
AG-601	Farming System, Precision Farming and Sustainable Agriculture	2(1+1)

# AGRONOMY

## 1. Fundamentals of Agronomy

3(2+1) AG-101

### Theory

**Unit-1** Agronomy and its scope. seeds and sowing, tillage and tith, crop density and geometry, Crop nutrition, manures and fertilizers, nutrient use efficiency, water resources.

**Unit-2** Soil-plant-water relationship, crop water requirement, water use efficiency, irrigation- scheduling criteria and methods, quality of irrigation water.

**Unit-3** Weeds- importance. classification, crop weed competition, concepts of weed management- principles and methods, herbicides- classification, selectivity and resistance, allelopathy.

**Unit-4** Growth and development of crops, factors affecting growth and development, plant ideotypes, crop rotation and its principles, adaptation and distribution of crops, harvesting and threshing of crops.

### Practical

Identification of crops, seeds, fertilizers, pesticides and tillage implements. Identification of weeds in crops, Methods of herbicide and fertilizer application. Study of yield contributing characters and yield estimation. Numerical exercises on fertilizer requirement, plant population. herbicides and water requirement, Study of soil moisture measuring devices, Measurement of irrigation water.

## 2. Crop Production Technology-1 (Kharif Crops)

2(1+1) AG-301

### Theory

Origin geographical distribution, economic importance. soil and climatic requirements. Varieties, cultural practices and yield

**Unit-1** Cereals - rice, maize, sorghum, pearl millet and finger millet,

**Unit-2** Pulses-pigeonpea, mungbean and urdbean.

**Unit-3** Oilseeds- Sesame, castor, groundnut. and soybean;

**Unit-4** Fibre crops- sunhamp, cotton & jute;

Forage crops-sorghum. cowpea, cluster bean and napier.

### Practical

Rice nursery preparation. transplanting of rice, sowing of soybean, pigeonpea and mungbean. Maize, groundnut and cotton, effect of seed size on germination. Effect of sowing depth on germination of kharif crops, identification of weeds in kharif season crops. top



dressing and foliar feeding of nutrients, study of yield contributing characters and yield calculation of kharif season crops, study of crop varieties and important agronomic experiments at experimental farm. Visit to research centres related to crops.

### **3. Crop Production Technology-II (Rabi crops)**

**2(1+1) AG-401**

#### **Theory**

Origin, geographical distribution, economic importance, soil and climatic requirements, varieties, cultural practices and yield

**Unit-1** .Cereals wheat, barley and oat,

**Unit-2** pulses-chickpea, lentil, peas.

**Unit-3** Oilseeds-rapeseed, mustard, linseed and sunflower;

Sugar crops-sugarcane; other crop-Potato.

**Unit-4** Forage crops-berseem, lucerne and oat.

#### **Practical**

Sowing methods of wheat and sugarcane, identification of weeds in rabi season crops. Numerical problems on seed requirement of rabi crop. Study of yield contributing characters of rabi season crops, study of important agronomic experiments of rabi crops at experimental farms. Study of rabi forage experiments, visit to research stations of related crops.

### **4. Farming System, Precision Farming and Sustainable Agriculture 2(1+1) AG-601**

#### **Theory**

**Unit-1** Farming System-scope, importance, and concept, Types and systems of farming system and factors affecting types of farming

**Unit-2** Farming system components and their maintenance, Cropping system and pattern, multiple cropping system,

**Unit-3** Efficient cropping system and their evaluation, Sustainable agriculture-problems and its impact on agriculture. conservation agriculture strategies.

**Unit-4** HEIA, LELA and LEISA and its techniques for sustainability, Integrated farming system components of IFS and its advantages, farming system and environment.

#### **Practical**

Tools for determining productions & efficiencies in cropping and farming systems. Indicators of sustainability of cropping & Farming systems. Site specific development of IFS models for different agro-climatic zones. Visit of IFS models in different agro climatic zones of nearby state Universities/Institutes and farmer fields.

**5. Practical Crop Production-I (Kharif Crops)****2(0+2) AG-302****Practical**

Crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising, sowing, nutrient, water and weed management and management of insect-pests diseases of crops, harvesting, threshing, drying winnowing, storage and marketing of produce. The emphasis will be given to seed production, mechanization, resource conservation and integrated nutrient, insect-pest and disease management technologies. Preparation of balance sheet including cost of cultivation, net returns per student as well as per team of 8-10 students.

**6. Practical Crop Production-II (Rabi Crops)****2(0+2) AG-402****Practical**

Crop planning, raising field crops in multiple cropping systems: Field preparation, seed, treatment, nursery raising, sowing, nutrient, water and weed management and management of insect-pests diseases of crops, harvesting, threshing, drying winnowing, storage and marketing of produce. The emphasis will be given to seed production, mechanization, resource conservation and integrated nutrient, insect-pest and disease management technologies. Preparation of balance sheet including cost of cultivation, net returns per student as well as per team of 8-10 students.

**7. Principles of Organic Farming****2(1+1) AG-205****Theory**

**Unit-1** Organic farming, principles and its scope in India.

**Unit-2** Initiatives taken by Government (central/state), NGOs and other organizations for promotion of organic agriculture.

**Unit-3** Organic nutrient resources and its fortification; Restrictions to nutrient use in organic farming; Choice of crops and varieties in organic farming.

**Unit-4** Fundamentals of insect, pest, disease and weed management under organic mode of production. Certification process and standards of organic farming.

**Practical**

Visit of organic farms to study the various components and their utilization: Preparation of enrich, compost, vermicompost, Indigenous technology knowledge (ITK) for nutrient, insect, pest disease and weed management; Cost of organic production system; Quality aspect, grading, packaging and handling.

**Principles of Seed Technology****3(2+1) AG-403****Theory**

**Unit-1** Seed and seed production technology: introduction, definition and importance. Deterioration causes of crop varieties and their control; Maintenance of genetic purity during seed production. Seed quality;

**Unit-2** Definition and Characters of good quality seed, different classes of seed. Foundation and certified seed production of important cereals, pulses, oilseeds, fodder and vegetables. Seed certification. phases of certification, procedure for seed certification, field inspection. Seed Act and Seed Act enforcement.

**Unit-3** Duty and powers of seed inspector, offences and penalties. Seeds Control Order 1983. History and development of Seed Industry in India. Seed drying, processing and their steps, seed testing for quality assessment, seed treatment, its importance, method of application and seed packing.

**Unit-4** Seed storage; general principles, stages and factors affecting seed longevity during storage. Measures for pest and disease control during storage. Seed marketing, Private and public sectors and their production and marketing strategies.

#### **Practical**

Seed production in major cereals: Wheat, Rice, Maize, Sorghum and Bajra. Seed production in major pulses: Urd, Mung, Pigeonpea, Lentil, Gram, field bean, pea. Seed production in major oilseeds: Rapeseed and Mustard. Seed production in important vegetable crops. Seed sampling and testing: Physical purity, germination, viability, etc. Seed and seedling vigour test. Genetic purity test: Grow out test. Seed certification: Procedure. Field inspection, Preparation of field inspection report. Visit to seed production farms, seed testing laboratories and seed processing plant.

#### **8. Rain fed and Dryland Agriculture:**

**2(1+1) AG-501**

##### **Theory**

**Unit-1** Rainfed and dryland agriculture-Introduction, types and history. Problems & prospects of rainfed agriculture in India.

**Unit-2** Soil and climatic conditions prevalent in rainfed areas. Drought: types, effect of water deficit on physio-morphological characteristics of the plants.

**Unit-3** Mechanism of crop adoption under moisture deficit conditions. Efficient utilization of water through soil and crop management practices, management of crops in rainfed areas. Contingent crop planning for aberrant weather conditions.

**Unit-4** Precision agriculture; concepts and techniques: their issues and concerns for Indian agriculture.

## **Practical**

Studies on climatic classifications, studies on rainfall pattern in rainfed areas of the country. Studies on cropping pattern of different dryland areas in the country and demarcation of dryland area on map of India. Interpretation of metrological data and scheduling of supplemental irrigations on the basis of evapo-transpiration demand of crops effective rainfall and its calculations. Visit to rainfed research stations/watersheds.

## **9. Intellectual Property Rights**

**1(1+0) AG-509**

### **Theory**

- Unit-1** Introduction and meaning of intellectual property, brief introduction to GATT, WTO. TRIPS and WIPO, Treaties for IPR protection; Types of Intellectual Property and legislations covering IPR in India: - Patents, Copyrights, Trademark, Industrial design.
- Unit-2** Geographical indications, Integrated circuits, Trade secrets. Patents Act 1970 and Patent system in India, patentability. process and product patent, filing of patent, patent specification, patent claims, Patent opposition and revocation, infringement, Compulsory licensing. Patent Cooperation Treaty, Patent search and patent database.
- Unit-3** Origin and history including a brief introduction to UPOV for protection of plant varieties, Protection of plant varieties under UPOV and PPV&FR Act of India, Plant breeder's rights, Registration of plant varieties under PPV&FR Act 2001, breeders, researcher and farmers rights.
- Unit-4** International treaty on plant genetic resources for food and agriculture (ITPGRFA).

**DEPARTMENT OF GENETICS AND PLANT BREEDING**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-102	Fundamentals of Genetics	3(2+1)
AG-201	Fundamentals of Crop Physiology	3(2+1)
AG-303	Fundamentals of Plant Breeding	3(2+1)
AG-502	Crop Improvement - I ( Kharif Crops)	2(1+1)
AG-602	Crop Improvement - II ( Rabi Crops)	2(1+1)

## Course wise Syllabus

### Fundamentals of Genetics

3(2+1) AG-102

#### Theory

**Unit-1** Pre and Post Mendelian concepts of heredity, Mendelian principles of heredity. Architecture of chromosome; special types of chromosomes. Chromosomal theory of inheritance; cell cycle and cell division - mitosis and meiosis. Chi-square test;

**Unit-2** Dominance relationships, pistatic interactions; Multiple alleles, pleiotropism and pseudoalleles. Sex determination and sex linkage, sex limited and sex influenced traits, Blood group genetics. Linkage and its estimation. crossing over mechanisms, chromosome mapping.

**Unit-3** Structural and numerical variations in chromosome and their implications, use of haploids, dihaploids and doubled haploids in Genetics. Mutation, classification, Methods of inducing mutations & CLB technique. mutagenic agents and induction of mutation.

**Unit-4** Qualitative & Quantitative traits. Polygenes and continuous variations, multiple factor hypothesis.

Cytoplasmic inheritance. Genetic disorders. Nature, structure & replication of genetic material (DNA). Protein synthesis. Transcription and translational mechanism of genetic material. Gene concept: Gene structure, function and regulation.

#### Practical

Study of microscope. Study of cell structure. Mitosis and Meiosis cell division. Experiments on monohybrid, dihybrid, trihybrid. test cross and back cross, Experiments on epistatic interactions including test cross and back cross, Practice on mitotic and meiotic cell division. Experiments on probability and Chi-square test. Determination of linkage and cross-over analysis (through two point test cross and three point test cross data). Study on sex linked inheritance in *Drosophila*. Study of models on DNA and RNA structures.

## **Fundamentals of Plant Breeding**

**3(2+1) AG-303**

### **Theory**

**Unit-1** Historical development, concept, nature and role of plant breeding, major achievements and future prospects; Genetics in relation to plant breeding, modes of reproduction and apomixes, self-incompatibility and male sterility-genetic consequences.

**Unit-2** Domestication, Acclimatization and Introduction: Centres of origin/diversity, components of Genetic variation; Heritability and genetic advance; Genetic basis and breeding methods in self-pollinated crops -mass and pure line selection, hybridization techniques and handling of segregating population; Multiline concept.

**Unit-3** Concepts of population genetics and Hardy-Weinberg Law; Genetic basis and methods of breeding cross-pollinated crops, modes of selection; Population improvement Schemes-Ear to row method, Modified Ear to Row, recurrent selection, Heterosis and inbreeding depression, development of inbred lines and hybrids, composite and synthetic varieties;

**Unit-4** Breeding methods in asexually propagated crops, clonal selection and hybridization; Maintenance of breeding records and data collection; Wide hybridization and pre-breeding; Polyploidy in relation to plant breeding, mutation breeding-methods and uses; Breeding for important biotic and abiotic stresses; Biotechnological tools-DNA markers and marker assisted selection.

### **Practical**

Plant Breeder's kit, Study of germplasm of various crops. Study of floral structure of self-pollinated and cross-pollinated crops. To work out the mode of pollination in a given crop and extent of natural out-crossing. Prediction of performance of double cross hybrids. Emasculation and hybridization techniques in self & cross-pollinated crops. Consequences of inbreeding on genetic structure of resulting populations. Study of male sterility system. Handling of segregation populations. Methods of calculating mean, range, variance, standard deviation, heritability. Designs and their analysis in plant breeding experiments.

## **Crop Improvement - I (Kharif)**

**2(1+1) AG-502**

### **Theory**

Centers of origin, distribution of species, wild relatives in different

**Unit-1** Cereals (Rice, Maize, Sorghum and Pearl millet);

**Unit-2** Pulses (Pigeonpea, Urdbean and Mungbean);

**Unit-3** Oilseeds (Groundnut); fibre (Cotton).

**Unit-4** Important concepts of breeding self-pollinated and cross pollinated. Major breeding objectives and procedures including conventional and modern innovative approaches for development of hybrids and varieties for yield, adaptability, stability, abiotic and biotic stress and quality (physical, chemical, nutritional); Hybrid seed production technology in Maize, Rice, Sorghum, Pearl millet and Pigeonpea.

#### **Practical**

Floral biology, emasculation and hybridization techniques in different crop species; viz., Rice, Maize, Sorghum, Pearl millet, Pigeonpea, Urdbean, Mungbean, Groundnut, Cotton crops. Maintenance breeding of different kharif crops. Handling of germplasm and segregating populations by different methods like pedigree, bulk and single seed decent methods; Study of field techniques for seed production and hybrid seeds production in Kharif crops; Estimation of heterosis, inbreeding depression and heritability; Layout of field experiments; Study of quality characters, donor parents for different characters; Visit to seed production plots; Visit to AICRP plots of different field crops.

#### **Crop Improvement - II (Rabi)**

**2(1+1) AG-602**

#### **Theory**

Centers of origin, distribution of species, wild relatives in different crops:

**Unit-1** Cereal (Wheat); pulses (Chickpea, Pea);

**Unit-2** Oilseeds (Rapeseed and Mustard, Sunflower);

**Unit-3** Cash crop ( Sugarcane); vegetable crop (Potato, Tomato);

**Unit-4** Major breeding objectives and procedures including conventional and modern innovative approaches for development of hybrids and varieties for yield, adaptability, stability, abiotic and biotic stress tolerance and quality (physical, chemical, nutritional); Hybrid seed production technology of rabi crops. Practical Floral biology, emasculation and hybridization techniques in different crop species namely Wheat, Chickpea, pea, Rapeseed Mustard, Sunflower, Tomato: Handling of germplasm and segregating populations by different methods like pedigree, bulk and single seed decent methods; Study of field techniques for seed production and hybrid seeds production in Rabi/ crops: Estimation of heterosis, inbreeding depression and heritability; Layout of field experiments: Study of quality characters, study of donor parents for different characters; Visit to seed production plots; Visit to AICRP plots of different field crops.



**Theory**

**Unit-1** Introduction to crop physiology and its importance in Agriculture; Plant cell: an Overview:

**Unit-2** Diffusion and osmosis; Absorption of water, transpiration and Stomatal Physiology; Mineral nutrition of Plants: Functions and deficiency symptoms of nutrients, nutrient uptake mechanisms;

**Unit-3** Photosynthesis: Light and Dark reactions, C<sub>3</sub>, C<sub>4</sub> and CAM plants; Respiration: Glycolysis, TCA cycle and electron transport chain; Fat Metabolism: Fatty acid synthesis and Breakdown; Plant growth regulators:

**Unit-4** Physiological roles and agricultural uses. Physiological aspects of growth and development of major crops: Growth analysis, Role of Physiological growth parameters in crop productivity.

**Practical**

Study of plant cells, structure and distribution of stomata, imbibitions, osmosis, plasmolysis, measurement of root pressure, rate of transpiration, Separation of photosynthetic pigments through paper chromatography, Rate of transpiration, photosynthesis, respiration, tissue test for mineral nutrients, estimation of relative water content, Measurement of photosynthetic CO<sub>2</sub> assimilation by Infra Red Gas Analyser (IRGA).

**DEPARTMENT OF SOIL SCIENCE AND AGRICULTURAL  
CHEMISTRY**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-103	Fundamentals of Soil Science	3(2+1)
AG-202	Fundamentals of Plant Biochemistry	3(2+1)
AG-304	Agricultural Microbiology	2(1+1)
AG-308	Environmental Studies and Disaster Management	2(1+1)
AG-404	Problematic Soils and their Management	2(1+1)
AG-511	Geo-Informatics and Nano Technology	2(1+1)
AG-603	Manures, Fertilizers and Soil Fertility Management	3(2+1)

# SOIL SCIENCE & AGRICULTURAL CHEMISTRY

## 1. Fundamentals of Soil Science

3(2+1)AG-103

### Theory

**Unit-1** Soil as a natural body, Pedological and edaphological concepts of soil; Soil genesis: soil forming rocks and minerals; weathering, processes and factors of soil formation; Soil Profile, components of soil; Soil physical properties: soil-texture, structure, density and porosity, soil colour, consistence and plasticity; Elementary knowledge of soil taxonomy.

**Unit-2** Classification of soils of India; Soil water retention, movement and availability; Soil air, composition, gaseous exchange problem and plant growth. Soil temperature; source, amount and flow of heat in soil: effect on plant growth.

**Unit-3** Soil reaction-pl I. EC, soil acidity and alkalinity, buffering, effect of pH on nutrient availability; soil colloids - inorganic and organic; silicate clays: constitution and properties; sources of charge; ion exchange, cation exchange capacity.

**Unit-4** Base saturation; soil organic matter: composition, properties and its influence on soil properties; humic substances - nature and properties. Soil pollution-behaviour of pesticides and inorganic contaminants, prevention and mitigation of soil pollution.

### Practical

Study of soil profile in field. Study of soil sampling tools, collection of representative soil sample, its processing and storage. Study of soil forming rocks and minerals. Determination of soil density, moisture content and porosity. Determination of soil texture by feel method. Determination of soil pl-I and electrical conductivity. Study of soil map. Estimation of organic matter content of soil. Estimation of  $\text{CO}_3$  and  $\text{HCO}_3$  in soil water

## 2. Fundamentals of Plant Biochemistry

3(2+1) AG-202

### Theory

**Unit-1** Biochemistry-introduction, scope and Importance in agriculture. Carbohydrate: Importance and classification of Monosaccharides, Disaccharides and Polysaccharides.

**Unit-2** Lipid: Importance and classification; Structures and properties of fatty acids; lipids. Proteins: Importance of proteins and classification; Structures. Amino acid-definition, calcification and important function. Structural organization of proteins. Enzymes:

**Unit-3** General properties; Classification; Mechanism of action; classification of vitamin structure role and its deficiency symptoms. Introduction to allosteric enzymes.

**Unit-4** Nucleic acids: Importance and classification; Structure of Nucleotides. Metabolism of carbohydrates: Glycolysis.

**Practical**

Qualitative tests of carbohydrates and amino acids. Quantitative estimation of glucose/ proteins. Titration methods for estimation of amino acids, Paper chromatography Monosaccharides. Estimation of Ca, CaO and CaCO<sub>3</sub> in Hcl extract. Estimation of reducing and non reducing in cane sugar and jaggary.

**3. Agricultural Microbiology**

**2(1+1) AG-304**

**Theory**

**Unit-1** Introduction of Microbial world: Prokaryotic and eukaryotic microbes. Bacteria: cell structure, chemoautotrophy, photo autotrophy, growth.

**Unit-2** Bacterial genetics: Genetic recombination- transformation, conjugation and transduction. plasmids, transposon. Role of microbes in soil fertility and crop production: Carbon, Nitrogen, Phosphorus and Sulphur cycles.

**Unit-3** Biological nitrogen fixation- symbiotic, associative and a symbiotic. Azolla, blue green algae and mycorrhiza. Rhizosphere and phyllosphere. Microbes in human welfare: biofertilizers, biopesticides, biofuel production and biodegradation.

**Unit-4** Microbial degradation of organic matter in soil. Cellulose decomposing micros for composted preparation & vermin composted. Soil organisms: macro and micro organisms, their beneficial and harmful effects.

**Practical**

Introduction to microbiology laboratory and its equipments; principles of microscopy. Methods of sterilization. Nutritional media and their preparations. Enumeration of microbial population in soil- bacteria. fungi, actinomycetes. Methods of isolation and purification of microbial cultures. Isolation of Rhizobium from legume root nodule. Isolation of Azotobacter from soil. Isolation of Azospirillum from roots. Isolation of BGA. Staining and microscopic examination of microbes.

**4. Environmental Studies and Disaster Management**

**2(1+1) AG-308**

**Theory**

**Unit-1** Multidisciplinary nature of environmental studies Definition, scope and importance. Natural Resources: Renewable and non-renewable resources. Natural resources and associated problems. a) Forest resources: Use and over-exploitation, deforestation. case

studies. Timber extraction, mining, dams and their effects on forest and tribal people. b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. e) Energy resources: Growing energy needs, renewable and nonrenewable energy sources, use of alternate energy sources. Case studies. t)

**Unit-2** Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles. Ecosystems: Concept of an ecosystem, Structure and function of an ecosystem. Producers, consumers and decomposers, Energy flow in the ecosystem. Ecological succession, Food chains, food webs and ecological pyramids. Introduction, types, characteristic features, structure and function of the following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries), Biodiversity and its conservation: - Introduction, definition, genetic, species & ecosystem diversity and biogeographical classification of India.

**Unit-3** Value of biodiversity: consumptive use, productive use, social, ethical, aesthetic and option values. Biodiversity at global, National and local levels. India as a mega-diversity nation. Hot-spots of biodiversity. Threats to biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. Endangered and endemic species of India. Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity. Environmental Pollution: definition, cause, effects and control measures of: a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution e. Noise pollution f. Thermal pollution g. Nuclear hazards. Solid Waste Management: causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution. Social Issues and the Environment: From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Environmental ethics: Issues and possible solutions, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, etc. Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of Pollution) Act. Wildlife Protection Act. Forest Conservation Act. Issues involved in enforcement of environmental legislation. Public awareness. Human

Population and the Environment: population growth, variation among nations. population explosion, Family Welfare Programme. Environment and human health: Human Rights, Value Education. HIV/AIDS. Women and Child Welfare. Role of Information Technology in Environment and human health.

#### **Unit-4**

##### **Disaster Management**

Natural Disasters- Meaning and nature of natural disasters, their types and effects. Floods, drought, cyclone, earthquakes, landslides, avalanches, volcanic eruptions, Heat and cold waves, Climatic change: global warming, ozone depletion. Man Made Disasters- Nuclear disasters, chemical disasters, biological disasters. building fire, coal fire, forest fire, oil fire, air pollution, water pollution, deforestation, industrial waste water pollution. Disaster Management- Effect to migrate natural disaster at national and global levels. International strategy for disaster reduction. Concept of disaster management, national disaster management framework; financial arrangements; role of N(it)s, community - based organizations and media. Central, state, district and local administration.

##### **Practical**

Pollution case studies. Case Studies- Field work: Visit to a local area to document environmental assets river/ forest.' grassland/ hill/ mountain, visit to a local polluted site- Urban/Rural/Industrial/Agricultural, study of common plants, insects, birds and study of simple ecosystems-pond, river, hill slopes, etc.

#### **5. Problematic Soils and their Management (New)**

**2(1+1) AG-404**

##### **Theory**

**Unit-1** Soil quality and health, Distribution of Waste land and problem soils in India. Their categorization based on properties.

**Unit-2** Reclamation and management of Saline and sodic soils, Acid soils. Acid Sulphate soils. Eroded and Compacted soils. Flooded soils, & Polluted soils. Irrigation water - quality and standards, utilization of saline water in agriculture.

**Unit-3** Remote sensing and GIS in diagnosis and management of problem soils. Multipurpose tree species, bio remediation through MPTs of soils. land capability and classification, land suitability classification.

**Unit-4** Problematic soils under different Agro-ecosystems.

### **Practical**

Determination of pH & Ec in soil and water. Lime and gypsum requirement in soil, ESP and SAR in Soils. Application of remote sensing and GIS in delineating problematic soil in LIP. Visit problematic soil in U.P.

### **6. Geo-informatics and Nano-technology**

**2(1+1) AG-511**

#### **Theory**

**Unit-1** Geo-informatics- definition, concepts, tool and techniques; their use in Precision Agriculture. Crop discrimination and yield monitoring, soil mapping; fertilizer recommendation using geospatial technologies,

**Unit-2** Spatial data and their management in GIS; Remote sensing concepts and application in agriculture; Image processing and interpretation; Global positioning system (GPS), components and its functions.

**Unit-3** Nanotechnology, definition, concepts and techniques, brief introduction about nanoscale effects, nano-particles, nano-pesticides, nano-fertilizers, nano-sensors.

**Unit-4** Use of nanotechnology in seed, water, fertilizer, plant protection for scaling-up farm productivity.

#### **Practical**

Introduction to GIS software, Introduction to image processing software. Visual interpretation of remote sensing images. Generation of spectral profiles of different objects. Supervised and unsupervised classification and acreage estimation.. Multispectral remote sensing for soil mapping. Creation of thematic layers of soil fertility based on GIS. Creation of productivity and management zones. Fertilizers recommendations based of VRT and STCR techniques. Crop stress (biotic/abiotic) monitoring using geospatial technology. Use of GPS for agricultural survey. Formulation, characterization and applications of nanoparticles in agriculture. Projects formulation and execution related to precision farming.

### **7. Manures, Fertilizers and Soil Fertility Management 3(2+1) AG-603**

#### **Theory**

**Unit-1** Introduction and importance of organic manures, properties and methods of preparation of bulky and concentrated manures. Green/leaf manuring. Fertilizer recommendation approaches.

**Unit-2** Integrated nutrient management. Chemical fertilizers: classification, composition and properties of major nitrogenous, phosphatic, potassic fertilizers, secondary & micronutrient fertilizers, Complex fertilizers, nano fertilizers Soil amendments.

**Unit-3** Fertilizer Storage, Fertilizer Control Order. History of soil fertility and plant nutrition, criteria of essentiality, role, deficiency and toxicity symptoms of essential plant nutrients, Mechanisms of nutrient transport to plants, factors affecting nutrient availability to plants. Chemistry of soil nitrogen, phosphorus, potassium, calcium, magnesium, sulphur and micronutrients.

**Unit-4** Soil fertility evaluation. Soil testing. Critical levels of different nutrients in soil. Forms of nutrients in soil, plant analysis, rapid plant tissue tests. Indicator plants. Methods of fertilizer recommendations to crops. Factor influencing nutrient use efficiency (NUE), methods of application under rainfed and irrigated conditions.

**Practical**

Estimation of soil organic carbon, Estimation of available N, available P, available K; available S, available Ca and Mg and available Zn in soils. Estimation of N, P & K in plants, manures and fertilizers. Elementary idea of determination of micro nutrients.



## ENTOMOLOGY

	Course code	semester	Name of papers	Credit hrs.
1	AG-203	II	Fundamentals of Entomology-I (Insect Morphology and Taxonomy)	3 (2+1)
2	AG-3	III	Fundamentals of Entomology-II (Insect Ecology and concept of IPM)	2 (1+1)
3	AG-503	V	Pests of Field crops & Stored Grain and their Management	3 (2+1)
4	AG-608	VI	Beneficial insects and Pest of Horticultural Crops and their Management	3 (2+1)

## 1. FUNDAMENTALS OF ENTOMOLOGY-I

3(2+1) AG-203

### (INSECT MORPHOLOGY & TAXONOMY)

**Unit-1** Theory Classification of phylum Arthropoda upto classes. Relationship of class Insecta with other classes of Arthropoda. Morphology: Structure and functions of insect cuticle and moulting. Body segmentation. Structure of Head, thorax and abdomen. Structure and modifications of insect antennae, mouth parts, legs, wing venation, modifications and wing coupling apparatus.

**Unit-2** Structure of male and female genital organs. Metamorphosis and diapause in insects. Types of larvae and pupae. Structure and functions of digestive, circulatory, excretory, respiratory, nervous, secretory (Endocrine) and reproductive systems in insects. Types of reproduction in insects. Major sensory organs like simple and compound eyes and chemoreceptors.

**Unit-3** Systematics: Taxonomy- -importance, history and development and binomial nomenclature. Definitions of Biotype, Sub-species, Species, Genus, Family and Order. Classification of class Insecta upto Orders, basic groups of present day insects with special emphasis to orders and families of Agricultural importance like Orthoptera: Acrididae. Dictyoptera: Mantidae, Odonata; Isoptera: Termitidae; Thysanoptera: Thripidae; Hemiptera: Pentatomidae, Coreidae, Cimicidae, Pyrrhocoridae. Lygaeidae, Cicadellidae, Delphacidae, Aphididae, Coccidae, Lophophidac, Alcuroidac, Pseudococcidae; Neuroptera: Chrysopidae;

**Unit-4** Lepidoptera: Pieridae, Papilionidae, Noctuidae, Sphingidae, Pyralidae, Gelechiidae, Arctiidae, Saturnidae, Bombycidae; Coleoptera: Coccinellidae, Chrysomelidae, Cerambycidae, Curculionidac, Bruchidae, Scarabaeidae; Hymenoptera: Tenthridinidae, Apidae. Trichogrammatidae, ichneumonidae, Braconidae, Chalcididae; Diptera: Cecidomyiidae, Tachinidae, Agromyziidae, Culicidae, Muscidae, Tephritidae.

### Practical

Methods of collection and preservation of insects including immature stages: External features of Grasshopper/Blister beetle: Types of insect antennae. mouthparts and legs; Wing venation, types of wings and wing coupling apparatus. Types of insect larvae and pupae; Dissection of digestive system in insects (Grasshopper); Dissection of male and female reproductive systems in insects (Grasshopper); Study of characters of orders Orthoptera. Dictyoptera, Odonata, Isoptera, Thysanoptera, Hemiptera, Lepidoptera, Neuroptera, Coleoptera, Hymenoptera, Diptera and their families of agricultural importance.

## **2. FUNDAMENTALS OF ENTOMOLOGY-II**

**2(1+1) AG-312**

### **(INSECT ECOLOGY & CONCEPTS OF IPM)**

#### **Theory**

**Unit-1** Insect Ecology: Introduction, Environment and its components. Effect of abiotic factors- temperature, moisture, humidity, rainfall, light, atmospheric pressure and air currents. Effect of biotic factors - food competition, natural and environmental resistance.

**Unit-2** Categories of pests. Concept of IPM, Practices, scope and limitations of IPM. Classification of insecticides, toxicity of insecticides and formulations of insecticides. Chemical control- importance, hazards and limitations.

**Unit-3** Recent methods of pest control, repellents, anti feed ants, hormones. attractants, gamma radiation. Insecticides Act 1968- Important provisions. Application techniques of spray fluids.

**Unit-4** Symptoms of poisoning, first aid and antidotes. Survey, surveillance and forecasting of insect pests. Safety issues of pesticides uses.

#### **Practical**

Sampling techniques for estimation of insect population and damage. Insecticides and their formulations. Pesticide appliances and their maintenance.

### 3. PESTS OF FIELD CROPS, STORED GRAINS AND THEIR MANAGEMENT

3(2+1) AG-503

#### Theory

**Unit-1** General account on nature and type of damage by following insect pests arthropods pests. Scientific name, order, family, host range, distribution, biology and bionomics. nature of damage, and management of major pests and scientific name, order, family, host range, distribution, nature of damage and control practice other important arthropod pests(mites) of various field crops.

**Unit-2** Factors affecting losses of stored grain and role of physical, biological, mechanical and chemical factors in deterioration of grain. Insect pests, mites, rodents, birds and microorganisms associated with stored grain and their management. Storage structure and methods of grain storage and fundamental principles of grain store management.

**Unit-3 Paddy:** *Leptocorisa varicroms*, *Hieroglyphus Spp.*, *Nilaparvata lugens*, *Nephotetix, spp.*, *Mythimna separata*.

**Jowar Maize:** *Chilo partellus*, *Atherigona variasoccata*, *Scirpophaga excerptalis*, *Chilo infuscatelles*

**Sugarcane:** *Top borer*, *Pyrilla*, *Early Shoot borer* and *white fly*

**Cotton:** *Pectinaphora gossypiella*, *Earias Spp* , *Sylepta derogata*, *Dysdercus Spp* *Bemisia tabacz*, *Amrasca bzzgutulla*

**Oilseeds:** *Lipaphis erysimi*, *Athalia proxima* *Ragrada Cruciferarum*, *Dasyneura*

**Pulses:** *Helicoverpa armigera* *Agrotis Spp.*, *Etiella zinckenella*

**Unit-4 Pests of Stored Grains:** *Sitophilus oryzae*, *Trogoderma granarium*, *Sitotroga cerealella*, *Callosobruchus chinensis*.

**Polyphagous pests:** *Odontotermes obesus*, *Holotrichia consanguinea*, *Spilosoma obliqua*, *Spodoptera litura*, *Amsacta Spp*

#### Practical

Identification of different types of damage. Identification and study of life cycle and seasonal history of various insect pests attacking field crops and their produce. Identification of insect pests and Mites associated with stored grain. Determination of insect infestation by different methods. Assessment of losses due to insects. Calculations on the doses of insecticides application technique. Fumigation of grain store I godown. Identification of rodents and rodent control operations in godowns. Identification of birds and bird control operations in godowns: Determination of moisture content of grain. Methods of grain sampling under storage condition. Visit to Indian Storage Management and Research Institute, Hapur and Quality Laboratory. Department of Food., Delhi. Visit to nearest FCI godowns.

## **4. BENEFICIAL INSECTS and PESTS OF HORTICULTURAL CROPS AND THEIR MANAGEMENT**

**3 (2+1) AG-608**

### **Theory**

**Unit-1** General account on nature and type of damage by different arthropod pests. Scientific name, order, family, host range, distribution, biology and bionomics, nature of damage, and management of major pests and scientific names. order, family, host range, distribution, nature of damage and control practices for other important arthropod pests of various vegetable crops, fruit crops, plantation crops, ornamental crops and major pests of narcotics, spices and condiments.

**Unit-2** Types of silkworm, voltinism and biology of silkworm. Mulberry cultivation, mulberry varieties, methods of harvesting and preservation of leaves. Rearing of mulberry silkworm, rearing appliances, mounting and harvesting of cocoons.

**Unit-3** Pests and diseases of silkworm, management, and methods of disinfection. Importance of beneficial insects. bee keeping, pollinating plants and their cycle, bee biology, commercial methods of rearing, equipment used and seasonal management. Bee pasturage. bee foraging and communication.

**Unit-4** Insect pests and diseases of honey bee. Species of lac insect, morphology, biology, host plant and lac production - Processing of lac - seed lac, button lac, shellac and lac-products. Identification of major parasitoids and predators commonly used in biological control.

### **Practical**

Identification of different types of damage. Identification and study of life cycle and seasonal history of various insect pests attacking horticultural crops - vegetable crops, fruit crops, plantation gardens, narcotics, spices & condiments. Visit to orchards and gardens. Mulberry cultivation, mulberry varieties and methods of harvesting and preservation of leaves. Types of silkworm, voltinism and biology and rearing of silkworm and equipment. Honey bee species and castes of bees. Beekeeping appliances and seasonal management. Bee enemies and diseases. Bee pasturage, bee foraging and communication. Species of lac insect, host plant identification. Identification of other important pollinators, weed killers and scavengers. Visit to research and training institutions devoted to sericulture, beekeeping., lac culture and natural enemies.

**DEPARTMENT OF AGRICULTURAL ECONOMICS**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-204	Fundamental of Agricultural Economics	2(2+0)
AG-305	Agricultural Finance and Co-Operation	3(2+1)
AG-504	Agricultural Marketing, Trade and Prices	3(2+1)
AG-604	Farm Management, Production and Resource Economics	2(1+1)

# AGRICULTURAL ECONOMICS

## 1. Fundamentals of Agricultural Economics

2 (2+0) AG-204

### Theory

**Unit-1** Economics Meaning, scope and subject matter, definitions, activities, approaches to economic analysis; micro and macro economics, positive and normative analysis. Nature of economic theory: rationality assumption, concept of equilibrium, economic laws as generalization of human behavior. Basic concepts: Goods and services, desire, want, demand, utility, cost and price, wealth, capital, income and welfare.

**Unit-2** Agricultural economics: meaning, definition, characteristics of agriculture, importance and its role in economic development. Agricultural planning and development in the country. Demand meaning, law of demand, demand schedule and demand curve, determinants, utility theory: law of diminishing marginal utility, equimarginal utility principle. Consumer's equilibrium and derivation of demand curve, concept of consumer surplus.

**Unit-3** Elasticity of demand: concept and measurement of price elasticity, income elasticity and cross elasticity. Production: process, creation of utility, factors of production. input output relationship. Supply: Stock and supply, law of supply, supply schedule, supply curve, determinants of supply, elasticity of supply. Concepts of rent, wage, interest and profit, National income: Meaning and importance, circular flow, concepts of national income accounting and approaches to measurement, difficulties in measurement. Population:

**Unit-4** Importance. Malthusian and Optimum population theories, natural and socio-economic determinants, current policies and programmes on population control. Money: Barter system of exchange and its problems, evolution, meaning and functions of money, classification of money, money supply, general price index, inflation and deflation, public revenue and public expenditure. Tax: meaning, direct and indirect taxes, agricultural taxation, VAT. Economic systems: Concepts of economy and its functions, important features of capitalistic, socialistic and mixed economies, elements of economic planning.

## 2. Agricultural Marketing, Trade and Prices

3(2+1) AG-504

### Theory

**Unit-1** Agricultural Marketing: Concepts and definitions of market, marketing, agricultural marketing, market structure, marketing mix and market segmentation, classification and characteristics of agricultural markets; demand, supply and producer's surplus of agri-

commodities: nature and determinants of demand and supply of farm products. producer's surplus - meaning and its types, marketable and marketed surplus, factors affecting marketable surplus of agri- commodities; cost based and competition based pricing; market promotion - advertising, personal selling, sales promotion and publicity - their meaning and merits & demerits; marketing process and functions:

**Unit-3** Marketing process-concentration, dispersion and equalization; exchange functions - buying and selling; physical functions -storage, transport and processing; facilitating functions - packaging, branding, grading, quality control and labeling (Agmark) ;Market functionaries and marketing channels: Types and importance of agencies involved in agricultural marketing; meaning and definition of marketing channel; number of channel levels; marketing channels for different farm products; Integration, efficiency, costs and price spread: Meaning, definition and types of market integration; marketing efficiency; marketing costs, margins and price spread; factors affecting cost of marketing: reasons for higher marketing costs of farm commodities; ways of reducing marketing costs:

**Unit-4** Role of Govt. in agricultural marketing: Public sector institutions- CWC, SWC, FCI, CACP & DMI - their objectives and functions; cooperative marketing in India; Risk in marketing: Types of risk in marketing; speculation & hedging; an overview of futures trading; Agricultural prices and policy: Meaning and functions of price; administered prices; need for agricultural price policy; Trade: Concept of International Trade and its need, theories of absolute and comparative advantage. Present status and prospects of international trade in agri-commodities; GATT and WTO; Agreement on Agriculture (AoA) and its implications on Indian agriculture; IPR CIST.

### **Practical**

Plotting and study of demand and supply curves and calculation of elasticities; Study of relationship between market arrivals and prices of some selected commodities; Computation of marketable and marketed surplus of important commodities; Study of price behaviour over time for some selected commodities; Construction of index numbers; Visit to a local market to study various marketing functions performed by different agencies, identification of marketing channels for selected commodity, collection of data regarding marketing costs, margins and price spread and presentation of report in the class; Visit to market institutions - NAFED, SYNC, - CWC, cooperative marketing society, etc. to study their organization and functioning; Application of principles of comparative advantage of international trade.



### **3. Farm Management, Production and Resource Economics 2(1+1) AG-604**

#### **Theory**

**Unit-1** Meaning and concept of farm management, objectives and relationship with other sciences. Meaning and definition of farms, its types and characteristics, factor determining types and size of farms. Principles of farm management: concept of production function and its type. use of production function in decision-making on a farm, factor-product. factor-factor and product- product relationship, law of equi-marginal/or principles of opportunity cost and law of comparative advantage.

**Unit-2** Meaning and concept of cost, types of costs and their interrelationship, importance of cost in managing farm business and estimation of gross farm income. net farm income, family labor income and farm business income. Farm business analysis: meaning and concept of farm income and profitability, technical and economic efficiency measures in crop and livestock enterprises. Importance of farm records and accounts in managing a farm. various types of farm records needed to maintain on farm, farm inventory, balance sheet, profit and loss accounts.

**Unit-3** Meaning and importance of farm planning and budgeting, partial and complete budgeting, steps in farm planning and budgeting-linear programming, appraisal of farm resources, selection of crops and livestock's enterprises. Concept of risk and uncertainty occurs in agriculture production, nature and sources of risks and its management strategies. Crop/livestock/machinery insurance - weather based crop insurance, features, determinants of compensation.

**Unit-4** Concepts of resource economics, differences between NRE and agricultural economics, unique properties of natural resources. Positive and negative externalities in agriculture, Inefficiency and welfare loss. solutions, Important issues in economics and management of common property resources of land, water, pasture and forest resources etc.

#### **Practical**

Preparation of farm layout. Determination of cost of fencing of a farm. Computation of depreciation cost of farm assets. Application of equi-marginal returns/opportunity cost principle in allocation of farm resources. Determination of most profitable level of inputs use in a farm production process. Determination of least cost combination of inputs. Selection of most profitable enterprise combination. Application of cost principles including CACP concepts in the estimation of cost of crop and livestock enterprises. Preparation of farm plan and budget, farm records and accounts and profit & loss accounts. Collection and analysis of data on various resources in India.

#### **4. Agricultural Finance and Co-Operation**

**3(2+1) AG-305**

##### **Theory**

**Unit-1** Agricultural Finance- meaning, scope and significance, credit needs and its role in Indian agriculture. Agricultural credit: meaning, definition, need, classification. Credit analysis; 4 R's, and 3C's of credits. Sources of agricultural finance: institutional and non-institutional sources, commercial banks, social control and nationalization of commercial banks.

**Unit-2** Micro financing including K.C.C. Lead bank scheme, RRBs, Scale of finance and unit cost. An introduction to higher financing institutions - RBI, NABARD, ADB, IMF, world bank. Insurance and Credit Guarantee Corporation of India. Cost of credit. Recent development in agricultural credit.

**Unit-3** Preparation and analysis of financial statements - Balance Sheet and Income Statement. Basic guidelines for preparation of project reports- Bank norms - SWOT analysis. Agricultural Cooperation - Meaning, brief history of cooperative development in India, objectives, principles of cooperation, significance of cooperatives in Indian agriculture.

**Unit-4** Agricultural Cooperation in India- credit, marketing, consumer and multi-purpose cooperatives, farmers' service cooperative societies, processing cooperatives, Farming cooperatives, cooperative warehousing; role of ICA, NCUI, NCDC, NAFED.

##### **Practical**

Determination of most profitable level of capital use. Optimum allocation of limited amount of capital among different enterprise. Analysis of progress and performance of cooperatives using published data. Analysis of progress and performance of commercial banks and RRBs using published data. Visit to a commercial bank, cooperative bank and cooperative society to acquire firsthand knowledge of their management schemes and procedures. Estimation of credit requirement of farm business - A case study. Preparation and analysis of balance sheet - A case study. Preparation and analysis of income statement - A case study. Appraisal of a loan proposal - A case study. Techno-economic parameters for preparation of projects. Preparation of Bankable projects for various agricultural products and its value added products. Seminar on selected topics.

## DEPARTMENT OF AGRICULTURAL ENGINEERING

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-306	Farm Machinery and Power	3(2+1)
AG-310	Soil and Water Conservation Engineering	2(1+1)
AG-406	Renewable Energy and Green Technology	2(1+1)
AG-505	Protected Cultivation and Secondary Agriculture	3(2+1)

# AGRICULTURAL ENGINEERING

## 1. Soil and Water Conservation Engineering

3(2+1) AG-310

### Theory

**Unit-1** Introduction to Soil and Water Conservation. causes of soil erosion. Definition and agents of soil erosion. water erosion: Forms of water erosion.

**Unit-2** Gully classification and control measures. Soil loss estimation by universal Loss Soil Equation. Soil loss measurement techniques. Principles of erosion control: Introduction to contouring. strip cropping. Contour bund.

**Unit-3** Graded bund and bench terracing. Grassed water ways and their design. Water harvesting and its techniques.

**Unit-4** Wind erosion: mechanics of wind erosion, types of soil movement. Principles of wind erosion control and its control measures.

### Practical

General status of soil conservation in India. Calculation of erosion index. Estimation of soil loss. Measurement of soil loss. Preparation of contour maps. Design of grassed water ways. Design of contour bunds. Design of graded bunds. Design of bench terracing system. Problem on wind erosion.

## 2. Farm Machinery and Power

2(1+1) AG-306

### Theory

**Unit-1** Status of Farm Power in India, Sources of Farm Power, I.C. engines, working principles of I.C. engines. comparison of two stroke and four stroke cycle engines Study of different components of I.C. engine, I.C. engine terminology and solved problems,

**Unit-2** Familiarization with different systems of I.C. engines: Air cleaning, cooling, lubrication, fuel supply and hydraulic control system of a tractor, Familiarization with Power transmission system : clutch, gear box, differential and final drive of a tractor,

**Unit-3** Tractor types, Cost analysis of tractor power and attached implement, Familiarization with Primary and Secondary Tillage implement, Implement for hill agriculture, implement for intercultural operations.

**Unit-4** Familiarization with sowing and planting equipment, calibration of a seed drill and solved examples, Familiarization with Plant Protection equipment. Familiarization with harvesting and threshing equipment.

## **Practical**

Study of different components of I.C. engine. To study air cleaning and cooling system of engine. Familiarization with clutch, transmission, differential and final drive of a tractor, Familiarization with lubrication and fuel supply system of engine, Familiarization with brake, steering, hydraulic control system of engine, Learning of tractor driving. Familiarization with operation of power tiller, Implements for hill agriculture, Familiarization with different types of primary and secondary tillage implements: mould plough, disc plough and disc harrow. Familiarization with seed-cum-fertilizer drills their seed metering mechanism and calibration, planters and transplanter Familiarization with different types of sprayers and dusters Familiarization with different inter-cultivation equipment. Familiarization with harvesting and threshing machinery.

## **3. Renewable Energy and Green Technology**

**2(1+1) AG-406**

### **Theory**

**Unit-1** Classification of energy sources, contribution of these of sources in agricultural sector.

**Unit-2** Familiarization with biomass utilization for biofuel production and their application, Familiarization with types of biogas plants and gasifiers. biogas. bioalcohol, biodiesel and biooil production and their utilization as bioenergy resource.

**Unit-3** Introduction of solar energy, collection and their application, Familiarization with solar energy gadgets: solar cooker, solar water heater, application of solar energy: solar drying, solar pond, solar distillation.

**Unit-4** Introduction of wind energy and their application.

### **Practical**

Familiarization with renewable energy gadgets. To study biogas plants, To study gasifier, To study the production process of biodiesel, To study briquetting machine, To study the production process of bio-fuels. Familiarization with different solar energy gadgets. To study solar photovoltaic system: solar light, solar pumping, solar fencing. To study solar cooker, To study solar drying system. To study solar distillation and solar pond.

## **4. Protected Cultivation and Secondary Agriculture**

**3(2+1) AG-505**

### **Theory**

**Unit-1** Green house technology: Introduction, Types of Green Houses: Plant response to Green house environment, Planning and design of greenhouses. Design criteria of green house for cooling and heating purposes

**Unit-2.** Green house equipments, materials of construction for traditional and low cost green houses. Irrigation systems used in greenhouses, typical applications, passive solar green house, hot air green house heating systems, green house drying.

**Unit-3** Important Engineering properties such as physical, thermal and aero & hydrodynamic properties of cereals, pulses and oilseed, their application in PHT equipment design and operation.

**Unit-4** Drying and dehydration; moisture measurement, EMC, drying theory, various drying method. commercial grain dryer (deep bed dryer, flat bed dryer, tray dryer, fluidized bed dryer, recirculatory dryer and solar dryer). Material handling equipment: conveyer and elevators, their principle, working and selection.

#### **Practical**

Study of different type of green houses based on shape. Determine the rate of air exchange in an active summer winter cooling system. Determination of drying rate of agricultural products inside green house. Study of green house equipments. Visit to various Post Harvest Laboratories. Determination of Moisture content of various grains by oven drying & infrared moisture methods. Determination of engineering properties (shape and size, bulk density and porosity of biomaterials). Determination of Moisture content of various grains by moisture meter. Field visit to seed processing plant.

## DEPARTMENT OF PLANT PATHOLOGY

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-206	Fundamentals of Plant Pathology	4(3+1)
AG-307	Principles of Integrated Disease Management	3(2+1)
AG-506	Diseases of Field and Horticultural Crops & their Management-I	3(2+1)
AG-605	Diseases of Field and Horticultural Crops & their Management-II	3(2+1)

# PLANT PATHOLOGY

## 1. Fundamentals of Plant Pathology

4(3+1) AG-206

### Theory

**Unit-1** Introduction: Importance of plant diseases, scope and objective of Plant Pathology. History of Plant Pathology with special reference to Indian work. Terms and concept in Plant Pathology.

**Unit-2** Pathogenesis. diseases triangle and tetrahedron and classification of plant diseases. Important Plant pathogenic organism fungi. bacteria. fastidious vesicular bacteria. Phytoplasmas, Spiroplasmas, viruses. viroids, algae. protozoa, phanerogamic parasite and nematodes with example of diseases caused by them.

**Unit-3** Diseases due to abiotic causes. Fungi: general character, definition of fungus, somatic structures, type of fungus thalli, fungal tissues. modifications of thallus, reproduction (Asexual and Sexual). Nomenclature, Binomial system of nomenclature. rules of nomenclature, classification of fungi, key to divisions, sub-divisions. orders and classes.

**Unit-4** Bacteria and mollicutes: general morphological characters, basic methods reproduction. Viruses: nature of properties, structure and transmission. Study of phanerogamic plant parasites.

Epidemiology: Factors affecting disease development.

### Practical

Acquaintance with various laboratory equipments and microscopy. Collection and preservation of disease specimen. Preparation of media, isolation and Koch's postulates. General study of different structure of fungi, study of symptoms of various plant diseases. Study of representative fungal genera. Staining and identification of plant pathogenic bacteria. Study of phanerogamic plant parasites. Identification of plant parasitic nematodes.

## 2. Diseases of Field and Horticultural Crops & their Management—I 3(2+1) AG-506

### Theory

**Unit-1** Symptoms, etiology, disease cycle and management of major diseases of following crops: Field Crops: Rice: Blast, Brown spot, Bacterial Blight. Sheath blight, false smut, Khaira and tungro; Maize: stalk rots, downy mildew.; Sorghum: smuts; Bajra: downy mildew and ergot; Groundnut: early and leaf spots;



**Unit-2** Pigeonpea: Phytophthora blight, wilt and sterility mosaic; Green gram: Cercospora leaf spot, web blight and yellow mosaic;

**Unit-3** Tobacco: Mosaic. Horticultural Crops: Guava: wilt and anthracnose; Banana: Panama wilt, sigatoka and bunchy top; Papaya: foot rot and leaf curl.

**Unit-4** Cruciferous vegetable: Alternaria leaf spot and black rot; Brinjal: phomopsis blight, sclerotinia and little leaf; Tomato: early and late blight, leaf curl and mosaic; Okra: Yellow Vein Mosaic; Beans: Anthracnose and bacterial blight; ginger: soft rot; Colocasia: Phytophthora blight.

#### **Practical**

Identification and histopathological studies of selected diseases of field and horticultural crops covered in theory. Field visit for the diagnosis of field problems. Collection and preservation of plant diseased specimens for herbarium Note: Students should submit 10 pressed and well-mounted specimens.

### **3. Diseases of Field and Horticultural Crops & their Management-II 3(2+1) AG-605**

#### **Theory**

Symptoms, etiology, disease cycle and management of major diseases of following crops:

Field Crops:

**Unit-1** Wheat: Rusts, loose smut, Karnal bunt, powdery mildew, Alternaria blight and ear cockle;

Sugarcane: red rot, smut, wilt and grassy shoot

Sunflower: Sclerotinia stem rot and Alternaria blight:

**Unit-2** Mustard: Alternaria blight, white rust, downy mildew; Gram: wilt and Ascochyta blight; Lentil: Rust and wilt; Cotton: Vascular wilt and black arm; Pea: Downy mildew, powdery mildew and rust.

**Unit-3** Horticultural Crops: Mango: Anthracnose, malformation, powdery mildew; Citrus: canker and gummosis; Grape vine: Downy mildew powdery mildew; Apple: scab and Fire blight; Peach: leaf curl; Cucurbits: downy mildew, powdery mildew and wilt; Onion and garlic: purple blotch and stemphylium blight; Chilli: anthracnose and leaf curl; Turmeric: leaf spot; Coriander; stem gall:

**Unit-4** Marigold: Botrytis blight; Rose: dieback, powdery mildew; Potato: Early and late blight, Common scab, powdery scab, black scurf and potato mosaic.

#### **Practical**

Identification and histopathological studies of selected diseases of field and horticultural crops covered in theory. Field visit for the diagnosis of field problems. Collection and preservation of plant diseased specimens for herbarium Note: Students should submit 10 pressed and well-mounted specimens.

#### **4. Principles of Integrated Disease Management**

**3(2+1) AG-307**

##### **Theory**

**Unit-1** Categories of diseases, IDM: Introduction, history, importance, concepts, principles and tools of IDM.

**Unit-2** Economic importance of. diseases and Methods of detection and diagnosis of and diseases. Calculation and dynamics of economic injury level and importance of Economic threshold level.

**Unit-3** Methods of control: Host plant resistance, cultural, mechanical, physical, legislative. biological and chemical control.

**Unit-4** Survey surveillance and forecasting of diseases. Safety issues in fungicide uses. Political, social and legal implication of IDM.

##### **Practical**

Methods of diagnosis and detection of plant diseases, Methods of plant disease measurement, Assessment of crop yield losses, calculations based on economics of IDM, Identification of biocontrol agents, different predators and natural enemies. Identification and nature of damage of important diseases and their management. Plan & assess preventive strategies (IDM module) and decision making, crop monitoring attacked by diseases Farmers fields visit.

## DEPARTMENT OF HORTICULTURE

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-104	Fundamentals of Horticulture	2(1+1)
AG-207	Production Technology for Vegetable and Spices	2(1+1)
AG-407	Production Technology for Ornamental Crops, MAPs and Landscaping	2(1+1)
AG-507	Production Technology for Fruit and Plantation Crops	2(1+1)
AG-606	Post-harvest Management and value Addition of Fruits and Vegetables	2(1+1)

# HORTICULTURE

## 1. Fundamentals of Horticulture (NEW)

2(1+1) AG-104

### Theory

**Unit-1** Horticulture-Its definition and branches, importance and scope; horticultural and botanical classification; climate and soil for horticultural crops.

**Unit-2** Plant propagation-methods and propagating structures; principles of orchard establishment.

**Unit-3** Principles and methods of training and pruning, juvenility and flower bud differentiation; unfruitfulness; pollination, pollinizers and pollinators; fertilization and parthenocarpy; use of plant bioregulators in horticulture.

**Unit-4** Irrigation and fertilizers applications-method and quality.

### Practical

Identification of garden tools. Identification of horticultural crops. Preparation of seed bed/nursery bed. Practice of sexual and asexual methods of propagation Layout and planting or orchard plants. Training and pruning of fruit trees transplanting and care of vegetable seedlings making of herbaceous and shrubby borders. Preparation of potting mixture potting and repotting. Fertilizer application in different crops. Visits to commercial nurseries/orchard.

## 2. Production Technology for Fruit and Plantation Crops

2(1+1) AG-507

### Theory

**Unit-1** Importance and scope of fruit and plantation crop industry in India; High density planting.

**Unit-2** Use of rootstocks; Production technologies for the cultivation of major fruits-mango, banana, citrus, grape, guava.

**Unit-3** Litchi, papaya, apple, pear, peach and; minor fruits-pineapple, pomegranate, jackfruit, strawberry. nut crops.

**Unit-4** Plantation crops-coconut, arecanut, cashew, tea, coffee & rubber.

### Practical

Seed propagation. Scarification and stratification of seeds. Propagation methods for fruit and plantation crops. Including micro-propagation. Description and identification of fruit. Preparation of plant bio regulators and their uses, pests, diseases and physiological disorders of above fruit and plantation crops, Visit to commercial orchards.

### **3. Production Technology for Vegetable and Spices**

**2(1+1) AG-207**

#### **Theory**

**Unit-1** Importance of vegetables & spices in human nutrition and national economy, types of vegetable gardening brief about origin, area.

**Unit-2** Production improved varieties and cultivation practices such as time of sowing, transplanting techniques, planting distance, fertilizer requirements, irrigation, weed management,

**Unit-3** harvesting storage, physiological disorders, disease and seed production of important vegetable (potato, tomato, cauliflower, onion, okra, bottle guard and bitter guard)

**Unit-4** spices i.e. condiments. Ginger, turmeric, coriander, cumin, fennel, black pepper, ilaichi.

#### **Practical**

Identification of vegetables & spice crops and their seeds. Nursery raising. Direct seed sowing and transplanting. Study of morphological characters of different vegetables & spices. Fertilizers applications raising of nursery of vegetable & spices, vegetable and spices seed extraction. Harvesting & preparation for market. Economics of vegetables and spices cultivation.

### **4. Production Technology for Ornamental Crops, MAPS and Landscaping**

**2(1+1)**

**AG-407**

#### **Theory**

**Unit-1** Importance and scope of ornamental crops, medicinal and aromatic plants and landscaping.

**Unit-2** Principles of landscaping. Landscape uses of trees, shrubs and climbers. Style of gardening and lawn making and maintenance.

**Unit-3** Production technology of important cut flowers like rose, Berbera, carnation, lillium and orchids under protected conditions and gladiolus, tuberose, chrysanthemum under open conditions.

**Unit-4** Package of practices for loose flowers like marigold and jasmine under open conditions, isabgol and aromatic plants like mint, lemongrass, citronella, palmarosa, ocimum, geranium, vetiver.

#### **Practical**

Identification of Ornamental plants. Identification of Medicinal and Aromatic Plants. Nursery bed preparation and seed sowing. Training and pruning of Ornamental plants. Planning and layout of garden. Bed preparation and planting of MAP. Protected structures -

care and maintenance. Intercultural operations in flowers and MAP. Harvesting and post harvest handling of cut and loose flowers extraction of essentials oils.

## **5. Post-harvest Management and Value Addition of Fruits and Vegetables 2(1+1) AG-606**

### **Theory**

**Unit-1** Importance of fruits and vegetables. extent and possible causes of post harvest losses; Pre- harvest factors affecting postharvest quality, maturity, ripening and changes occurring during ripening;

**Unit-2** Respiration and factors affecting respiration rate; role of ethylene; post harvest disease and disorders; heat, chilling and freezing injury; harvesting and field handling; Storage (ZECC, cold storage, CA, MA, and hypobaric); Value addition concept;

**Unit-3** Principles and methods of preservation; Intermediate moisture food- Jam, jelly, marmalade, preserve. candy - Concepts and Standards; Fermented and non-fermented beverages.

**Unit-4** Tomato products- Concepts and Standards; Drying/ Dehydration of fruits and vegetables - Concept and methods, osmotic drying. Canning - Concepts and Standards, packaging of products.

### **Practical**

Applications of different types of packaging, containers for shelf life extension. Effect of temperature on shelf life and quality of produce. Demonstration of chilling and freezing injury in vegetables and fruits. Extraction and preservation of pulps and juices. Preparation of jam, jelly, RTS, nectar, squash, osmotically dried products, fruit bar and candy and tomato products, canned products. Quality evaluation of products– physico-chemical and sensory. Visit to processing unit/ industry.

**DEPARTMENT OF AGRICULTURAL EXTENSION**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-105	Rural Sociology & Educational Psychology	2(1+1)
AG-208	Fundamentals of Agricultural Extension Education	3(2+1)
AG-408	Entrepreneurship Development and Business Communication	2(1+1)
AG-508	Communication Skills and Personality Development	2(1+1)

# AGRICULTURAL EXTENSION

## 1. Rural Sociology & Educational Psychology

2(1+1) AG-105

### Theory

**Unit-1** Sociology and Rural sociology: Definition and scope. its significance in agriculture extension,

**Unit-2** Social Ecology, Rural society, Social Groups, Social Stratification, Culture concept, Social Institution, Social Change & Development. Rural Leadership: concept and definition, types of leaders in rural context.

**Unit-3** Educational psychology: Meaning & its importance in agriculture extension.

**Unit-4** Behavior: Cognitive, affective. psychomotor domain, Personality, Learning, Motivation, Theories of Motivation, Intelligence.

### Practical

Socio-economic survey of village communities. Developing schedules and questionnaires. Visit and gaining of Practical knowledge about the working of basic rural institutions. Identification of important value systems in the rural setting as a means of social control. Identification of rural personality traits that affect the development of personality in rural situation.

## 2. Fundamentals of Agricultural Extension Education 3(2+1) AG-208

### Theory

**Unit-1** Education: Meaning, definition & Types: Extension Education- meaning, definition, scope and process; objectives and principles of Extension Education; Extension Programme planning- Meaning, Process, Principles and Steps in Programme Development.

**Unit-2** Extension systems in India: extension efforts in. pre-independence era (Sriniketan, Martbandam, Firka Development Scheme, Gurgaon Experiment, etc.) and post-independence era (Etawah Pilot Project, Nilokheri Experiment, etc.); various extension/ agriculture development programmes launched by ICAR/ Govt. of India (IADP, IAAP, HYVP, KVK, IVLP, ORP, ND,NATP, NAIP, etc.). New trends in agriculture extension: privatization extension, cyber extension/ e-extension, market-led extension, farmer-led extension, expert systems, etc.

**Unit-3** Rural Development: concept, meaning, definition: various rural development programmes launched by Govt. of India. Community Dev-meaning, definition, concept & principles, Philosophy of C.D. extension administration: meaning and concept, principles and functions.



**Unit-4** Monitoring and evaluation: concept and definition, transfer of technology: concept and models, capacity building of extension personnel; extension teaching methods: meaning, classification, individual, group and mass contact methods, ICT Applications in TOT.

#### **Practical**

To get acquainted with university extension system. Group discussion- exercise; handling and use of audio visual equipments and digital camera and LCD projector; preparation and use of AV aids, preparation of extension literature – leaflet, booklet, folder, pamphlet news stories and success stories; Presentation skills exercise; micro teaching exercise; A visit to village to understand the problems being encountered by the villagers/ farmers: to study organization and functioning of DRDA and other development departments at district level; visit to NGO and learning from their experience in rural development; understanding PRA techniques and their application in village development planning; exposure to mass media: visit to community radio and television studio for understanding the process of programme production; script writing, writing for print and electronic media, developing script for radio and television.

### **3. Entrepreneurship Development and Business Communication 2(1+1) AG-408**

#### **Theory**

**Unit-1** Concept of Entrepreneur, Entrepreneurship Development, Characteristics of entrepreneurs; SWOT Analysis & achievement motivation, Government policy and programs and institutions for entrepreneurship development Impact of economic reforms on Agribusiness/ Agrienterprises, Entrepreneurial Development Process:

**Unit-2** Business Leadership Skills; Developing organizational skill (controlling, supervising, problem solving, monitoring & evaluation), Developing Managerial skills, Business Leadership Skills (Communication, direction and motivation Skills), Problem solving skill,

**Unit-3** Supply chain management and Total quality management, Project Planning Formulation and report preparation; Financing of enterprise, Opportunities for agrientrepreneurship and rural enterprise. **Unit-4** Practical Assessing entrepreneurial traits, problem solving skills, managerial skills and achievement motivation, exercise in creativity, time audit through planning, monitoring and supervision, identification and selection of business idea, preparation of business plan and proposal writing, visit to entrepreneurship development institute and entrepreneurs.

#### **4. Communication Skills and Personality Development 2(1+1) AG-508**

##### **Theory**

**Unit-1** Communication: meaning and definition: Principles and process of communication. models and barriers to communication; Verbal and nonverbal communication.

**Unit-2** Communication Skills: Listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures.

**Unit-3** Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations, impromptu presentation, public speaking; Group discussion.

**Unit-4** Organizing seminars and conferences. Diffusion and adoption of innovation: concept and meaning, process and stages of adoption, adopter categories.

##### **Practical**

Listening and note taking, writing skills, oral presentation skills; field diary and lab record; indexing, footnote and bibliographic procedures. Reading and comprehension of general and technical articles, precise writing, summarizing, abstracting; individual and group presentations.

## DEPARTMENT OF SOIL CONSERVATION

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-106	Introduction to Forestry	2(1+1)
AG-409	Introductory Agro-meteorology & Climate Change	2(1+1)
AG-607	Watershed and Wasteland Management	2(1+1)

# SOIL CONSERVATION

## 1. Introduction to Forestry (New)

2(1+1) AG-106

### Theory

**Unit-1** Introduction - definitions of basic terms related to forestry, objectives of silviculture, forest classification, salient features of Indian Forest Policies.

**Unit-2** Forest regeneration, Natural regeneration - natural regeneration from seed and vegetative parts, coppicing, root suckers; Artificial regeneration - objectives. choice between natural and artificial regeneration. essential preliminary considerations. Crown classification.

**Unit-3** Tending operations - weeding, cleaning, thinning - mechanical, ordinary, crown and advance thinning. Forest mensuration - objectives, diameter measurement, instruments used in diameter measurement; measurement of volume of felled and standing trees, age determination of trees.

**Unit-4** Agroforestry - definitions. importance, criteria of selection of trees in agroforestry, different agroforestry systems prevalent in the country, shifting cultivation, taungya, alley cropping, wind breaks and shelter belts, home gardens. Cultivation practices of two important fast growing tree species of the region.

### Practical

Identification of tree-species. Diameter measurements using calipers and tape. Volume measurement of logs using various formulae. Nursery lay out, seed sowing, vegetative propagation techniques. Forest plantations and their management. Visits of nearby forest based industries.

## 2. Introductory Agro-meteorology & Climate Change 2(1+1) AG-409

### Theory

**Unit-1** Meaning and scope of agricultural meteorology; Earth atmosphere- its composition, extent and structure; Atmospheric weather variables; Atmospheric pressure, its variation with height;

**Unit-2** Wind, types of wind, daily and seasonal variation of wind speed, cyclone, anticyclone, land breeze and sea breeze; Nature and properties of solar radiation. solar constant, depletion of solar radiation, short wave. longwave and thermal radiation, net radiation, albedo.

**Unit-3** Atmospheric temperature, temperature inversion, lapse rate, daily and seasonal variations of temperature, vertical profile of temperature, Energy balance of earth; Atmospheric humidity, concept of saturation, vapor pressure, process of condensation,

formation of dew, fog, mist, frost, cloud; Precipitation. process of precipitation. types of precipitation such as rain, snow, sleet, and hail, cloud formation and classification: Artificial rainmaking. Monsoon-mechanism and importance in Indian agriculture, Weather hazards - drought, floods, frost, tropical cyclones and extreme weather conditions such as heat-wave and cold-wave.

**Unit-4** Agriculture and weather relations; Modifications of crop microclimate, climatic normals for crop and livestock production. Weather forecasting- types of weather forecast and their uses. Climate change, climatic variability, global warming, causes of climate change and its impact on regional and national Agriculture.

#### **Practical**

Visit of Agrometeorological Observatory, site selection of observatory, exposure of instruments and weather data recording. Measurement of total, shortwave and longwave radiation, and its estimation using Planck's intensity law. Measurement of albedo and sunshine duration, computation of Radiation Intensity using ASS. Measurement of maximum and minimum air temperatures. its tabulation, trend and variation analysis. Measurement of soil temperature and computation of soil heat flux. Determination of vapor pressure and relative humidity. Determination of dew point temperature. Measurement of atmospheric pressure and analysis of atmospheric conditions. Measurement of wind speed and wind direction, preparation of windrose. Measurement, tabulation and analysis of rain. Measurement of open pan evaporation and evapotranspiration. Computation of PET and AET.

### **3. Watershed and wasteland Management**

**2(1+1) AG-607**

#### **Theory**

**Unit-1** Watershed management - Concept need, principles & components of watershed management integrated watershed management.

**Unit-2** Factors effecting watershed management runoff & soil loss management in a watershed socio-economic concept of watershed. Peoples participation in watershed management.

**Unit-3** Policy approaches & management plan, problems of watershed management. Wasteland management - Definition, concept & types of degraded & wasteland. Distribution & extent of watershed in India & Uttar Pradesh. factors responsible for land degradation, characteristics of different types of degradation & wasteland. Problems of degraded land in Uttar Pradesh.

**Unit-4** Appropriate techniques for management of different types of degraded & wasteland.  
Practical

**Practical**

Characterization and delineation of model watershed. Field demonstration on soil & moisture conservation measures. Field demonstration on construction of water harvesting structures. Visit to rainfed research station/watershed.

**DEPARTMENT OF STATISTICS, COMPUTER  
APPLICATION AND IPR**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-309	Statistical Methods	2(1+1)
AG-410	Agri-Informatics	2(1+1)

# STATISTICS, COMPUTER APPLICATION AND IPR

## 1. Statistical Methods

2(1+1) AG-309

### Theory

**Unit-1** Introduction to Statistics and its Applications in Agriculture, Graphical Representation of Data., Measures of Central Tendency & Dispersion. Definition of Probability.

**Unit-2** Addition and Multiplication Theorem (without proof). Simple Problems Based on Probability. Binomial & Poisson Distributions, Definition of Correlation. Scatter Diagram. Karl Pearson's Coefficient of Correlation.

**Unit-3** Linear Regression Equations. Introduction to Test of Significance, One sample & two sample test t for Means. Chi-Square Test of Independence of Attributes in 2 x2 Contingency Table. Introduction to Analysis of Variance. Analysis of One Way Classification.

**Unit-4** Introduction to Sampling Methods. Sampling versus Complete Enumeration, Simple Random Sampling with and without replacement. Use of Random Number Tables for selection of Simple Random Sample.

### Practical

Graphical Representation of Data. Measures of Central Tendency (Ungrouped data) with Calculation of Quartiles, Deciles & Percentiles. Measures of Central Tendency (Grouped data) with Calculation of Quartiles, Deciles & Percentiles. Measures of Dispersion (Ungrouped Data). Measures of Dispersion (Grouped Data). Moments, Measures of Skewness & Kurtosis (Ungrouped Data). Moments, Measures of Skewness & Kurtosis (Grouped Data). Correlation & Regression Analysis. Application of One Sample t-test. Application of Two Sample Fisher's t- test. Chi-Square test of Goodness of Fit. Chi-Square test of Independence of Attributes for 2x2 contingency table. Analysis of Variance One Way Classification. Analysis of Variance Two Way Classification. Selection of random sample using Simple Random Sampling.

## 2. Agri-Informatics

2(1+1) AG-410

**Unit-1**Theory Introduction to Computers. Operating Systems. definition and types, Applications of MS-Office for document creation & Editing. Data presentation, interpretation and graph creation, statistical analysis, mathematical expressions.

**Unit-2** Database, concepts and types, uses of DBMS in Agriculture, World Wide Web (WNW): Concepts and components. Introduction to computer programming languages, concepts and standard input/output operations. e-Agriculture, concepts and applications.



**Unit-3** Use of ICT in Agriculture. Computer Models for understanding plant processes. IT application for computation of water and nutrient requirement of crops, Computer-controlled devices (automated systems) for Agri-input management, Smartphone Apps in Agriculture for farm advises, market price. postharvest management etc; Geospatial technology for generating valuable agri-information.

**Unit-4** Decision support systems, concepts, components and applications in Agriculture, Agriculture Expert System, Soil Information Systems etc for supporting Farm decisions. Preparation of contingent crop-planning using IT tools.

#### **Practical**

Study of Computer Components, accessories, practice of important DOS Commands. Introduction of different operating systems such as windows, Unix/ Linux, Creating, Files & Folders, File Management. Use of MS-WORD and MS Power-point for creating, editing and presenting a scientific Document MS-EXCEL - Creating a spreadsheet, use of statistical tools, writing expressions. creating graphs, analysis of scientific data. MS-ACCESS: Creating Database, preparing queries and reports, demonstration of Agri-information system. Introduction to World Wide Web (WWW). Introduction of programming languages. Hands on Crop Simulation Models (CSM) such as DSSAT/Crop-Info/CropSyst/ Wofost; Computation of water and nutrient requirements of crop using CSM and IT tools. Introduction of Geospatial Technology for generating valuable information for Agriculture. Hands on Decision Support System. Preparation of contingent crop planning.

**DEPARTMENT OF ANIMAL HUSBANDRY AND DAIRY SCIENCE**

<b>Course Code</b>	<b>Course Title</b>	<b>Credit Hours</b>
AG-107	Introductory Animal husbandry	3(2+1)
AG-209	Dairy Processing and Safety Issues	3(2+1)
AG-311	Dairy Science	3(2+1)
AG-411	Poultry production and management	3(2+1)
AG-510	Principles of Food Science and Nutrition	3(2+1)

# **ANIMAL HUSBANDRY AND DAIRY SCIENCE**

## **I. Introductory Animal husbandry**

**3(2+1) AG-107**

**GENERAL :** Importance of livestock in Agriculture and Economy. Dairying under specialized and mixed farming. Livestock and milk production statistics.

**Unit-1 DAIRY CATTLE AND BUFFALOES MANAGEMENT :** Cattle and buffalo Breeds. Breeding methods & systems, Care and Management of pregnant and milch cow, Raising of calves, Management of heifers and bulls. Maintenance of livestock records, Milking methods and principles, Clean milk production, Feeds and feeding, Conservation of fodder, Housing for dairy animals.

**Unit-2 PIG MANAGEMENT :** Importance, Important breeds, Raising of piglets up to age of slaughter, General aspects of breeding, Care of sow and boar.

**Unit-3 SHEEP AND GOAT MANAGEMENT :** Importance, Important breeds, Raising of kids and lambs, Breeding, Feeding of goats and sheep.

**Unit-4 HEALTH MANAGEMENT :** Common animal diseases of cattle, buffalo, goat, sheep and swine viz. Anthrax. BQ, HS, Brucellosis, Mastitis, Milk fever. Bloat. Swine fever and Enterotoximea, Vaccination schedule.

### **Practical**

Study of external body parts, Study of phenotypic and physiological difference between cow and buffaloes. Estimation of body weight by measurements, Identification of animals. Castration, Dehorning, Estimation of cost of milk production, Problems on computation of ration, casting and throwing, Grooming, Scheme of fodder production round the year, Recording temperature, pulse rate and respiration rate of animals.

## **2. Poultry production and management**

**3(2+1) AG-411**

**GENERAL :** Importance of poultry industry in India, Poultry production and marketing statistics of eggs and chicken. Historical development in poultry birds potential.

**Unit-1 BREEDING :** Male and female reproductive system of chicken, Breeds and strains of broilers and layers of chicken. duck and quails, General aspects of breeding for better egg production and body weight gain. Selection and culling, Artificial insemination.

**Unit-2 GENERAL MANAGEMENT :** Establishment of poultry farm. Housing and equipment, incubation and hatching of eggs, Broiler and layer management. Lighting schedule for poultry.

**Unit-3 FEEDS AND FEEDING :** Digestion, Digestive system of chicken. Feed ingredients, Availability of CP and ME in ingredients. Feed processing. Formulation of feed viz. Starter, Grower, Layer, Finisher and Breeder ration, FCR, CP ratio, Nutritional deficiency conditions. **HEALTH MANAGEMENT :** Vaccination schedule for poultry, Common poultry diseases, i.e. Ranikhet, Marex, Chicken pox, Gumboro, Infectious bronchitis and CRD. Control of internal and external parasites.

**Unit-4 POULTRY PRODUCTS :** Preservation and storage of eggs, Grading of eggs, AGMARK standard of egg. Egg powder, Slaughtering and processing of chicken, Marketing of poultry products.

**Practical**

Neat and clean diagram of hen showing external body parts. structure of egg, Formulation of ration viz. Broiler starter ration, Broiler finisher ration. Chick starter ration, Grower ration, Layer ration and Breeder ration. Vaccination schedule for broiler and layers. Debeaking, Candling of eggs. Dissection of bird for showing internal body parts.

**3. DAIRY SCIENCE**

**3(2+1) AG-311**

**GENERAL :** Concept of Dairying, Dairying in India, Dairy development in different five year plans. Dairy production statistics. Cleaning and sanitization of dairy equipment.

**Unit-1** Dairy cooperatives, Functioning of dairy cooperatives societies, Functioning of Arland Pattern, White revolution, Objectives and achievements of operation flood.

**Unit-2** Milk and its secretion, Transportation and milk distribution, pricing policy of milk. platform tests, Filtration. Straining and Clarification of milk. Standardization, Milk adulteration and its detection, Common preservatives of milk and their detection, Legal standards of milk.

**Unit-3** Factors affecting the quality and quantity of milk, Nutritive value of milk and milk product.

**Unit-4** Basic principles of refrigeration and cold storage of milk and milk product. Common adulterants of ghee, khoa and their detection.

**Practical**

1. Sampling of milk.
2. C.O.B. Test
3. M.B.R. Test

4. Sediment test.
5. Problems on Standardization.
6. Detection of adulterants viz. water, starch, sucrose, urea, detergent and refined oil
7. Problems on adulteration.
8. Hansa Test.
9. Detection of preservatives.
10. Alcohol test.
11. Acidity of milk.

#### **4. Dairy Processing and Safety Issues**

**3(2+1) AG-209**

**Unit-1 GENERAL :** Definition of food, Constituents of foods : Water, Carbohydrate, Fat, Protein, Vitamins and Minerals with reference to milk, Detailed composition of milk and colostrum.

**Unit-2 FOOD PROCESSING :** Pasteurization, Sterilization, Bactofugation, Uperization, Stassanization. U.H.T. pasteurization and Homogenization of milk, Neutralization of milk, Cream, Cooling and chilling of milk.

**Unit-3 Manufacturing of common dairy product viz.** Cream, Butter, Ghee, Dahi, Yoghart, Shrikhand & Ice-cream.

**Unit-4 Manufacturing of Khoa, Evaporated milk, condensed milk, WMP, SMP, Paneer, Cheese, Chhena, Cheddar cheese and. Mozzarella cheese (Pizza cheese).**

**FOOD SAFETY :** Definition, Importance, Scope, Hazards and risks. Food safety management, HACCP, ISO Series, TQM-Concept and need for quality component of TQM. Basic water tests.

#### **Practical**

1. Demostration of Cream separation.
2. Preparation of indigenous dairy products viz. Dahi. Chhena. Khoa, Paneer, Cream, Ghee, shrikhand.
3. Water quality analysis.
4. Problem on neutralization of milk and cream.
5. Preparation of plants for implementation of HACCP and ISO series,
6. Problems on over run.

7. Calculation of Ice cream mix.

## **5. Principles of Food Science and Nutrition**

**3(2+1) AG-510**

### **GENERAL :**

**Unit-1** Definition of food and food science. Composition of food, Foods of animal origin, Digestive system of Ruminants.

**Unit-2** Definition, Chemistry and Function of Carbohydrate, Fat, Proteins and Water. Requirement.

**Unit-3** Availability. Functions and Nutritional deficiency disease of minerals and vitamins. Flavours and colours used in food. Food microbiology with special reference to milk, Physic() Chemical properties of milk.

**Unit-4** Composition and processing of egg, meat and chicken, feed additives, antibiotics, enzymes and hormones.

### **Practical**

1. Sampling of milk.
2. Specific gravity of milk by lactometer.
3. Water quality test.
4. Study of Nutritional deficientic conditions.
5. Study of Nutritional disorders.
6. Quality parameters for egg, meat and chicken.
7. Fat test by Gerber's method.
8. T.S. & S.N.F. percentage by Richmond's scale and formula.

## DEPARTMENT OF ENGLISH

Course Code	Course Title	Credit Hours
AG-108	Comprehension and Communication Skills in English	2(1+1)

### ENGLISH

#### Comprehension and Communication Skills in English 2(1+1) AG-108

##### Theory

**Unit-1** War Minus Shooting- The sporting Spirit. A Dilemma- A layman looks at science Raymond B. Fosdick. You and Your English - Spoken English and broken English G.B. Shaw.

**Unit-2** Reading Comprehension, Vocabulary- Antonym, Synonym, Homophones, Homonyms. often confused words. Exercises to Help the students in the enrichment of vocabulary based on TOEFL and other competitive examinations.

**Unit-3** Functional grammar: Articles, Prepositions, Verb, Subject verb Agreement, Transformation, Synthesis. Direct and Indirect Narration. Written Skills: Paragraph writing, Precise writing, Report writing and Proposal writing.

**Unit-4** The Style: Importance of professional writing. Preparation of Curriculum Vitae and Job applications. Synopsis Writing. Interviews: kinds. Importance and process.

##### Practical

Listening Comprehension: Listening to short talks lectures, speeches (scientific, commercial and general in nature). Oral Communication: Phonetics, stress and intonation, Conversation practice. Conversation: rate of speech, clarity of voice, speaking and Listening, politeness & Reading skills: reading dialogues, rapid reading, intensive reading, improving reading skills. Mock Interviews: testing initiative, team spirit, leadership, intellectual ability. Group Discussions.

## REMEDIAL COURSES

### 1. Agricultural Heritage

1(1+0) AG-109

#### Theory

Introduction of Indian agricultural heritage; Ancient agricultural practices. Relevance of heritage to present day agriculture; Past and present status of agriculture and farmers in society; Journey of Indian agriculture and its development from past to modern era; Plant production and protection through indigenous traditional knowledge; Crop voyage in India and world; Agriculture scope; Importance of agriculture and agricultural resources available in India; Crop significance and classifications; National agriculture setup in India; Current scenario of Indian agriculture; Indian agricultural concerns and future prospects.

### 2. General Agriculture-I

2(1+1) AG-110A

Agriculture of Intermediate standard including Agronomy, Soil Science, Horticulture, Plant Pathology

### 3. General Agriculture-II

2(1+1) AC-111A

Agriculture of Intermediate standard including Ag Engg. Animal Husbandry and economics

### 4. Introductory Biology

2(1+1) AC-110B

Theory Introduction to the living world, diversity and characteristics of life, origin of life, Evolution and Eugenics. Binomial nomenclature and classification Cell and cell division. Morphology of flowering plants. Seed and seed germination. Plant systematic- viz; Brassicaceae, Fabaceae and Poaceae. Role of animals in agriculture.

#### Practical

Morphology of flowering plants - root, stem and leaf and their modifications. Inference, flower and fruits. Cell, tissues & cell division. Internal structure of root, stem and leaf. Study of specimens and slides. Description of plants - Brassicaceae. Fabaceae and Poaceae.

### 5. Elementary Mathematics

2(2+0) AG-111B

#### Theory

Straight lines : Distance formula, section formula (internal and external division), Change of axes (only origin changed). Equation of co-ordinate axes, Equation of lines parallel to axes, Slope-intercept form of equation of line, Slope-point form of equation of line. Two point form of equation of line, Intercept form of equation of line, Normal form of



equation of line, General form of equation of line, Point of intersection of two st. lines, Angles between two st. lines, Parallel lines, Perpendicular lines, Angle of bisectors between two lines. Area of triangle and quadrilateral. Circle: Equation of circle whose centre and radius is known, General equation of a circle, Equation of circle passing through three given points, Equation of circle whose diameters is line joining two points  $(x_1, y_1)$  &  $(x_2, y_2)$  Tangent and Normal to a given circle at given point (Simple problems), Condition of tangency of a line  $y = mx + c$  to the given circle  $x^2 + y^2 = a$ . Differential Calculus : Definition of function, limit and continuity, Simple problems on limit, Simple problems on continuity, Differentiation of  $x^n$ ,  $e^n$ ,  $\sin x$  &  $\cos x$  from first principle, Derivatives of sum, difference, product and quotient of two functions, Differentiation of functions of functions (Simple problem based on it), Logarithmic differentiation (Simple problem based on it), Differentiation by substitution method and simple problems based on it. Differentiation of Inverse Trigonometric functions. Maxima and Minima of the functions of the form  $y=f(x)$  (Simple problems based on it). Integral Calculus : Integration of simple functions, Integration of Product of two functions, Integration by substitution method, Definite Integral (simple problems based on it), Area under simple well-known curves (simple problems based on it). Matrices and Determinants: Definition of Matrices, Addition. Subtraction, Multiplication. Transpose and Inverse up to 3rd order. Properties of determinants up to 3rd order and their evaluation.

## NON-GRADIAL COURSES

### 29. NSS/NCC/Physical Education & Yoga Practices 2(9+2) AG-I12A/B/C

#### Theory

Course aims at evoking social consciousness among students through various activities viz., working together, constructive and creative social work, to be skilful in executing democratic leadership, developing skill in programme development to be able for self employment, reducing gap between educated and uneducated, increasing awareness and desire to help sections of society. Following activities are to be taken up under the NSS course:

- Introduction and basic components of NSS: Orientation
- NSS programmes and activities
- Understanding youth
- Community mobilization

- Social harmony and national integration
- Volunteerism and shramdan
- Citizenship, constitution and human rights
- Family and society
- Importance and role of youth leadership
- Life competencies
- Youth development programmes
- Health, hygiene and sanitation
- Youth health, lifestyle, HIV AIDS and first aid
- Youth and yoga
- Vocational skill development
- Issues related environment
- Disaster management
- Entrepreneurship development
- Formulation of production oriented project
- Documentation and data reporting
- Resource mobilization
- Additional life skills
- Activities directed by the Central and State Government

All the activities related to the National Service Scheme course is distributed under four different courses viz., National Service Scheme I, National Service Scheme II, National Service Scheme III and National Service Scheme IV each having one credit load. The entire four courses should be offered continuously for two years. A student enrolled in NSS course should put in at least 60 hours of social work in different activities in a semester other than live regular one day camp in a year and one special camp for duration of 7 days at any semester break period in the two year.

Different activities will include orientation lectures and practical works. Activities directed by the Central and State Government have to be performed by all the volunteers of NSS as per direction.

## **SYLLABUS**

### **Semester I**

**National Service Scheme I Introduction and basic components of NSS: AG-1112A**

**Orientation:** history, objectives, principles. symbol, badge; regular programmes under NSS, organizational structure of NSS, code of conduct for NSS volunteers, points to be considered by NSS volunteers awareness about health NSS programmes and activities

Concept of regular activities, special camping, day camps, basis of adoption of village/slums, conducting survey, analysing guiding financial patterns of scheme, youth programme/ schemes of GUI, coordination with different agencies and maintenance of diary

#### **Understanding youth**

Definition, profile. profile, categories, issues and challenges of youth; and opportunities for youth who is agent of the social change

#### **Community mobilisation**

Mapping of community stakeholders, designing the message as per problems and their culture; identifying methods of mobilisation involving youth-adult partnership

#### **Social harmony and national integration**

Indian history and culture, role of youth in nation building, conflict resolution and peace-building

#### **Volunteerism and shramdan**

Indian tradition of volunteerism, its need, importance, motivation and constraints; shramdan as part of volunteerism

#### **Citizenship, constitution and human rights**

Basic features of constitution of India, fundamental rights and duties, human rights, consumer awareness and rights and rights to information Family and society

Concept of family, community (PRIs and other community based organisations) and society

#### **Semester I:**

##### **National Cadet Corps**

**AC-11213**

1. Aims. objectives. organization of NCC and NCC song. DG's cardinals of discipline.
2. Drill- aim, general words of command, attention, stands at ease, stand easy and turning.
3. Sizing, numbering. forming in three ranks, open and close order march and dressing.
4. Saluting at the halt, getting on parade, dismissing and falling out.
5. Marching, length of pace. and time of marching in quick/slow time and halt. Side pace, pace forward and to the rear.
6. Turning on the march and wheeling. Saluting on the march.
7. Marking time, forward march and halt.
8. Changing step, formation of squad and squad drill.

9. Command and control, organization, badges of rank, honours and awards
10. Nation Building- cultural heritage, religions, traditions and customs of India. National integration.
11. Values and ethics, perception, communication, motivation, decision making, discipline and duties of good citizen.
12. Leadership traits, types of leadership. Character/personality development.
13. Civil defense organization, types of emergencies. fire fighting. protection.
14. Maintenance of essential services, disaster management, aid during development projects.
15. Basics of social service, weaker sections of society and their needs, NGO's and their contribution. contribution of youth towards social welfare and family planning.
16. Structure and function of human body, diet and exercise, hygiene and sanitation.
17. Preventable diseases including AIDS, safe blood donation, first aid, physical and mental health.
18. Adventure activities
19. Basic principles of ecology. environmental conservation, pollution and its control.
20. Precaution and general behaviour of girl cadets, prevention of untoward incidents, vulnerable parts of the body, self defense.

**Semester I:**

**Physical Education and Yoga Practices**

**2(0+2) AG-1120**

1. Teaching of skills of Football - demonstration. practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit)
2. Teaching of different skills of Football - demonstration, practice of the skills, correction, involvement in game situation (For girls teaching of Tennikoit)
3. Teaching of advance skills of Football - involvement of all the skills in game situation with teaching of rules of the game
4. Teaching of skills of Basketball - demonstration, practice of the skills, correction of skills, involvement in game situation
5. Teaching of skills of Basketball - demonstration, practice of the skills, involvement in game situation
6. Teaching of skills of Basketball - involvement of all the skills in game situation with teaching of rule of the game
7. Teaching of skills of Kabaddi - demonstration, practice of the skills, correction of skills, involvement in game situation

8. Teaching of skills of Kabaddi - demonstration, practice of the skills, correction of skills, involvement in game situation
9. Teaching of advance skills of Kabaddi - involvement of all the skills in game situation with teaching of rule of the game
10. Teaching of skills of Ball Badminton - demonstration, practice of the skills, correction of skills, involvement in game situation
11. Teaching of skills of Ball Badminton - involvement of all the skills in game situation with teaching of rule of the game
12. Teaching of some of Asanas - demonstration, practice, correction and practice
13. Teaching of some more of Asanas - demonstration\_ practice, correction and practice
14. Teaching of skills of Table Tennis - demonstration, practice of skills, correction and practice and involvement in game situation
15. Teaching of skills of Table Tennis - demonstration, practice of skills, correction and practice and involvement in game situation
16. Teaching of skills of Table Tennis - involvement of all the skills in game situation with teaching of rule of the game
17. Teaching - Meaning, Scope and importance of Physical Education
18. Teaching - Definition, Type of Tournaments
19. Teaching - Physical Fitness and Health Education
20. Construction and laying out of the track and field (\*The girls will have Tennikoit and Throw Ball).
1. Teaching of skills of Hockey - demonstration practice of the skills and correction.
2. Teaching of skills of Hockey - demonstration practice of the skills and correction. And involvement of skills in games situation
3. Teaching of advance skills of Hockey - demonstration practice of the skills and correction. Involvement of all the skills in games situation with teaching of rules of the game
4. Teaching of skills of Kho-Kho - demonstration practice of the skills and correction.
5. Teaching of skills of Kho-Kho - demonstration practice of the skills and correction. Involvement of the skills in games situation
6. Teaching of advance skills of Kho-Kho - demonstration practice of the skills and correction. Involvement of all the skills in games situation with teaching of rules of the game
7. Teaching of different track events - demonstration practice of the skills and correction.

8. Teaching of different track events - demonstration practice of the skills and correction.
9. Teaching of different track events - demonstration practice of the skills and correction with competition among them.
10. Teaching of different field events - demonstration practice of the skills and correction.
11. Teaching of different field events - demonstration practice of the skills and correction.
12. Teaching of different field events - demonstration practice of the skills and correction.
13. Teaching of different field events - demonstration practice of the skills and correction with - competition among them.
14. Teaching of different asanas - demonstration practice and correction.
15. Teaching of different asanas - demonstration practice and correction.
16. Teaching of different asanas - demonstration practice and correction,
17. Teaching of different asanas - demonstration practice and correction.
18. Teaching of weight training - demonstration practice and correction.
19. Teaching of circuit training - demonstration practice and correction.
20. Teaching of calisthenics - demonstration practice and correction.

**Note:**

- Compulsory Uniform: Half pants, Tee Shirts, Shoes and socks all white (Girls will have white Tee Shirt and Track pants)
- The games mentioned in the practical may be inter changed depending on the season and facilities.

**Human Value and Ethics**

**1(1+0) AG-210**

**Theory**

Values and Ethics-An Introduction. Goal and Mission of Life. Vision of Life. Principles and Philosophy. Self Exploration. Self Awareness. Self Satisfaction. Decision Making. Motivation. Sensitivity. Success. Selfless Service. Case Study of Ethical Lives. Positive Spirit. Body, Mind and Soul. Attachment and Detachment. Spirituality Quotient. Examination. Course title: **Educational Tour2(0+2)**

## **ELECTIVE COURSES**

### **1. Agri-business Management**

**3(2+1) AGE-51**

#### **Theory**

Transformation of agriculture into agribusiness, various stakeholders and components of agribusiness systems. Importance of agribusiness in the Indian economy and New Agricultural Policy. Distinctive features of Agribusiness Management: Importance and needs of agro-based industries, Classification of industries and types of agro based industries. Institutional arrangement. procedures to set up agro based industries. Constraints in establishing agro-based industries. Agri-value chain: Understanding primary and support activities and their linkages. Business environment: PEST & SWOT analysis. Management functions: Roles & activities, Organization culture. Planning, meaning, definition, types of plans. Purpose or mission, goals or objectives, Strategies, policies procedures, rules, programs and budget. Components of a business plan. Steps in planning and implementation. Organization staffing, directing and motivation. Ordering, leading, supervision, communications. control. Capital Management and Financial management of Agribusiness. Financial statements and their importance. Marketing Management: Segmentation, targeting & positioning. Marketing mix and marketing strategies. Consumer behavior analysis, Product Life Cycle (PLC). Sales & Distribution Management. Pricing policy, various pricing methods. Project Management definition, project cycle, identification, formulation, appraisal, implementation, monitoring and evaluation. Project Appraisal and evaluation techniques.

#### **Practical**

Study of agri-input markets: Seed, fertilizers, pesticides. Study of output markets: grains. fruits, vegetables, flowers. Study of product markets. retails trade commodity trading, and value added products. Study of financing institutions- Cooperative, Commercial banks, RRBs, Agribusiness Finance Limited, NABARD. Preparations of projects and Feasibility reports for agribusiness entrepreneur. Appraisal/evaluation techniques of identifying viable project- Non-discounting techniques. Case study of agro-based industries. Trend and growth rate of prices of agricultural commodities. Net present worth technique fir selection of viable project. Internal rate of return.

### **2. Agrochemicals**

**3(2+1) AGE-52**

#### **Theory**

An introduction to agrochemicals, their type and role in agriculture, effect on environment, soil, human and animal health. merits and demerits of their uses in agriculture.

management of agrochemicals for sustainable agriculture. Herbicides-Major classes, properties and important herbicides. Fate of herbicides. Fungicides-Classification-Inorganic fungicides- characteristics, preparation and use of sulfur and copper, Mode of action- Bordeaux mixture and copper oxychloride. Organic fungicides- Mode of action- Dithiocarbamates-characteristics, preparation and use of Zineb and maneb.

Systemic fungicides- Benomyl, carboxin, oxycarboxin, Metalaxyl, Carbendazim, characteristics and use. Introduction and classification of insecticides: inorganic and organic insecticides Organochlorine, Organophosphates, Carbamates, Synthetic pyrethroids Neonicotinoids. Hiorationals. Insecticide Act and rules, Insecticides banned, withdrawn and restricted use, Fate of insecticides in soil & plant. IGRs Biopesticides, Reduced risk insecticides, Botanicals, plant and animal systemic insecticides their characteristics and uses. Fertilizers and their importance. Nitrogenous fertilizers: Feed stocks and Manufacturing of ammonium sulphate, ammonium nitrate, ammonium chloride, urea. Slow release N-fertilizers. Phosphatic fertilizers: feedstock and manufacturing of single superphosphate. Preparation of bone meal and basic slag. Potassic fertilizers: Natural sources of potash, manufacturing of potassium chloride, potassium sulphate and potassium nitrate. Mixed and complex fertilizers: Sources and compatibility-preparation of major, secondary and micronutrient mixtures. Complex fertilizers: Manufacturing of ammonium phosphates, nitrophosphates and NPK complexes. Fertilizer control order. Fertilizer logistics and marketing. Plant bio-pesticides for ecological agriculture, Bio-insect repellent.

### **Practical**

Sampling of fertilizers and pesticides. Pesticides application technology to study about various pesticides appliances. Quick tests for identification of common fertilizers. Identification of anion and cation in fertilizer. Calculation of doses of insecticides to be used. To study and identify various formulations of insecticide available in market Estimation of nitrogen in Urea. Estimation of water soluble  $P_2O_5$  and citrate soluble  $P_2O_5$  in single super phosphate. Estimation of potassium in-Muriate of Potash/ Sulphate of Potash by flame photometer. Determination of copper content in copper oxychloride. Determination of sulphur content in sulphur fungicide. Determination of thiram. Determination of ziram content.



### **3. Commercial Plant Breeding**

**3(1+2) AGE-53**

#### **Theory**

Types of crops and modes of plant reproduction. Line development and maintenance breeding in self and cross pollinated crops (A/B/R and two line system) for development of hybrids and seed production. Genetic purity test of commercial hybrids. Advances in hybrid seed production of maize, rice, sorghum, pearl millet, castor, sunflower, cotton pigeon pea, Brassica etc. Quality seed production of vegetable crops under open and protected environment. Alternative strategies for the development of the line and cultivars: haploid inducer, tissue culture techniques and biotechnological tools. IPR issues in commercial plant breeding: DUS testing and registration of varieties under PPV & FR Act. Variety testing, release and notification systems in India Principles and techniques of seed production, types of seeds, quality testing in self and cross pollinated crops.

#### **Practical**

Floral biology in self and cross pollinated species, selfing and crossing techniques. Techniques of seed production in self and cross pollinated crops using A/B/R and two line system. Learning techniques in hybrid seed production using male-sterility in field crops. Understanding the difficulties in hybrid seed production, Tools and techniques For optimizing hybrid seed production. Concept of rouging in seed production plot. Concept of line its multiplication and purification in hybrid seed production. Role of pollinators in hybrid seed production. Hybrid seed production techniques in sorghum, pearl millet, maize, rice, rapeseed-mustard, sunflower, castor, pigeon pea, cotton and vegetable crops. Sampling and analytical procedures for purity testing and detection of spurious seed. Seed drying and storage structure in quality seed management. Screening techniques during seed processing viz., grading and packaging. Visit to public private seed production and processing plants.

### **4. Landscaping**

**3(2+1) AGE-54**

#### **Theory**

Importance and scope of landscaping. Principles of landscaping, garden styles and types. terrace gardening, vertical gardening, garden components, adornments, lawn making, rockery, water garden, walk-paths, bridges, other constructed features etc. gardens for special purposes. Trees: selection, propagation, planting schemes, canopy management, shrubs and herbaceous perennials: selection, propagation, planting schemes, architecture. Climber and creepers: importance, selection, propagation, planting, Annuals: selection, propagation, planting scheme. Other garden plants: palms, ferns, grasses and cacti succulents. Pot plants:

selection, arrangement, management. Bio-aesthetic planning: definition, need, planning: landscaping of urban and rural areas, Peri-urban landscaping, Landscaping of schools, public places like bus station, railway station, townships, river banks, hospitals, play grounds, airports, industries, institutions. Bonsai: principles and management, lawn: establishment and maintenance. CAD application.

#### **Practical**

Identification of trees, shrubs, annuals, pot plants; Propagation of trees, shrubs and annuals, care and maintenance of plants. potting and repotting, identification of tools and implements used in landscape design, training and pruning of plants for special effects, lawn establishment and maintenance, layout of formal gardens, informal gardens, special type of gardens (sunken garden, terrace garden, rock garden) and designing of conservatory and lathe house. Use of computer software, visit to important gardens/ parks/ institutes.

### **5. Food Safety and Standards**

**3(2+1) AGE-55**

#### **Theory**

Food Safety - Definition. Importance, Scope and Factors affecting Food Safety. Hazards and Risks, Types of hazards - Biological, Chemical, Physical hazards. Management of hazards - Need. Control of parameters. Temperature control. Food storage. Product design. Hygiene and Sanitation in Food Service Establishments- Introduction. Sources of contamination and their control. Waste Disposal. Pest and Rodent Control. Personnel Hygiene. Food Safety Measures. Food Safety Management Tools- Basic concepts. PRPs, OMPs, SSOPs etc. HACCP. ISO series. TQM - concept and need for quality. components of TOM. Kaizen. Risk Analysis. Accreditation and Auditing. Water Analysis, Surface Sanitation and Personal Hygiene. Food laws and Standards-Indian Food Regulatory Regime, FSSAI. Global Scenario CAC. Other laws and standards related to food. Recent concerns- New and Emerging Pathogens. Packaging, Product labeling and Nutritional labeling. Genetically modified foods\ transgenics. Organic foods. Newer approaches to food safety. Recent Outbreaks. Indian and International Standards for food products.

#### **Practical**

Water quality analysis physico-chemical and microbiological. Preparation of different types of media. Microbiological Examination of different food samples. Assessment of surface sanitation by swab/rinse method. Assessment of personal hygiene. Biochemical tests for identification of bacteria. Scheme for the detection of food borne pathogens. Preparation of plans for implementation of FSMS - HACCP, ISO: 22000.

## **6. Course title: Biopesticides & Biofertilizers**

**3(2+1) AGE-56**

### **Theory**

History and concept of biopesticides. Importance, scope and potential of biopesticide. Definitions, concepts and classification of biopesticides viz. pathogen, botanical pesticides, and biorationals. Botanicals and their uses. Mass production technology of bio-pesticides. Virulence, pathogenicity and symptoms of entomopathogenic pathogens and nematodes. Methods of application of biopesticides. Methods of quality control and Techniques of biopesticides. Impediments and limitation in production and use of biopesticide. Biofertilizers - Introduction, status and scope, Structure and characteristic features of bacterial biofertilizers- Azospirillum, Azotobacter, Pseudomonas, Rhizobium and Frankia; Cyanobacterial biofertilizers- Anabaena, Nostoc, Hapalosiphon and fungal biofertilizers- AM mycorrhiza and ectomycorrhiza. Nitrogen fixation -Free living and symbiotic nitrogen fixation. Mechanism of phosphate solubilization and phosphate mobilization, K solubilization. Production technology: Strain selection, sterilization, growth and fermentation, mass production of carrier based and liquid biofertilizers. FCC) specifications and quality control of biofertilizers. Application technology for seeds, seedlings, tubers, sets etc. Biofertilizers -Storage, shelf life, quality control and marketing. Factors influencing the efficacy of biofertilizers.

### **Practical**

Isolation and purification of important biopesticides: Trichoderma Pseudomonas, Bacillus, Metarhizium etc. and its production. Identification of important botanicals. Visit to biopesticide laboratory in nearby area. Field visit to explore naturally infected cadavers. Identification of entomopathogenic entities in field condition. Quality control of biopesticides. Isolation and purification of Azospirillum, Azotobacter, Rhizobium. P-solubilizers and cyanobacteria. Mass multiplication and inoculum production of biofertilizers. Isolation of AM fungi -Wet sieving method and sucrose gradient method. Mass production of AM inoculants.

## **7. Protected Cultivation**

**3(2+1) AGE-61**

### **Theory**

Protected cultivation- importance and scope, Status of protected cultivation in India and World types of protected structure based on site and climate. Cladding material involved in greenhouse/ poly house. Greenhouse design, environment control, artificial lights, Automation. Soil preparation and management. Substrate management. Types of benches and containers. Irrigation and fertigation management. Propagation and production of quality

planting material of horticultural crops. Greenhouse cultivation of important horticultural crops - rose, carnation, chrysanthemum, gerbera, orchid, anthurium, lily, tulip, tomato, bell pepper, cucumber, strawberry, pot plants, etc. Cultivation of economically important medicinal and aromatic plants. Offseason production of flowers and vegetables. Insect pest and disease management.

#### **Practical**

Raising of seedlings and saplings under protected conditions, use of protrays in quality planting material production, Bed preparation and planting of crop for production, Inter cultural operations. Soil EC and pH measurement, Regulation of irrigation and fertilizers through drip, fogging and misting.

### **8. Hi-tech. Horticulture**

**3(2+1) AGE-62**

#### **Theory**

Introduction & importance; Nursery management and mechanization; micro propagation of horticultural crops; Modern field preparation and planting methods. Protected cultivation: advantages, controlled conditions, method and techniques, Micro irrigation systems and its components; EC, pH based fertilizer scheduling, canopy management, high density orcharding. Components of precision farming: Remote sensing, Geographical Information System (GIS), Differential Geo-positioning System (DGPS), Variable Rate applicator (VRA), application of precision farming in horticultural crops (fruits, vegetables and ornamental crops); mechanized harvesting of produce. Practical Types of polyhouses and shade net houses, Intercultural operations, tools and equipments identification and application, Micro propagation, Nursery-protrays, micro-irrigation. EC, pH based fertilizer scheduling, canopy management, visit to hi-tech orchard/nursery.

### **9. Weed Management**

**3(2+1) AGE-63**

#### **Theory**

Introduction to weeds, characteristics of weeds their harmful and beneficial effects on ecosystem. Classification, reproduction and dissemination of weeds. Herbicide classification. concept of adjuvant, surfactant, herbicide formulation and their use. Introduction to mode of action of herbicides and selectivity. Allelopathy and its application for weed management. Bio-herbicides and their application in agriculture. Concept of herbicide mixture and utility in agriculture. Herbicide compatibility with agro-chemicals and their application. Integration of herbicides with non chemical methods of weed management. Herbicide Resistance and its management.

### **Practical**

Techniques of weed preservation. Weed identification and their losses study. Biology of important weeds. Study of herbicide formulations and mixture of herbicide. Herbicide and agro-chemicals study. Shift of weed flora study in long term experiments. Study of methods of herbicide application, spraying equipments. Calculations of herbicide doses and weed control efficiency and weed index.

## **10. System Simulation and Agro advisory**

**3(2+1) AGE-64**

### **Theory**

System Approach for representing soil-plant-atmospheric continuum, system boundaries, Crop models, concepts & techniques, types of crop models, data requirements, relational diagrams.

Evaluation of crop responses to weather elements; Elementary crop growth models; calibration, validation, verification and sensitivity analysis. Potential and achievable crop production- concept and modelling techniques for their estimation. Crop production in moisture and nutrients limited conditions; components of soil water and nutrients balance. Weather forecasting, types, methods, tools & techniques, forecast verification: Value added weather forecast, ITK for weather forecast and its validity; Crop-Weather Calendars; Preparation of agro-advisory bulletin based on weather forecast. Use of crop simulation model for preparation of Agro-advisory and its effective dissemination.

### **Practical**

Preparation of crop weather calendars. Preparation of agro-advisories based on weather forecast using various approaches and synoptic charts. Working with statistical and simulation models for crop growth. Potential & achievable production: yield forecasting, insect & disease forecasting models. Simulation with limitations of water and nutrient management options. Sensitivity analysis of varying weather and crop management practices. Use of statistical approaches in data analysis and preparation of historical, past and present meteorological data for medium range weather forecast. Feedback from farmers about the agro advisory.

## **11. Agricultural Journalism**

**3(2+1) AGE-65**

### **Theory**

Agricultural Journalism: The nature and scope of agricultural journalism characteristics and training of the agricultural journalist, how agricultural journalism is

similar to and different from other types of journalism. Newspapers and magazines as communication media: Characteristics; kinds and functions of newspapers and magazines, characteristics of newspaper and magazine readers. Form and content of newspapers and magazines: Style and language of newspapers and magazines. parts of newspapers and magazines. The agricultural story: Types of agricultural stories, subject matter of the agricultural story. structure of the agricultural story. Gathering agricultural information: Sources of agricultural information, interviews, coverage of events, abstracting from research and scientific materials, wire services, other agricultural news sources. Writing the story: Organizing the material, treatment of the story. writing the news lead and the body, readability measures. Illustrating agricultural stories: Use of photographs, use of artwork (graphs, charts, maps, etc.), writing the captions. Editorial mechanics: Copy reading, headline and title writing, proofreading, lay outting.

#### **Practical**

Practice in interviewing. Covering agricultural events. Abstracting stories from research and scientific materials and from wire services. Writing different types of agricultural stories. Selecting pictures and artwork for the agricultural story. Practice in editing, copy reading, headline and title writing, proofreading, layouting. Testing copy with a readability formula. Visit to a publishing office.

### **12. Composition cum Duck/ (and) Quail/ (and) Rabbit culture     3(2+1) AGE-66**

#### **Fishery:**

Definition, common characteristics and position of fish in Animal Kingdom, fishery statistics preparation and management of fish pond, physical and chemical condition of water for fishery, feeds and feeding of fishes, breeding of fish, diseases and enemies of fishes, use of Duck/quality beats on fish feeds.

#### **Duckry:**

Definition, common features and advantages, breeds, incubation and hatching feeding of ducks, care and managements of ducking, grower, layer/broiler ducks. Characteristics of duck eggs, common diseases and vaccination schedule, duckry statistics. Quail: Definition, common features of quail farming, advantages, breeds, incubation and hatching, feeding of quails. care and managements of quail chick, grower/layer/broilers. Quail product technology, common diseases and vaccination schedule.

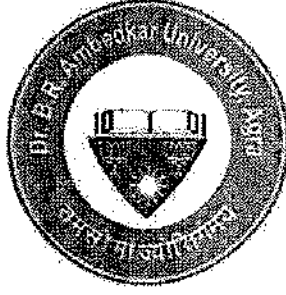
**Rabbitry:**

Introduction, scope and advantages of rabbit farming, breeds, breeding, housing, care and management of young and adult rabbit. feeds and feeding for rabbits, common problems of rabbitry including vaccination schedule, fur and meat production technology.

1. Fishery units, visit, Demonstration and report formulation.
2. Different type of fishes, deep water, middle water, and surface water.
3. Evaluation of Duck Egg (candling) and Grading.
4. Vaccination schedule for duck and Quail.
5. Preparation Ration for Duck, Quail. Rabbit and Fish.
6. Preparation of different products from eggs.

12 सांख्यिकी भाग (I) विभाग

DR. BHIM RAO AMBEDKAR UNIVERSITY, AGRA



**Proposed Unified Syllabus**

**For**

**BACHELOR OF SCIENCE (B.Sc.)/  
BACHELOR OF ARTS (B.A.)**

**(THREE YEAR DEGREE COURSE)**

**SUBJECT**

**STATISTICS**



**B.Sc. /B.A. (STATISTICS)****COURSE STRUCTURE****FIRST YEAR**

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -101	Theory 1 Probability	40	10	50
Paper No -102	Theory 2: Probability Distributions and Statistical Computation Still Life	40	10	50
Paper No -103	Theory 3: Descriptive Statistics	40	10	50
Paper No -103	Practical	40	10	50

**SECOND YEAR**

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -201	Theory 1: Statistical Inference	40	10	50
Paper No -202	Theory 2: Survey Sampling	40	10	50
Paper No -203	Theory 3: Analysis of Variance and Design of Experiment	40	10	50
Paper No -204	Practical	40	10	50

**THIRD YEAR**

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -301	Theory 1: Non-parametric Methods and Multivariate Analysis	40	10	50
Paper No -302	Theory 2: Applied Statistics	40	10	50
Paper No -303	Theory 3: Operations Research	40	10	50
Paper No -304	Practical	40	10	50

## **B.Sc. /B.A.(STATISTICS)**

### **Students' Performance Evaluation Methodology**

1. The performance of a student in each academic year shall be evaluated subject– wise with a maximum of **150 marks for Theory** and **50 marks for Practical** subject. In each academic year there will be **three Theory subjects** and **one Practical subject**.

2. The distribution of marks shall be **40 marks (80%)** for the Final Examinations and **10 marks (20%)** for Internal Evaluation.

3. For Theory subjects Internal Evaluation shall be based on allotted Assignment and the marks shall be as follows:

**Assessment of Assignment** (05 marks)

**Presentation of Assignment** (03 marks)

**Overall performance throughout the academic year** (02 marks)

4. For Practical subjects the distribution of marks for End term examination shall be as follows:

(i) **35 marks** for three (03) Practical comprises of One (01) Major Practical of **15 Marks** and Two (02) Minor Practical of **10 marks each**.

(ii) **05 marks** for Viva-voce based on complete syllabus.

5. For Practical subjects the distribution of marks for Internal Evaluation shall be as follows:

**Practical Record** (05 marks)

**Overall performance throughout the academic year** (05 marks)

## B.Sc./B.A.(STATISTICS)

### FIRST YEAR

#### PAPER – 101: Probability

(40 MARKS)

##### Learning Objectives:

1. To understand the concept of probability along with basic laws and axioms of probability.
2. To understand the terms random, mutually exclusive and independence and their relevance.
3. To identify the appropriate method (i.e. union, intersection, conditional, etc.) for solving a problem.
4. To apply basic probability principles to solve real life problems.
5. To understand the concept of random variable (discrete and continuous), concept of probability distribution.
6. To explain the expectation of a random variables and related problems.
7. To understand the various inequalities and law of numbers and their respective applications.

#### PAPER–102: Probability Distributions and Statistical Computation

(40 MARKS)

##### Learning Objectives:

1. Define discrete distributions. Discuss appropriate distribution (i.e. binomial, negative binomial, Poisson, etc.) with their properties and application of discrete distribution models to solve problems.
2. Define continuous distributions. Discuss the appropriate distribution (i.e. uniform, exponential, normal, etc.) with their properties and application of continuous distribution models to solve problems.
3. To learn the formal definition of order statistics, derive the distribution function and probability density function of the  $r^{\text{th}}$  order statistic and joint distribution of  $r^{\text{th}}$  and  $s^{\text{th}}$  order statistics. To identify the application of theory of order statistics in real life problems.
4. To learn fundamentals of computers along with basics of some software packages for statistical computation.

#### PAPER – 103: Descriptive Statistics

(40 MARKS)

##### Learning Objectives:

1. To develop the ability to apply fundamental concepts in exploratory data analysis.
2. To understand concepts of sample vs. population and difference between different types of data.
3. To interpret examples of methods for summarising data sets, including common graphical tools (such as boxplots, histograms and stemplots). Interpret histograms and boxplots.

4. To assess the set are most appropriate method for highlighting interesting features of the data.
5. To learn to describe data with measures of central tendency and measures of dispersion. To understand measures of skewness and kurtosis and their utility and significance.
6. To learn the method of least squares for curve fitting to theoretically describe experimental data with a function or equation and to estimate the parameters associated with this model.
7. To understand the concepts of correlation and simple linear regression and perform correlation and regression analysis. Interpret results from correlation and regression.
8. To compute and interpret multiple and partial correlation coefficients. Find and interpret the least-squares multiple regression equation with partial slopes.
9. To calculate and interpret the coefficient of multiple determination ( $R^2$ ). Explain the limitations of partial and regression analysis

**PAPER – 104: Practical**

**(50 MARKS)**

Learning Objectives:

Practical application of theoretical concepts of paper 101, 102 and 103.

**B.Sc./B.A.(STATISTICS)**  
**FIRST YEAR DETAILED SYLLBUS**

**PAPER – 101: Probability**

**UNIT – I**

Random experiment, Trial, Sample point and Sample space, Events, Operations of events, Concept of equally likely, Mutually exclusive and Exhaustive events.

Definition of Probability: Classical, Relative frequency and Axiomatic approaches, Discrete Probability Space, Properties of Probability under Set Theory Approach, Independence of Events, Conditional Probability, Total and Compound Probability theorems, Bayes theorem and its Applications.

**UNIT – II**

Random Variables – Discrete and Continuous, Probability Mass Function (pmf) and Probability density function (pdf), Cumulative distribution function (cdf).

Joint distribution of two random variables, Marginal and Conditional distributions, Independence of random variables.

**UNIT – III**

Expectation of a random variable and its properties, Expectation of sum of random variables and product of independent random variables, Conditional expectation and related problems.

#### UNIT – IV

Moments, Moment generating function (m.g.f.) & their properties, Continuity theorem for m.g.f. (without proof). Chebyshev's inequality, Weak law of large numbers for a sequence of independently and identically distributed random variables and their applications. (Statement Only)

#### REFERENCES:

1. David, S. (1994) : *Elementary Probability*, Cambridge University Press.
2. Meyer, P. (2017). *Introductory Probability and Statistical Applications (2nd ed.)*, New Delhi, Oxford & IBH Publishing Co. Pvt. Ltd.
3. Mood A.M., Graybill F.A. and Boes D.C. (2007). *Introduction to the Theory of Statistics (3rd ed.)*, New Delhi, Tata McGraw Hill Publishing Co. Ltd.
4. Mukhopadhyay, P. (1996). *Mathematical Statistics*, New Delhi, New Central Book Agency Pvt. Ltd.
5. Parzen, E.S. (1992). *Modern Probability Theory and its Applications*. Wiley Interscience.

### PAPER – 102: Probability Distributions and Statistical Computation

#### UNIT – I

Discrete Probability Distributions: Binomial distribution, Poisson distribution (as limiting case of Binomial distribution), Hypergeometric, Geometric and Negative Binomial, Uniform and Multinomial distributions, fitting of Binomial, Poisson and Uniform distributions.

#### UNIT – II

Continuous Probability Distributions: Normal distribution and its properties, Standard Normal variate, Exponential, Gamma, Beta distributions. Cauchy, Laplace, Pareto, Weibull, Log normal distributions. Normal distribution as limiting case of Binomial distribution, fitting of Normal distribution.

#### UNIT – III

Order Statistics, Distributions of minimum,  $r^{\text{th}}$  and maximum order statistic, Joint distribution of  $r^{\text{th}}$  and  $s^{\text{th}}$  order statistics (in continuous case), Distribution of sample range & sample median for uniform and exponential distributions.

#### UNIT – IV

Introduction to Computer: Generation of Computer, Basic Structure of Computer, Digital computer and its peripherals, number systems (Binary, Octal, Hexadecimal Systems), Introduction of Statistical Computation using MS-Excel and SPSS.

**REFERENCES:**

6. David, H.A. (1981). *Order Statistics* (2<sup>nd</sup> ed.), New York, John Wiley.
7. Meyer, P. (2017). *Introductory Probability and Statistical Applications* (2<sup>nd</sup> ed.), New Delhi, Oxford & IBH Publishing Co. Pvt. Ltd.
8. Parzen, E.S. (1992). *Modern Probability Theory and its Applications*. Wiley Interscience.
9. Sinha, P.K. and Sinha, P (2007). *Computer Fundamentals* (6th ed.), BPB Publications.
10. Verma, J.P. (2013). *Data Analysis in Management with SPSS Software*, New Delhi, Springer.

**PAPER – 103: Descriptive Statistics**

**UNIT-I**

Concept of Statistical population, Attributes and Variables (Discrete and Continuous), Different types of scales – Nominal, Ordinal, Ratio and Interval, Primary data – designing a questionnaire and schedule, collection of primary data, checking their consistency, Secondary data.

Presentation of data : Classification, Tabulation, Diagrammatic & Graphical Representation of Grouped data, Frequency distributions, Cumulative frequency distributions and their graphical representations, Histogram, Frequency polygon and Ogives. Stem and Leaf plot, Box Plot.

**UNIT-II**

Measures of Central tendency and Dispersion, Merits and Demerits of these Measures.

Moments and Factorial moments, Shephard's correction for moments, Skewness and Kurtosis and their Measures, Measures based on quartiles.

**UNIT-III**

Bivariate data, Principles of least squares, Most plausible values, Meaning of curve fitting, Fitting of straight line, parabola, logarithmic, power curves and other simple forms by method of least squares.

Bi-Variate frequency table, Correlation, Types of relationships, Scatter diagram, Karl-Pearson's Correlation Coefficient and its properties.

**UNIT-IV**

Rank correlation and its coefficient (Spearman and Kendall Measures), Regression analysis through both types of regression equations for X and Y variables.

Regression coefficients and their properties, Relationship between correlation coefficients and regression coefficients.

Multiple and Partial correlations and Multiple Regression for three variables only.

**REFERENCES:**

1. Goon, A.M., Gupta, M.K. & Dasgupta, B. (2002). *Fundamentals of Statistics*, Vol. I. , Kolkata, The World Press.
2. Miller, I. and Miller, M. (2006). *John's E. Freund's Mathematical Statistics with Applications* (7th ed.), Pearson Education, Asia.
3. Weatherburn, C.E. (1961). *A First Course in Mathematical Statistics*, The English Language Book Society and Cambridge University Press.

**PAPER – 104: Practical**

The practical examination will be based on papers 101, 102 & 103 and will cover the following experiments.

**List of Practical Experiments**

1. Problems based on graphical representation of data by Histogram, Frequency polygons, frequency curves and Ogives, Stem and Leaf Plot, Box Plot.
2. Problems based on calculation of Measures of Central Tendency.
3. Problems based on calculation of Measures of Dispersion.
4. Problems based on calculation of Moments, Measures of Skewness and Kurtosis.
5. Problems based on fitting of curves by Method of least squares.
6. Problems based on determination of Regression lines and calculation of correlation coefficient – grouped and ungrouped data.
7. Problems based on calculation of multiple and partial correlation coefficients for three variables
8. Problems based on statistical Computation using MS-Excel and SPSS

## B.Sc./B.A.(STATISTICS)

### SECOND YEAR

#### PAPER – 201 : Statistical Inference

(40 MARKS)

##### Learning Objectives:

1. To understand the concept of Sampling distribution.
2. To understand the difference between parameter & statistic and standard error & standard deviation.
3. To study the sampling distribution of the sum and mean.
4. Introduction to the t, f and chi-square distribution and to identify the main characteristics of these distributions.
5. To understand the concept of Point and Interval Estimation and discuss characteristics of a good estimator.
6. To understand various methods of estimations with problems.
7. To understand the terms like null and alternative hypotheses, two-tailed and one-tailed alternative hypotheses, significant and insignificant, level of significance and confidence, p value etc.
8. To understand the concept of MP, UMP and UMPU tests
9. To understand under what situations one would conduct the small sample and large sample tests (in case of one sample and two sample tests).

#### PAPER – 202 : Survey Sampling

(40 MARKS)

##### Learning Objectives:

1. To understand the concept of sampling and how it is different from complete enumeration.
2. To understand the various probability and non-probability sampling methods along with estimates of population parameters
3. To discuss the situations where the various sampling techniques shall be used.
4. To understand sampling and non-sampling errors.
5. To discuss regression and ratio methods of estimation in simple random sampling (SRS).

#### PAPER – 203: Analysis of Variance and Design of Experiment

(40 MARKS)

##### Learning Objectives:

1. To understand the concept of Analysis of variance (ANOVA).
2. To learn how to carry out the ANOVA for One way and Two way Classification.



3. To learn how to carry out the post-hoc analysis.
4. To understand the concept of Design of experiment and its basic principles.
5. To understand the basic symmetric designs CRD, RBD and LSD with and without missing observations.
6. To understand the concept of factorial experiments and their practical applications.

**PAPER – 204: Practical**

**(50 MARKS)**

Learning Objectives:

Practical application of theoretical concepts of paper 201, 202 and 203.

**SECOND YEAR DETAILED SYALLBUS**  
**PAPER – 201: Statistical Inference**

**UNIT – I**

Sampling Distributions: The concept of sampling distribution, Parameter, Statistic and Standard error. The sampling distribution for the sum of independent random variables of Binomial, Poisson and Normal distribution, Central limit theorem, sampling distribution of  $Z = [X - E(X)] / \text{standard deviation of } X$ , Sampling distribution of t, f, and chi-square without derivations, Simple properties of these distributions and their interrelationship.

**UNIT – II**

Point estimation: Characteristics of a good estimator: Unbiasedness, consistency, sufficiency and efficiency. Method of Maximum Likelihood and properties of maximum likelihood estimators (without proof), Method of minimum Chi-square. Method of least squares and methods of moments for estimation of parameters, Problems and examples, Interval estimation.

**UNIT – III**

Statistical Hypothesis (Simple and Composite), Testing of hypothesis. Type –I and Type – II errors, Significance level, p-values, Power of a test, Definitions of Most Powerful (MP), Uniformly Most Powerful (UMP) and Uniformly Most Powerful Unbiased (UMPU) tests.

**UNIT-IV**

Test of significance: Large sample tests for (Attributes and Variables) proportions and means (i) for one sample (ii) for two samples

Correlation coefficient in case of (a)  $p=p_0$  (b)  $p_1=p_2$ ,

Small sample test based on t, f and chi-square distributions.

**REFERENCES:**

1. Ferund J.E (2001) : Mathematical Statistics, Prentice Hall of India.
2. Goon, A.M., Gupta, M.K. & Dasgupta, B. (2002). *Fundamentals of Statistics*, Vol. I. , Kolkata, The World Press.
3. Hogg, R.V., McKean, J.W. & Craig, A.T. (2009). *Introduction to Mathematical Statistics* (6<sup>th</sup> ed.), Pearson.
4. Mood A.M., Graybill F.A. and Boes D.C. (2007). *Introduction to the Theory of Statistics* (3<sup>rd</sup> ed.), New Delhi , Tata McGraw Hill Publishing Co. Ltd.

**PAPER – 202: Survey Sampling**

**UNIT – I**

Sampling vs. Complete enumeration: Sampling units and Sampling frame, Precision and efficiency of estimators, Simple Random sampling with and without replacement, Use of random number tables in selection of simple random sample, Estimation of population mean and proportion, Derivation of expression for variance of these estimators, Estimation of variances, Sample size determination.

**UNIT-II**

Stratified random sampling, Problem of allocation, proportional allocation, optimum allocation. Derivation of the expressions for the standard error of the usual estimators when these allocations are used, Gain in precision due to Stratification, Role of sampling cost in the sample allocation, Minimization of variance for fixed cost.

**UNIT-III**

Systematic Sampling: Estimation of Population mean and Population total, standard errors of these estimators  
Two stage sampling with equal first stage units: Estimation of Population mean and its variance  
Non – sampling errors.

**UNIT-IV**

Regression and ratio methods of estimation in simple random sampling, Cluster sampling with equal clusters, Estimators of population mean and their mean square errors.

**REFERENCES:**

1. Cochran, W.G. (2008). *Sampling Techniques* (3rd ed.), Wiley India.
2. DesRaj and Chandhok, P. (1998). *Sample Survey Theory*, Narosa Publishing House.

3. Murthy, M. N. (1977). *Sampling Theory and Statistical Methods*. Statistical Publishing Society, Kolkata.
4. Sukhatme, P.V., Sukhatme, B.V., Sukhatme, S. & Asok, C. (1984): *Sampling Theories of Survey with Applications*, IOWA State University Press and ISAS.

## **PAPER – 203: Analysis of Variance and Design of Experiment**

### **UNIT-I**

Analysis of Variance, One way classification, Assumptions regarding model, Two way classification with equal number of observations per cell, Duncan's multiple comparison tests.

### **UNIT-II**

Principles of Design of Experiment: Randomization, Replication and Local Control, Choice of size and type of a plot using uniformity trials, Completely Randomized Design (CRD), Randomized block design(RBD), Concept and definition of efficiency of design, Comparison of efficiency between CRD and RBD.

### **UNIT – III**

Latin Square Design (LSD), Lay-out, ANOVA table, Comparison of efficiencies between LSD and RBD; LSD and CRD

Missing plot technique: Estimation of missing plots by minimizing error sum of squares in RBD and LSD with one or two missing observations.

### **UNIT-IV**

Factorial Experiments: General description of factorial experiments,  $2^2$ ,  $2^3$  and  $2^n$  factorial experiments arranged in RBD and LSD, Definition of Main effects and Interactions in  $2^2$  and  $2^3$  factorial experiments, Preparation of ANOVA by Yates procedure, Estimates and tests for main and interaction effects (Analysis without confounding).

### **REFERENCES:**

Cochran, W.G. and Cox, G.M. (1959). *Experimental Design*, Asia Publishing House

1. Das, M.N. & Giri, N.C. (1986). *Design and Analysis of Experiments*, Wiley Eastern.

2. Goon, A.M., Gupta, M.K. & Dasgupta, B. (2005). *Fundamentals of Statistics* (8th ed.), Vol. II, , Kolkata, The World Press.

3. Kempthorne, O. (1965). *The Design and Analysis of Experiments*, John Wiley

4. Montgomery, D.C. (2008). *Design and Analysis of Experiments*, John Wiley

**PAPER – 204: Practical**

The practical examination will be based on papers 201, 202 and 203 and will cover the following experiments:

**List of Practical Experiments**

1. Problems based on fitting of Binomial, Poisson and Normal distributions to observed data and testing of goodness of fit.
2. Problems based on testing of independence of attributes in  $m \times n$  contingency table and calculation of measures of association.
3. Problems based on t – test for (i)  $\mu = \mu_0$  (ii)  $\mu_1 = \mu_2$  (iii)  $\alpha = \alpha_0$  (iv)  $\beta = \beta_0$  (v)  $\rho = 0$
4. Problems based on F-test for  $\sigma_1^2 = \sigma_2^2$
5. Problems based on Fisher's Z-transformation and its use in testing (i)  $p_1 = p_2$  (ii)  $\rho = \rho_0$
6. Problems based on calculation of power curve for the test of  $\mu = \mu_0$  against  $\mu \neq \mu_0$  for a normal distribution with known variance.
7. Problems based on large sample tests.
8. Problems based on Analysis of variance in one-way and two-way classification (with and without interaction terms).
9. Problems based on analysis of a Latin square design.
10. Problems based on Analysis of variance in RBD and LSD with one or two missing observations.
11. Problems based on drawing a simple random sample with the help of table of random numbers.
12. Problems based on estimation of population means and variance in simple random sampling.
13. Problems based on Stratified random sampling for population means (proportional and optimum allocation).
14. Problems based on Ratio and regression estimation of population mean and total.
15. Problems based on Factorial Experiment Practical.

**B.Sc./B.A.(STATISTICS)**

**THIRD YEAR**

**PAPER – 301: Non-parametric Methods and Multivariate Analysis** (40 MARKS)

**Learning Objectives:**

1. To understand the concept of distribution free tests (Non-parametric methods) for one and two sample cases.
2. To understand the methods to carry out the statistical analysis and testing of independence in case of Attributes (Qualitative Data).
3. To understand the basic concepts of vector space and matrices in order to study multivariate distribution.
4. To discuss the applications of multivariate normal distribution and Maximum Likelihood Estimates of mean vector and dispersion matrix.

**PAPER – 302: Applied Statistics** (40 MARKS)

**Learning Objectives:**

1. To become familiar with different aspects of Applied Statistics and their use in real life situations.
2. To introduce and define the concept of Time series along with its different components.
3. To define Index numbers and their applications along with different types of Index numbers.
4. To study various demographic methods and different measures of mortality and fertility. To understand the concept of life table and its construction.
5. To understand the concept of statistical quality control and different control charts for variables and attributes.

**PAPER – 303: Operations Research** (40 MARKS)

**Learning Objectives:**

1. To discuss the historical background and need of Operations research.
2. To Identify and develop operation research models from the verbal description of the real life problems.
3. To understand the mathematical tools that are needed to solve optimization problems.
4. To understand the algorithms to solve Linear programming problem, Transportation and Assignment problems, Replacement problems, Job sequencing, etc.
5. To understand the concept of Project management with CPM/PERT.
6. To introduce the concept of Stochastic process.

**PAPER – 304: Practical** (50 MARKS)

**Learning Objectives:**

Practical application of theoretical concepts of paper 301, 302 and 303.

**B.Sc./B.A.(STATISTICS)**  
**THIRD YEAR DETAILED SYALLBUS**

**PAPER – 301: Non-parametric Methods and Multivariate Analysis**

**UNIT – I**

Non-parametric tests, Tests for randomness and test for goodness of fit. One sample tests : Sign test, Wilcoxon Signed rank tests.

Two sample tests : Run test, Kolmogorov – Smirnov's test, Median test and Mann-Whitney U test.

**UNIT – II**

Attributes: Notion and Terminology, Contingency table, Class frequencies and Ultimate class frequencies, Consistency, Association of Attributes, Independence, Measures of association for 2X2 table, Chi-square, Karl Pearson's and Tschuprow's Coefficient of Association.

**UNIT – III**

Vector Space, Subspace, Linear Combination, Span, Linear Independence, Inner Product, Norm, Orthogonality, Dimension of Vector Space, Row and Column Rank, Inverse of a matrix.

**UNIT – IV**

Multivariate Normal Distribution, Marginal and Conditional Distributions, Moment Generating and Characteristics functions, Maximum Likelihood Estimation of Mean vector and Dispersion matrix.

**REFERENCES :**

1. Anderson, T.W. (2003) : *An Introduction to Multivariate Statistical Analysis* (3rd ed.), John Wiley.
2. Gibbons, J.D. and Chakraborty, S. (2003). *Non-Parametric Statistical Inference* (4th ed.), Marcel Dekker, CRC.
3. Johnston, J. (1972). *Econometric Methods* (2nd ed.), McGraw Hill International.
4. Mood A.M., Graybill F.A. and Bose D.C. (2007). *Introduction to the Theory of Statistics* (3<sup>rd</sup> ed.), New Delhi, Tata McGraw Hill Publishing Co. Ltd.

**PAPER – 302: Applied Statistics**

**UNIT – I**

Introduction & definition of time series, its different components, illustrations, additive and multiplicative models, determinations of trend, free hand curve, semi average methods, moving averages, methods of least squares, analysis of sessional ratio to trend, link relative methods.

**UNIT – II**

Index number – its definition, application of index number, price relative and quantity or volume relatives, link and chain relative, problem involved in computation of index number, use of averages, simple aggregative and weighted average method. Laspeyre's, Paasche's and Fisher's index number, time and factor reversal tests of index numbers, consumer price index.

**UNIT – III**

Demographic methods: Sources of demographic data – census, register, ad-hoc survey, hospital records, demographic profiles of Indian Censuses. Measurement of mortality, crude death rates, age specific death rates, infant mortality rates, death rate by cause. Measurement of fertility – crude birth rate, general fertility rate, age-specific birth rate, total fertility rate, gross reproduction rate, net reproduction rate, standardized death rates, age pyramid of sex composition, other measures of fertility. Logistic curve fitting and its use in population projection. Complete life table, its main features and construction.

**UNIT – IV**

Introduction, Process control, tool of statistical quality control, +3 control limits, principle underlying the construction of control charts, control charts for variables, X bar and R charts, construction and interpretation, control charts for attributes p and c charts construction and interpretation, Application of c charts.

**REFERENCES :**

1. Croxton F.E., Cowden D.J. and Klein, S. (1973). *Applied General Statistics*(3<sup>rd</sup> ed.), Prentice Hall of India Pvt. Ltd.
2. Gupta, S.C. and Kapoor, V.K. (2008). *Fundamentals of Applied Statistics* (4<sup>th</sup> ed.), Sultan Chand and Sons.
3. Montgomery D.C. (2009) : *Introduction to Statistical Quality Control* (6<sup>th</sup> ed.), Wiley India Pvt. Ltd.
4. Weisberg, S. (2005). *Applied Regression Analysis*(3<sup>rd</sup> ed.), Wiley.

**PAPER – 303: Operations Research**

**UNIT – I**

History and background of OR, General linear programming problems and their formulations.

Methods for solving LPP : Graphical Method, Simplex method, Big–M method, Two phase Method, Degeneracy and Duality in LPP.

**UNIT – II**

Transportation problem: North-west corner rule, Least cost method, Vogel's approximation method. Optimum solution: Stepping stone method, Method of Multipliers.

Assignment Problem: Hungarian Algorithm.

**UNIT – III**

Replacement problems (Individual and Group).

Job sequencing :  $n$  jobs – 2 machines,  $n$  jobs –  $k$  machines, 2 jobs –  $n$  machines.

**UNIT – IV**

Networking Analysis (Project Management): PERT/CPM

Travelling Salesman Problem

Introduction to Stochastic Process and its Classification with Examples.

**REFERENCES :**

1. Medhi, J. (2009). *Stochastic Processes*, New Age International Pub.
2. Swarup, K., Gupta P.K. and ManMohan (2007). *Operations Research* (13<sup>th</sup> ed.), Sultan Chand & Sons.
3. Taha, H.A. (2007). *Operations Research: An Introduction* (8<sup>th</sup> ed.), Prentice Hall of India.

**PAPER – 304: Practical**

The practical examination will be based on papers 301, 302 and 303 and will cover the following experiments:

**List of Practical Experiments**

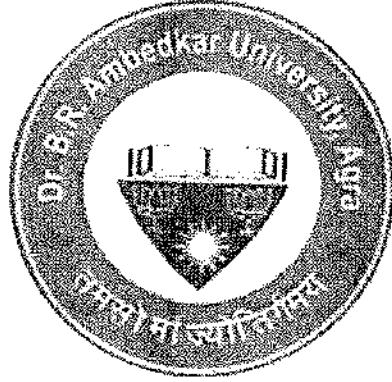
1. Problems based on Non-parametric tests for one sample.
2. Problems based on Non-parametric tests for two samples.
3. Problems based on Contingency table.
4. Problems based on Consistency, Association of Attributes and Independence
5. Problems based on measures of association for 2X2 table
6. Problems based on Chi-square, Karl Pearson's and Tschuprow's Coefficient of Association.
7. Problems based on Rank and Inverse of a matrix.
8. Problems based on Mean vector and Dispersion matrix of a multivariate normal distribution.
9. Problems based on time series and its different components
10. Problems based on Index number.
11. Problems based on measurement of mortality and fertility.
12. Problems based on logistic curve fitting.
13. Problems based on life table.



14. Problems based on control charts for variables and attributes.
15. Problems based on linear programming problems and their formulations.
16. Problems based on Graphical Method, Simplex method, Big-M method, Two phase Method, Degeneracy and Duality in LPP.
17. Problems based on Transportation problem.
18. Problems based on Assignment problem.
19. Problems based on Replacement problems (Individual and Group).
20. Problems based on Job sequencing.
21. Problems based on PERT/CPM.
22. Problems based on Travelling Salesman Problem.

13) ललितकला अथवा वि०अ०

DR. BHIM RAO AMBEDKAR UNIVERSITY, AGRA



**BACHELOR OF ARTS (B.A.)**

**(THREE YEAR DEGREE COURSE)**

**SUBJECT**

**DRAWING & PAINTING**

## B.A. (DRAWING & PAINTING)

### COURSE STRUCTURE

#### FIRST YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -101	Theory 1: Fundamental of Visual Art	80	20	100
Paper No -102	Practical 1: Still Life	80	20	100
Paper No -103	Practical 2: Creative Design 2D & 3D or Rendering	80	20	100

#### SECOND YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -201	Theory 1: History of Indian Painting	80	20	100
Paper No -202	Practical 1: Study of Miniature Painting	80	20	100
Paper No -203	Practical 2: Portrait	80	20	100

#### THIRD YEAR

Paper Number	Paper Name	External Marks	Internal Marks	Total Marks
Paper No -301	Theory 1: Modern Indian Painting (18 <sup>th</sup> Century to Present Age)	80	20	100
Paper No -302	Practical 1: Pictorial Composition	80	20	100
Paper No -303	Practical 2: Landscape from Site	80	20	100

## **B.A. (DRAWING & PAINTING)**

### **FIRST YEAR**

Paper No -101	Theory 1:	Fundamental of Visual Art
Paper No -102	Practical 1:	Still Life
Paper No -103	Practical 2:	Creative Design 2D & 3D or Rendering

### **Learning objective**

#### **Paper 101: Fundamental of Visual Art**

1. To learn what Art is along with Indian and western theory.
2. To understand the basic element of art.
3. To understand the characteristics of line, form, colour, tone, texture, space etc.
4. To know about the composition.
5. To understand various dry and wet mediums and their application.
6. To explain the Shading the 6 limbs of Indian paintings .

#### **Paper 102: Still Life**

1. To enhance the power of observation and the skill of drawing.
2. Basic drawing of geometrical forms like cubes, cones, cylindrical, shapes etc.
3. To improve the sketching technique of various still life objects.
4. To study drapery and its folds.
5. To understand different medium and their application.
6. To understand the effect of light while drawing and paintings.

#### **Paper 103: Creative Design 2D & 3D or Rendering**

1. To understand the concept of Creative design.
2. To identify the difference between 2D and 3D.
3. Apply the principle of composition in drawing.
4. To develop a sense of Creative arrangement form and space.
5. To understand the colour and their properties.
6. To understand and apply the impact of tone, light and shade.

<b>Paper No -101</b>	<b>Theory 1: Fundamental of Visual Art</b>
<b>Unit-I</b>	<b>Simple study: Definition and Classification of Art according to Indian and Western Theories</b>
<b>Unit-II</b>	<b>Elements of Art : Line, Form, Colour, Tone, Texture, Space</b>
<b>Unit-III</b>	<b>Principles of Composition: Proportion, Rhythm, Dominance, Harmony, Unity, Balance</b>
<b>Unit-IV</b>	<b>Medium and Techniques</b> <b>Dry Medium : Powder Colour, Pastel, Colour</b> <b>Wet Medium : Water Colour, Tempera, Colour, Acrylic Colour, Oil Colour</b>
<b>Unit-V</b>	<b>Six Limbs of Indian Painting (Shadang)</b> रूपभेदः प्रमाणानि भावलावण्ययोजनम् सादृश्यं वर्णिकाभंग इति चित्रं षडंगकम्॥

**Suggested Readings:**

1. C.L. Jha, 1952 : Chitrakala ke Ang :Laxmi Kuteer , Gaziabad
2. Avinash Bahadur Verma 2007: Kala evam Takaneek : Prakash Book Depot, Bareilly
3. R D. Lata : Samarat (Lalit Kala Ke Muladhar) : New Edition Anant Publication, Jaipur
4. G.K.Agarwal 1986:Roopankan : Sanjay Publication ,Agra
5. G.K. Agarwal & Bindu Awasthi 2015: Drishya Kala Ke Muladhar avam Takaneek : Sanjay Publication ,Agra,
6. K.K Jaswani 1966: Ramlal Publication, Atmaram & Sons, Dehli,
7. Ram Chandra Shukl 1962 : Kala Ki Parakh : Karuna Art, Meerut
8. Sharma & Agarwal 2007 : Rupprad Kala Ke Muladhar : International Publication House, Meerut
9. Sharma & Shrotriya 1988 : Chitran Vidhan avam Samagri : Chhavi Prakashan,Muzaffarnagar

**Division of Marks: Examination = 80, Test and Assignment = 10+10=20**

**Paper No -102      Practical 1:   Still Life**

Drawing from cubes cons cylindrical objects various still life objects : fruits, vegetables, drapery etc the objects should be studied in different angle and with various light effects .

Size:    Quarter Imperial  
Duration of time:    4 hour  
Medium:    Oil/Water/Acrylic/Pastel  
Submission of session work:                                  5 plates, 25 sketches

**Division of Marks: Examination = 80, 5 plates + 25 sketches for submission = 10+10=20**

**Paper No -103      Practical 2:   Creative Design 2D & 3D or Rendering**

To develop the knowledge of basic structure of different objects in various angle and develop the sense of Creative arrangement of space and forms.

Size:    Quarter Imperial  
Duration of time:    4 hour  
Medium:    Oil/Water/Acrylic/Pastel  
Submission of session work:                                  5 plates, 25 sketches

**Division of Marks: Examination = 80, 5 plates + 25 sketches for submission = 10+10=20**

**INSTRUCTIONS:-**

1. Above mentioned Practical-1 and Practical-2 should be treated as two courses and Three individual periods should be allotted for each Practical. One batch should be constituted of maximum 30 students.
2. Ist paper theory should be allotted another individual periods as per norms.
3. Art material should be provided by the college for the demonstration to the Class teacher.
4. Drawing Boards should be provided for each student from the college.
5. The objects of still life, antiques and drapery should be purchased by the college for conducting classes.

## **B.A. (DRAWING & PAINTING)**

### **SECOND YEAR**

Paper No -201	Theory 1:	History of Indian Painting
Paper No -202	Practical 1:	Study of Miniature Painting
Paper No -203	Practical 2:	Portrait (Coloured)

### **Learning objective**

#### **Paper 201: Theory of Indian paintings**

1. To learn about the historical development of Indian painting.
2. To identify the characteristics of Pre historical paintings and Indus valley civilization.
3. To understand the subjective and stylistic characteristics of Cave painting.
4. Explain the mediaeval period paintings.
5. To understand the Rajasthani, Mughal and Pahari School and their different Centers or periods.
6. Explain the difference between Rajasthani, Mughal and Pahari paintings through their characteristic.

#### **Paper 202: Study of Miniature Painting**

1. To understand the basic stylistic feature of miniature painting.
2. Study and practice the line drawing.
3. To learn about the colours used in miniature paintings.
4. To understand in detail the processes of developing miniature painting.
5. Practice to copy miniature paintings in monochrome and colour.
6. To understand and apply the light and shade techniques used by old master.

#### **Paper 203: Portrait (Coloured)**

1. To understand an anatomy of human head at different angles features.
2. Practice the bust cast and features like eyes, nose, ears, lips etc.
3. To understand the head drawing via live model.
4. Practice portrait with light and shade in charcoal/pencil and monochrome.
5. To learn colouring in natural or created light through live modal.

**Paper No -201 Theory 1: History of Indian Painting**

**Unit-I Indian Painting:**

1. Pre-historic Painting and its characteristics
2. Indus Valley Civilization its art forms and characteristic
3. Joginara cave paintings

**Unit-II Detailed study of Indian Caves paintings:**

Ajanta, Bagh, Sittanvasal, Badami, Elephanta, Ellora

**Unit-III Paintings of Medieval Period:**

Pal School, Apbhransha School, Jain School

**Unit-IV Rajasthani School of Art:**

Mewar : Mewar School, Marwar : Kishangarh School, Haroti : Boondi School, Kota School, Dundhar : Jaipur School

**Mughal School of Art:**

Akbar period, Jahanghir period, Shahjahan period

**Pahari School of Art:**

Basholi School, Kangra School, Grwal School

**Division of Marks: Examination = 80, Test and Assignment = 10+10=20**

**Suggested Readings:**

1. Verma Avinash Bahadur 1999 : Bhartiya Chitrakala Ka Itihaas : Prakash Book Depot, Bareilly
2. Mamta Chaturvedi 2013 : Samkaleen Bhartiya Kala : Rajsthan Hindi Granth Akademy, Jaipur
3. G,K,Agarwal 1968 : Kala or Kalam : Ashoka Prakashan, Aligarh
4. Gopal Madhukar Chaturvedi 1999 : Bhartiya Chitrakala Ka Itihaas : Sahitya Sangam Prakashan, Allahaba
5. L.C. Sharma 2014: Indian Painting : Krishana Publication,Meerut,
6. P.N. Maago 2012 : Samkaleen Bhartiya Chitrakala : National Book Trust of India, New Dehli
7. Percy brown 1918 : Indian Painting : London : Oxford University Press, Newyork

**Paper No -202 Practical 1: Study of Miniature Painting**

Study the miniature paintings of Rajasthani, Mughal, Pahadi in monochrome and colour Detailed study off line form and colour Application.

Size:	Quarter Imperial
Duration of time:	6 hour
Medium:	Oil/Watex/Acrylic/Pastel
Submission of session work:	5 plates, 25 sketches

**Division of Marks: Examination = 80, 3 plates Monochromatic 2 plate Coloured for submission = 10+10=20**



**Paper No -203**

**Practical 2: Portrait**

Study of human head in pencil monochrome based on an anatomy of head in different angles, Study of nose, eyes, lips, ears etc.

Size:	Quarter Imperial
Duration of time:	4 hour
Medium:	Oil/Water/Acrylic/Pastel
Submission of session work:	5 plates, 20 sketches

**Division of Marks: Examination = 80, 3 plates Pencil/Charcoal 2 plate Coloured for submission = 10+10=20**

**INSTRUCTIONS:-**

1. Above mentioned Practical-1 and Practical-2 should be treated as two courses and Three individual periods should be allotted for each Practical. One batch should be constituted of maximum 30 students.
2. Ist paper theory should be allotted another individual periods as per norms.
3. Art material should be provided by the college for the demonstration to the Class teacher.
4. Drawing Boards should be provided for each student from the college.
5. Cast of human body part, bust and drapery should be purchased by the college for conducting the class of B.A. part II
6. Coloured Photograph of Old Masters/Miniature Paintings should be provided from the college for practical Examination

## **B.A. (DRAWING & PAINTING)**

### **THIRD YEAR**

Paper No -301	Theory 1:	Modern Indian Painting (18 <sup>th</sup> Century upto Present Age)
Paper No -302	Practical 1:	Pictorial Composition (Minimum 2 Human Figures are Compulsory)
Paper No -303	Practical 2:	Landscape from Site

### **Learning objective**

#### **Paper 301** modern Indian painting

1. To understand the art of company School and its characteristic.
2. To learn about the painting of Raja Ravi Verma.
3. To understand the revival of Art and the work of Bengal School Artists.
4. To explore the New Trends of Indian paintings and the work of artists.
5. Study post-independence art of India with the detailed learning of major art groups.
6. To learn about the contemporary Indian artists and their art-works.

#### **Paper 302**

1. To study the human anatomy and joint movements.
2. To learn and practice an ideal proportion of human body.
3. Practice the arrangement of two human figures on paper.
4. Understand and learn how to create the theme for the drawing.
5. Learn to create composition with the help of colour through lines.
6. Learn to paint the composition applying the principle of colour tones.

#### **Paper 303**

1. Study nature for instance tree rocks mountains bird animal etc.
2. To learn about the principles of perspective.
3. Learn how to create a landscape by applying observation.
4. Learn to paint the landscape in monochrome applying various tones.
5. Learn how to apply the colour of nature.
6. Learn and practice different weather and time of the day.

Paper No -301

Theory 1: Modern Indian Painting

(18<sup>th</sup> Century upto Present Age)

Unit-I

Company School: Patna  
Raja Ravi Varma  
Bengal School/Renaissance period: Abanindra Nath Tagore  
Asit Kumar Haldar, Nandalal Bose, Kshitindra Nath, Majumdar

Unit-II

New trend in modern Indian paintings:  
Jamini Roy, Rabindranath Tagore, Gaganendra Nath Tagore, Amrita Sher Gill

Unit-III

- Indian art after independence
- **Progressive Art Group:** Francis Newton Souza, Syed Haider Raza, Krishna Hawel Aara, Maqbool Fida Husain.
  - **Delhi Shilpi Chakra:** B.C. Sanyal, Satish Gujral, Ram Kumar, K. S. Kulkarni
  - **Calcutta group:** Subodh Tagore, Gopal Ghosh, Paritosh Sen, Pradosh Das Gupta
  - **Group 1980:** Gulam Mohammed Sheikh, Jay Swaminathan, Jairam Patel Amba Das

Unit-IV

Contemporary Indian artists: Anjolie Ela Menan, B. Prabha, Bupen Khakkar, K.G. Subramaniam

Division of Marks: Examination = 80, Test/Assignment and Seminar= 10+10=20

**Suggested Readings:**

1. Avinash Bahadur Verma 1999 : Bhartiya Chitrakala Kaitihaas : Prakash Book Depot, Bareilly
2. Mamta Chaturvedi 2013 : Samkaleen Bhartiya Kala : Rajasthan Hindi Granth Akademy, Jaipur
3. G.K. Agarwal 1986: Kala or Kalam : Ashoka Publication, Aligarh
4. Gopal Madhukar Chaturvedi 1999 : Bhartiya Chitrakala Ka Itihaas : Sahitya Sangam Prakashan, Allahabad
5. L.C. Sharma 2014 : Indian Painting : Krishana Publication, Meerut
6. P.N. Maago 2012: Samkaleen Bhartiya Chitrakala : National Book Trust of India, New Dehli,
7. Percy Brown 1918 : Indian Painting : London : Oxford University Press, Newyork
8. Rai Krashan Das 2007 : Bharat Ki Chitrakala : Bhartiya Bhandar, Darpan Granthmala
9. Vachaspati Gairola 2009: Bhartiya Chitrakala Ka Sankshipt Parichaya : Lokbharti Prakashan, Allahabad

Paper No -302

Practical 1: Pictorial Composition

(Minimum 2 Human Figures are Compulsory)

Study of an anatomy of human figure. Detailed study of composing 2 figures according to the theme.

Size: Quarter Imperial  
Duration of time: 6 hour  
Medium: Oil/Water/Acrylic/Pastel  
Submission of session work: 5 plates, 25 sketches

**Division of Marks: Examination = 80, 5 plates + 25 sketches for submission = 10+10=20**

**Paper No -303                      Practical 2:    Landscape from Site**

Study of landscape Showing perspective effects of light and atmosphere.

Size: Quarter Imperial  
Duration of time: 6 hour  
Medium: Oil/Water/Acrylic/Pastel  
Submission of session work: 5 plates, 25 sketches

**Division of Marks: Examination = 80, 2 plates Monochromatic and 3 coloured + 25sketches for submission = 10+10=20**

**INSTRUCTIONS**

1. Above mentioned Practical-1 and Practical-2 should be treated as two courses and Three individual periods should be allotted for each Practical. One batch should be constituted of maximum 30 students.
2. Ist paper theory should be allotted another individual periods as per norms.
3. Art material should be provided by the college for the demonstration to the Class teacher.
4. Drawing Boards should be provided for each student from the college.

**Note:- For B.A. Part I, II, III separate examiners should be appointed for practical examinations.**

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वनस्पति विज्ञान अखण्ड विद्यापीठ

UG Common Minimum Curriculum 2019-BOTANY

Submitted to Uttar Pradesh Higher Service Commission

**UNDERGRADUATE LEVEL**

**PROPOSED COMMON MINIMUM CURRICULUM**

**BOTANY**

**2019**

Department of Botany  
University of Lucknow  
Lucknow

## UNDERGRADUATE LEVEL-COMMON MINIMUM CURRICULUM - BOTANY

**Proposed Course Structure (2019)**

YEAR	PAPER	PAPER TITLE	MAXIMUM MARKS
I	I	Diversity of Plant Viruses, Bacteria & Fungi	100
	II	Diversity of Algae, Lichens & Bryophytes	100
	III	Diversity of Pteridophytes, Gymnosperms & Elementary Palaeobotany	100
	PRACTICAL	Based on Papers I, II, III	100
II	I	Diversity of Angiosperms: Systematics, Development & Reproduction	100
	II	Cytology, Genetics, Evolution & Ecology	100
	III	Plant Physiology & Biochemistry	100
	PRACTICAL	Based on Papers I, II, III	100
III	I	Plant Resource Utilization, Palynology & Biostatistics	100
	II	Molecular biology & Biotechnology	100
	III	Environmental Botany & Plant Pathology	100
	PRACTICAL	Based on Papers I, II, III	100

**Marks distribution:**

**Theory: All papers of 100 maximum marks each with the following distribution of marks**

20- Internal assessment based on project work/ assignment/ activity/attendance

80- Annual examination theory paper

**Practical: Practical in all three years of 100 marks each with following distribution of marks**

20-Practical record and Viva (held during annual practical examination)

80- Assessment of identification, evaluation and experimental skills during annual practical examination.

**Proposed Syllabus for B.Sc. Botany (UG Common Minimum Curriculum 2019)****B.Sc. I: Paper – I****Diversity of Plant Viruses, Bacteria & Fungi**

M.M. 100

The course content of this paper aims to apprise the students of the differences between prokaryotes and eukaryotes. The students will be taught about the criteria and methods of classifying viruses, bacteria and fungi, along with their diversity and their importance. Knowledge about their modes of nutrition, genetic variability and means of replication, transmission and dispersal will also be imparted. Variations in the life cycle patterns and symptoms of infection on plants will also be covered in this study. They will get an overview of the importance of microbes in nature and in our lives.

**Student Learning Outcomes:** A study of this course will have the following outcomes:

1. The study of viruses, bacteria and fungi will enable the students to compare and understand the key concepts of the diverse microbial world.
2. Students will learn how viruses and sub-viral pathogens serve as important model systems in the study of the various phenomena common to life, in addition to the techniques and tools related to the study of plant viruses.
3. Students will learn the role played by bacteria in colonization of land by higher forms, and comprehend their relevance in the fields of molecular biology and biotechnology, environmental and industrial microbiology.
4. Students will understand pathogenicity of fungi and host responses, and the importance of fungi as saprobes.

**Unit-I**

Overview of cell structure and function in the prokaryotes (Bacteria) and eukaryotes (Yeast); Classification of prokaryotes based on cell structure (Archaea, Gram positive and Gram negative bacteria, Mollicutes); Nature, classification and structure (helical and icosahedral symmetry) of plant viruses; Classification, thallus organization and reproduction in fungi; Economic importance of fungi.

**Unit-II**

Symptoms (external & internal) of virus infected plants; Transmission of plant viruses; Genome organization and replication of tobacco mosaic virus; Techniques in plant virology - purification, serology and electron microscopy; Structure and replication of bacteriophage; Structure and replication of viroids.

**Unit-III**

Metabolic diversity of bacteria (phototrophy, chemolithotrophy, autotrophy, heterotrophy, nitrogen fixation, fermentation); Bacterial cell division and microbial growth; Bacterial genome and plasmids; Variability in bacteria: Mutation and genetic recombination; Microbial growth control; Bacterial culture and staining; Economic importance of bacteria.

**Unit-IV**

Characteristics and life cycles of the following fungi: Oomycota - *Albugo*, *Pythium*; Zygomycota - *Rhizopus*; Chytridiomycota - *Synchytrium*; Ascomycota - *Saccharomyces*, *Aspergillus*, *Ascobolus*; Basidiomycota - *Ustilago*, *Puccinia*, *Agaricus*; Deuteromycota - *Fusarium*.

**Suggested Readings:**

- Alexopoulos, CJ, Mims, CW., Blackwell, M., 1996, Introductory Mycology, 4<sup>th</sup> edition, Wiley India.
- Dubey, RC., Maheshwari, DK., 2013, A Textbook of Microbiology, 4<sup>th</sup> edition, S Chand
- Pelczar, MJ., Chan, ECS., Krieg, N., 2003, Microbiology, Tata McGraw Hill Education
- Tortora, GJ., Funke, BR., Case, CL., 2016, Microbiology: An Introduction, 11<sup>th</sup> edition., Pearson Education
- Vashishta BR., Sinha, AK., Kumar A., 2016, Botany for Degree Students: Fungi, S Chand
- Verma HN, 2003, Basics of Plant Virology. Oxford & IBH, New Delhi

**B.Sc. I: Paper – II**  
**Diversity of Algae, Lichens & Bryophytes**

M.M. 100

The contents of the syllabus of this paper has been designed to make the students capable of identifying and characterizing Cryptogams – Algae, Lichens and Bryophytes. It is also envisaged that the students will understand the morphological and reproductive behavior as type study has also been included. Besides, they will be made aware of the economic importance and affinities of the groups.

**Student Learning Outcomes:** After completion of the course, students will have -

1. Knowledge of features and classification of algae and lichens, economic importance of algae and significance of lichens in relation to pollution.
2. Knowledge of algal diversity and study of different genera
3. Knowledge of features, classification, affinities of Bryophytes and diversity in gametophytic and sporophytic organization of Moss and Hornwort
4. Knowledge of diversity in the gametophytic and sporophytic organization of liverworts.

**Unit-I**

General features, range of thallus organization, classification; ultrastructure of eukaryotic algal cell and cyanobacterial cell

Economic importance of algae

Lichens: classification, thallus organization, reproduction, physiology and role in environmental pollution

**Unit-II**

Characters and life cycle of:

Cyanophyta - *Microcystis*, *Oscillatoria*

Chlorophyta - *Volvox*, *Hydrodictyon*, *Oedogonium*, *Coleochaete*, *Chara*

Bacillariophyta - *Navicula*

Xanthophyta- *Vaucheria*

Phaeophyta - *Ectocarpus*

Rhodophyta – *Polysiphonia*

**Unit – III**

General characters, classification, reproduction and affinities of Bryophytes

Gametophytic and sporophytic organization of Bryophyta - *Pogonatum*; Anthocerotophyta – *Anthoceros*

**Unit – IV**

General characters of Marchantiophyta

Gametophytic and sporophytic organization of *Riccia*, *Marchantia*, *Frullania*

**Suggested Readings:**

- Gangulee, HC., Kar, AK., 1973, College Botany, Volume 2, New Central Book Agency, Delhi
- Hale, ME Jr., 1983, The biology of Lichens, Edward Arnold Ltd., London
- Lee, RE., 2008, Phycology, 4<sup>th</sup> Edition, Cambridge University Press, UK
- Pandey, SN. , Trivedi, PS., Misra SP, 2015, A Textbook of Botany Volume-II, Vikas Publishing House Pvt. Ltd., New Delhi
- Smith, GM., 1994, Manual of Phycology, Scientific Publishers, India
- Watson EV., 2015, The Structure and Life of Bryophytes, Scientific Publishers, India



**B.Sc. I: Paper - III**  
**Diversity of Pteridophytes, Gymnosperms & Elementary Palaeobotany**

M.M. 100

The contents of the syllabus of this paper target at making the students aware of the existing diversity and economic significance of Pteridophytes and Gymnosperms. It aims at educating the students about morphological, anatomical and reproductive features based on type forms. Besides, evolution of stele in Pteridophytes and basic aspects of palaeobotany have been included to prepare the students for higher studies.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of different classes of Pteridophytes along with their stelar details and seed habit
2. Complete insight of the morphological, anatomical and reproductive diversity within the group.
3. Knowledge of morphological, anatomical and reproductive diversity within Gymnosperms.
4. Understanding of the economic importance of Gymnosperms and basic knowledge of fossils

**Unit – I**

General characters, affinities, classification, and stelar system in Pteridophytes

Heterospory and seed habit

Morphology, anatomy, development, vegetative and reproductive parts in Psilopsida – *Rhynia*;  
 Lycopsida - *Lycopodium*, *Selaginella*.

**Unit – II**

Morphology, anatomy, development, vegetative and reproductive parts in Sphenopsida - *Equisetum*;  
 Filicopsida - *Adiantum*, *Nephrolepis*, *Marsilea*.

**Unit – III**

General characters, affinities, classification, and economic importance of Gymnosperms

Morphology, anatomy, development, vegetative and reproductive parts in Cycadales – *Cycas*

**Unit –IV**

Morphology, anatomy, development, vegetative and reproductive parts in Coniferales - *Pinus*;  
 Ephedrales - *Ephedra*.

Elementary Palaeobotany: General account, types of fossils, methods of fossilization and geological time scale.

**Suggested Readings:**

- Gangulee, HC., Kar, AK., 1973, College Botany, Volume 2, New Central Book Agency, Delhi.
- Pandey, SN. , Trivedi, PS., Misra SP., 2015, A Textbook of Botany Volume-II, Vikas Publishing House Pvt. Ltd., New Delhi
- Sambamurthy, AVSS., 2006, A textbook of Bryophytes, Pteridophytes, Gymnosperm and Palaeobotany, IK Intl Publishing, Delhi.
- Sharma, OP., 2012, Pteridophyta, Tata Mc Graw-Hill Publishing Co Ltd., Delhi.
- Sporne, KR., 2015, The Morphology of Gymnosperms, Scientific Publishers, India

**B.Sc. II: Paper I**  
**Diversity of Angiosperms: Systematics, Development & Reproduction**

M.M. 100

The framing of the syllabus of Paper I for B.Sc. II has been done to apprise the students of the large taxonomical and reproductive diversity amongst seed plants. They would also be made aware of the different classifications, assisted by systematic study of representative families. It is also aimed to impart knowledge about meristems, growth, differentiation and development along with the reproductive behavior.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of Angiosperm systematics through classifications, herbaria, botanical gardens and hotspots.
2. Complete insight of the taxonomic & phylogenetic diversity and economic importance of representative families.
3. Clear concept of meristems, tissues, their growth and differentiation, and development of organs.
4. Understanding of the reproductive system in Angiosperms.

**Unit - I**

Principles of classification, nomenclature; Comparative study of different classifications viz. Linnaeus, Bentham & Hooker, Engler & Prantl, Hutchinson, and Cronquist. Herbarium, Botanic Gardens, Hot spots.

**Unit - II**

Taxonomic study of following families and their economic importance:

**Dicots:** Acanthaceae, Amaranthaceae, Apiaceae, Apocynaceae, Asteraceae, Bombacaceae, Brassicaceae, Caesalpinaceae, Convolvulaceae, Cuscutaceae, Cucurbitaceae, Euphorbiaceae, Lamiaceae, Malvaceae, Mimosaceae, Myrtaceae, Nelumbonaceae, Nymphaeaceae, Papilionaceae, Ranunculaceae, Rosaceae, Rubiaceae, Rutaceae, Scrophulariaceae, Solanaceae.

**Monocots:** Arecaceae, Cyperaceae, Liliaceae and Poaceae

**Unit - III**

Meristems: Classification, Root Apical Meristem, Shoot Apical Meristem; Growth and differentiation of Root, Shoot and Leaf; Cambium – Tissue differentiation, secondary growth and its anomalies; General morphology and development of the floral organs; Root-shoot transition, Plant modifications; Phylloclade, Phyllode and Cladode.

**Unit - IV**

Structure and development of male and female gametophytes – microsporogenesis, microgametogenesis, megasporogenesis, and megagametogenesis; Embryosac - types and development; Double fertilization; Endosperm development and its morphological nature; Embryogeny; Apomixis and Polyembryony.

**Suggested readings:**

- Bhojwani, SS., Bhatnagar, SP., Dantu, PK, 2015, The Embryology of Angiosperms, Vikas Publishing House Pvt Ltd., Delhi
- Eames, AJ., 2015, Morphology of Angiosperms, Scientific Publishers, India
- Gangulee, HC., Das, KS., Datta, C., 2011, College Botany, Volume I, New Central Book Agency, Delhi
- Lawrence, GHM., 2017, Taxonomy of Vascular Plants, Scientific Publishers, India
- Singh Gurcharan 2012, Plant Systematics, Theory & Practice. Oxford IBH Publishing Co. Pvt. Ltd. New Delhi
- Singh, V., Pande, P.C., Jain, D.K., 2012, A text Book of Botany: Angiosperms. Rastogi Publication, Meerut
- Verma, BK., 2011, Introduction to taxonomy of Angiosperms, PHI Learning, New Delhi

**B.Sc. II: Paper - II**  
**Cytology, Genetics, Evolution & Ecology**

M.M. 100

Course content of this paper has been formulated to introduce the concept of cell, cell organelles and chromosomes to the students. They will be educated about the hereditary nature of the chromosomes and patterns of inheritance followed for different characters. It is also aimed to make the students aware of the possible changes in existing germplasm through aberrations, ploidy changes and mutation. Besides, they will be made to understand concept of ecological diversity, succession and ecosystem.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of structure and function of cell and its organelles, chromosome organization and cell division.
2. Understanding of the phenomenon of inheritance along with deviations and sex determination.
3. Knowledge of types, occurrence and mechanism of genomic alterations and evolution.
4. Understanding of ecological diversity, plant succession and ecosystem.

**Unit – I**

Cell structure:

Cell organelles-Basic organization and function of nucleus, chloroplast, mitochondria, endomembrane system, peroxisomes and lysosomes

Chromosome composition and organization- nucleosome and solenoid model

Salivary gland, lampbrush and B chromosomes.

Cell division – mitosis, meiosis and their significance

**Unit- II**

Principles of inheritance, incomplete dominance, co-dominance

Gene interaction- Complementary gene interaction, Epistasis, Duplicate gene interaction

Linkage, Linkage map (basic concept)

Extrachromosomal Inheritance-Variation in Four o'clock plant; Shell coiling in snail; Kappa particles in *Paramecium*.

Sex determination.

**Unit-III**

Structural variation in chromosomes - Deletion, Duplication, Inversion, Translocation,

Variations in chromosome number- different types of euploids and aneuploids and their evolutionary importance

Mutation- spontaneous, induced mutations, molecular mechanism and evolutionary significance

Evidences and theories of evolution.

**Unit – IV**

Ecology, relation with other disciplines.

Plant types: Hydrophytes - *Hydrilla*, *Eichhorina*, *Nymphaea*, *Typha*.

Xerophytes – *Nerium*, *Casuarina*, *Saccharum*, *Begonia*.

Plant succession – xeroseres, hydroseres.

Ecosystems - concept, basic types, components, & functioning.

**Suggested readings**

- Gangulee, HC., Das, KS., Datta, C., 2011, College Botany, Volume 1, New Central Book Agency, Delhi
- Gardner, EJ., Simmons MJ., Snustad, DP., 2006, Principles of Genetics, 8<sup>th</sup> edition, Wiley India
- Gupta, PK., 2018, Cytology, Genetics and Evolution, Rastogi Publications.
- Klug, WS., Cummings, MR., Spencer, CA., Palladino, MA., 2016, Genetics, 10<sup>th</sup> edition, Pearson India
- Odum, E., Barrett, GW., 2004, Fundamentals of Ecology, 5<sup>th</sup> edition, Cengage Learning India
- Sharma, PD., 2017, Ecology and Environment, Rastogi Publications.

**B.Sc. II: Paper - III**  
**Plant Physiology & Biochemistry**

M.M. 100

The content of the syllabus for this paper targets at making the students aware of the various physiological processes taking place in the plants. They will be taught phenomenon of ascent of sap, transpiration, mineral nutrient uptake and requirement, photosynthesis, respiration, nitrogen metabolism, growth and movement in a simple and systematic manner so that they can comprehend the complex topics. Besides, it is aimed to communicate the roles of enzymes and phytohormones to the students.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of different aspects of plant water relations, culture methods and mineral nutrients.
2. Complete insight of plant enzymes and various perspectives of photosynthesis.
3. Knowledge of major macromolecules, respiratory pathways and fatty acid metabolism.
4. Understanding of general aspects of nitrogen metabolism, growth, phytohormones and movement in plants.

**Unit - I**

Plant - water relations: properties of water and its role in plants; water movement – diffusion and osmosis, water potential and chemical potential, absorption; ascent of sap; transpiration – significance and factors affecting it; mechanism of stomatal opening and closing.

Mineral nutrition: Brief history and essentiality of elements; sand and water culture; macro- and micronutrients, their roles and deficiency symptoms; mechanism of ion uptake and translocation-carriers, channels and pumps.

**Unit – II**

Discovery, classification, characteristics and mode of action of enzymes.

Photosynthesis: Photosynthetic pigments; photochemical reactions- reaction centers, O<sub>2</sub> evolution, photophosphorylation; CO<sub>2</sub> fixation - C<sub>3</sub> and C<sub>4</sub> carbon cycle, CAM plants and photorespiration.

**Unit - III**

Classification and structure of carbohydrates (monosaccharides and disaccharides) and lipids.

Respiration: aerobic and anaerobic respiration; respiratory pathways- glycolysis, Krebs cycle, electron transport, oxidative phosphorylation, pentose phosphate pathway, cyanide resistant respiration. Fatty acid synthesis and its oxidation.

**Unit – IV**

Nitrogen metabolism: nitrogen cycle, atmospheric nitrogen fixation, nitrogen assimilation, structure of amino acids.

Growth: general aspects of growth, seed germination and dormancy; flowering, photoperiodism and vernalization; parthenocarpy, abscission and senescence

Discovery, physiological role and applications of phytohormones –auxins, kinetin, gibberellins, abscisic acid and ethylene

Plant movement- nastic and tropic.

**Suggested Readings:**

- Devlin, R.M., 2017, Devlin's Outline of Plant Physiology, Scientific International Pvt. Ltd., New Delhi
- Gangulee, H.C., Das, K.S., Datta, C., 2011, College Botany, Volume 1, New Central Book Agency, Delhi
- Nautiyal, B.P., Majumdar, P.K., 2017, Principles of Plant Physiology, Scientific International Pvt. Ltd., New Delhi
- Salisbury, F.B., Ross, C.W., 2005, Plant Physiology, 3rd edition, CBS Publishers and Distributors
- Verma, S.K., Verma, M., 2007, A Textbook of Plant Physiology, Biochemistry and Biotechnology, S. Chand and Co., New Delhi

**B.Sc. III: Paper I**  
**Plant Resource Utilization, Palynology & Biostatistics**

M.M. 100

The contents of this paper aim at making the students aware of the large amount of plant resources that are used by them on a daily basis. It is aimed at imparting knowledge to them about the centres of origin, breeding practices, conservation methods and the uses of various crop plants. Besides, the students will also be given an insight of pollen structure and different biostatistical methods.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of centres of diversity, origin, breeding and uses of crop plants.
2. Complete insight of economically important plants.
3. Understanding of methods of conservation of plant resources.
4. Basic knowledge of pollen structure and behavior and biostatistical methods.

**Unit- I**

Centres of diversity of plants,  
Origin of crop plants, domestication and introduction of crop plants.  
Cultivation, production and uses of - wheat, rice, legumes, sugarcane

**Unit-II**

A general account of plants yielding oils, spices, beverages.  
An account of major fiber, medicinal and petro plants of India.

**Unit-III**

Conservation of plant resources for agriculture and forestry.  
*In situ* conservation; biosphere reserves, wetlands, mangroves.  
*Exsitu* conservation; botanical gardens, field gene banks, seed banks, cryobanks.

**Unit-IV**

An introductory knowledge to palynology, morphology, viability and germination of pollen.  
Classification of data, mean, median and mode, standard deviation, standard error, variance, co-relation,  $X^2$  test.

**Suggested Readings**

- Chiras, DD., Reganold, JP., 2009, Natural Resource Conservation: Management for a Sustainable Future, 10<sup>th</sup> edition, Pearson
- Daniel, WW., Cross, CL., 2014, Biostatistics: Basic Concepts and Methodology for the Health Sciences, Wiley Student Edition.
- Erdtman, G., 2007, An Introduction to Pollen Analysis, Read Books
- Kochhar, SL., 2012, Economic Botany in the Tropics, 4<sup>th</sup> edition, Macmillan India
- Mahajan, BK., 2010, Methods in Biostatistics for Medical Students and Research Workers, 7<sup>th</sup> edition, Jaypee Publishers
- Trivedi, PC., Sharma, N., 2010, Plant Resource Utilization and Conservation, Pointer Publishers, Jaipur

**B.Sc.III: Paper – II**  
**Molecular Biology & Biotechnology**

M.M. 100

The course content of Paper II for B.Sc. III aims at introducing biochemical and molecular events taking place within cells to the students. They will be made aware of the structure, function and replication of nucleic acids, structure and properties of polysaccharides, proteins, vitamins and enzymes. Knowledge about genetic code, expression of genes and also regulation will be imparted to the students. They will also be apprised with various aspects of biotechnology, with emphasis on recombinant DNA technology, transgenics and plant tissue culture.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Understanding the biochemical nature of nucleic acids and their replication and role in living systems
2. Complete insight of structure and function of carbohydrates, proteins, vitamins, enzymes and energy rich compounds.
3. Knowledge of genetic code, gene expression and regulation.
4. Understanding of general aspects of biotechnology, recombinant DNA technology and tissue culture.

**Unit – I**

Nucleic acid as genetic material ; Structure and properties of nucleic acids and their functions  
Replication of DNA in Prokaryotes and Eukaryotes  
Transcription in Prokaryotes and Eukaryotes  
Processing and modification of RNA, Structure of t RNA  
Cell cycle

**Unit – II**

Structure and functions of polysaccharides (storage –starch, inulin; structural- cellulose, pectin, chitin, aminoglycans, peptidoglycans, glycoprotein, glycolipids),  
Structure and properties of proteins: peptide bonds, protein structure - primary, secondary, tertiary and quaternary; biological roles of proteins.  
Vitamins and their functions.  
Enzyme active sites, specificity, mechanisms, enzyme kinetics and factors affecting enzyme activity.  
Bioenergetics: concept of Gibb's free energy, high energy compounds.

**Unit – III**

Central Dogma and Genetic code  
Translation- Ribosome structure and assembly in prokaryotes and eukaryotes; Various steps in protein synthesis, proteins involved in initiation, elongation and termination of polypeptides  
Regulation of Gene expression in Prokaryotes and Eukaryotes- Regulation of lactose metabolism and tryptophan synthesis in *E.coli.*; Britten Davidson approach, Transcription factors, heat shock proteins, steroids and peptide hormones in eukaryotes; Hormonal control and second messengers Ca<sup>2+</sup>, Cyclic AMP, IP3 etc.

**Unit IV**

Introduction to biotechnology ; Recombinant DNA technology  
Plant tissue culture –methods and applications  
Methods of gene transfer, relevance of transgenic plants  
Biotechnology and health care; Microbial and environmental biotechnology.

**Suggested Readings**

- Daugherty, E., 2014, Biotechnology, Scientific International Pvt. Ltd., New Delhi
- Gupta, PK., 2016. Elements of Biotechnology, 2<sup>nd</sup> edition. Rastogi Publications
- Crichton, M., 2014, Essentials of Biotechnology, Scientific International Pvt. Ltd., New Delhi
- Nelson, DL, Cox M., 2017, Lehninger Principles of Biochemistry, 7<sup>th</sup> edition, WH Freeman
- Watson, JD., 2017, Molecular Biology of the Gene, 7<sup>th</sup> edition, Pearson India Education

**B.Sc. III; Paper - III**  
**Environmental Botany & Plant Pathology**

M.M. 100

The syllabus of this paper aims to make students aware of the available mineral resources, soil types, water and energy resources and forest wealth. They will also be apprised of the existing problem of pollution and management along with information about geographical distribution of plants, biotic communities, population dynamics and natural vegetation of India. The students will also be taught the etiology of various viral, bacterial and fungal diseases and the concept of integrated disease and pest management.

**Student Learning Outcomes:** After completion of the course, the student will have-

1. Knowledge of different aspects of mineral resources, soil types, water and energy resources and forest wealth.
2. Complete insight of different types of pollution and their management.
3. Knowledge of geographical distribution of plants, biotic communities, population dynamics and natural vegetation of India.
4. Information and practical knowledge of etiology of viral, bacterial, fungal and insect-pest diseases and IPM.

**Unit – I**

Mineral resources of planet earth, conservation of mineral resources,  
Soil types, properties and various problem soils;  
Source of water, physico-chemical and biological properties of water.  
Sustainable management of water; Energy resources in India  
Forests: global forest wealth, importance of forests, deforestation.

**Unit – II**

Environmental pollution: air, water, soil, radioactive, thermal and noise pollutions, their sources, effects and control.  
Greenhouse effect, ozone depletion and acid rain; CO<sub>2</sub> enrichment and climate change.

**Unit – III**

Biodiversity and Phytogeography  
Biotic communities and populations, their characteristics and population dynamics.  
Natural vegetation of India, static and dynamic plant geography  
Basic principles governing geographical distribution of plants, endemism.

**Unit – IV**

Etiology of viral, bacterial, fungal and insect-pest diseases  
Mosaic diseases on tobacco and cucumber, yellow vein mosaic of bhindi; Citrus canker, potato scab, little leaf of brinjal; Damping off of seedlings, late blight of potato, red rot of sugarcane.  
Integrated pest disease management.

**Suggested Readings**

- Agrios, GN., 2005, Plant Pathology, 5<sup>th</sup> edition, Elsevier
- Mehrotra, RS., 2017, Plant Pathology, 3<sup>rd</sup> edition, McGraw-Hill Education
- Singh, RS., 2018, Plant Disease, 10<sup>th</sup> edition, Scientific International Pvt. Ltd., New Delhi.
- Sharma, PD., 2015, Environmental Botany and Plant Pathology, Rastogi Publications
- Wright, RT., Boorse, DF., 2014, Environmental Science: Towards a Sustainable Future, 12<sup>th</sup> edition, Pearson

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জাতীয় বিশ্ববিদ্যালয় লাবনত্ব নিংবিং

## **Proposed Three Year Degree Course in Zoology (Common Minimum Curriculum)**

This Common Minimum Curriculum for Zoology has been divided into nine (9) papers and related practicals. Each year there will three theory papers and one practical. Each paper contains four units. References for further readings have also been provided. Each paper will have 20% marks for Internal assessment and 80% for External/Final examination. Details for internal assessment have also been given in each paper.

### **Syllabus Outline**

#### **B.Sc. I**

**Paper I** Non Chordata

**Paper II** Biosystematics & Evolutionary Biology

**Paper III** Cell Biology & Biochemistry

#### **B.Sc. II**

**Paper I** Chordata

**Paper II** Animal Physiology & Immunology

**Paper III** Genetics and Molecular Biology

#### **B.Sc. III**

**Paper I** Developmental Biology and Biotechnology

**Paper II** Ecology and Animal Behaviour

**Paper III** Applied Zoology and Biostatistics



## B.Sc. I Year

### Paper I Non Chordata

#### Objectives

- Introduction to animal diversity
- Understanding the advancement in animal form and function in non chordates from simple to complex.

#### Syllabus

General characters & latest classification up to orders of all groups following Ruppert, Fox and Barnes (2004).

The habits, morphology, anatomy, life cycle and physiology of representative animal given in each group

#### Unit-I

##### Topic

##### No. of Lectures

##### Protista

*Paramecium*

3

Nutrition in Protozoa

1

##### Porifera

*Sycon*

2

Canal system in Porifera

1

##### Cnidaria

*Obelia*

2

Polymorphism in Cnidaria

1

#### Unit-II

##### Ctenophora

Salient features

1

##### Platyhelminthes

*Fasciola*

3

Parasitic Adaptations and Pathogenicity in Platyhelminthes

2

##### Aschelminthes

*Wuchereria*

2

Parasitic Adaptations and Pathogenicity in Aschelminthes

2

#### Unit-III

##### Annelida

*Nereis*

3

Metamerism in Annelida

1

##### Arthropoda

*Palaemon*

4

Mouth parts of insects

2

## Unit-IV

### Mollusca

*Pila*

4

Torsion in Gastropoda

Pearl formation

### Echinodermata

*Pentaceros/ Asterias*

3

Larval forms of Echinodermata

2

### Hemichordata

General characters and affinities

1

### Suggested Reading

1. Barnes R. S. K., Calow P. P., Olive P. J. W., Golding D. W., Spicer J. I. (2009). *The Invertebrates: A Synthesis*. Wiley Blackwell
2. Brusca (2016). *Invertebrates*. Sinauer
3. Kotpal R.L. (2018) *Modern Text Book of Zoology: Invertebrates*. Rastogi Publications
4. Nigam H.C. (2013) *Biology of non-chordates*. Vishal Publishing Co
5. Pechenik Jan (2014). *Biology of the invertebrates*. McGraw Hil
6. Ruppert, EE, Fox R.S., Barnes R.D. (2004) *Invertebrate Zoology*, 7th Edition. Cengage Learning
7. Thomas Jeffrey Parker, William A. Haswell (2016). *Parker & Haswell's A Textbook of Zoology Volume 1*. WENTWORTH Press

### For Internal Assessment

1. Project (500 words) highlighting recent, unique and interesting features of any one phylum/ group.
2. Presentation highlighting recent, unique and interesting features of any one phylum/ group.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question
7. Collection of Animals

### Practical Syllabus for Non Chordata

#### Protista

Observation and identification of locally found fresh water common protists, with special reference to *Amoeba*, *Arcella*, *Euglena*, *Paramecium*, *Vorticella*.

Demonstration of trichocyst discharge and cyclosis in *Paramecium*

Study of prepared slides

#### Porifera

Study of prepared slides and specimens

Glycerine preparation of spicules and spongin fibres

Permanent preparation of gemmules

**Cnidaria**

Study of prepared slides and specimens  
Permanent preparation of *Hydra* and *Obelia*

**Platyhelminthes**

Study of prepared slides and specimens

**Aschelminthes**

Study of prepared slides and specimens

**Annelida**

Study of prepared slides and specimens  
Permanent preparation of parapodium of *Nereis*, ovary and septal nephridia of *Pheretima*  
Glycerine preparation of setae *in situ* from *Pheretima*  
Take out nerve ring of *Pheretima*

**Arthropoda**

Study of prepared slides and specimens  
Glycerine preparation of mouth parts of housefly and mosquito (both sexes)  
Permanent preparation of statocysts.  
*Palaemon*: Appendages, Hastate plate, Dissection of Central nervous system

**Mollusca**

Study of prepared slides and specimens  
Permanent preparations of gill lamella of *Lamellidens* and *Pila*.  
*Pila*: Dissection of Central nervous system

**Echinodermata**

Study of prepared slides and specimens

**Hemichordata**

Study of prepared slides and specimens

## Paper II Biosystematics & Evolutionary Biology

### Objectives

To understand

- Rules and methods of identification and classification of animals
- Origin, diversification and modification of life
- Process of evolution

### Syllabus

#### Unit I

Taxonomy, Classification with relation to systematics	2
ICZN (Concept)	2
Concept of species	2
Artificial and Natural Classification: Key characters, Phenetics & Phylogeny	4

#### Unit II

Zoogeographical Realms	3
Zoogeographical distribution of vertebrates	4
Dispersal of animals	1
Continental Drift	1
Wallace and Weber's line	1

#### Unit III

Origin of Life	1
Historical Review of Evolutionary concept: Lamarckism, Darwinism (Natural, Sexual and Artificial Selection)	2
Processes of Evolution according to Modern Synthetic theory	4
Patterns of Evolution (Divergence, Convergence, Parallel and Coevolution)	3

#### Unit IV

Microevolution and Macroevolution	3
Speciation	2
Population Genetics (Hardy Weinberg Law)	2
Genetic Death	1
Extinction	2
Bioinvasion	

### Suggested Reading

1. Brown, T.A. Genomes 4. 4th Edition. Garland Science
2. Darlington P.J. *The Geographical Distribution of Animals*, R.E. Krieger Pub. Co
3. Darwin, Charles (2003). *The Origin of Species: 150th Anniversary Edition*
4. Dawkins, R. (1996). *The blind watchmaker: Why the evidence of evolution reveals a universe without design*. WW Norton & Company
5. Dawkins, Richard. "The selfish gene: with a new introduction by the author." UK: Oxford University Press.
6. Futuyma, Douglas J. and Kirkpatrick Mark. *Evolution (4th Edition)* Sinauer

7. Gardner, E.J., Simmons, M.J., Snustad, D.P. (2008). *Principles of Genetics*. VIII Edition. Wiley India
8. Hall B.K. and Hallgrimsson B. (2008). *Strickberger's Evolution*. IV Edition. Jones and Bartlett Publishers Inc.
9. Huxley Julian. *Evolution: The Modern Synthesis*. Harper and Brothers
10. Kapoor: *Theory and Practicals of Animal Taxonomy* (1988, Oxford & IBH)
11. Krebs et al. *Lewin's GENES XII*, Twelfth Edition. Jones and Bartlett Learning
12. Mayer & Ashlock: *Principles of Systematic Zoology* (2nd Edition, McGraw Hill)
13. Simpson: *Principles of Animal Taxonomy* (1962, Oxford)
14. Veer Bala Rastogi (2017) *Organic Evolution*. Med Tech

### **For Internal Assessment**

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question

### **Practical for Biosystematics & Evolutionary Biology**

- Study of fossils from models/ pictures
- Study of homology and analogy from suitable specimens
- Serial homology in appendages of *Palaemon*
- Analogy and homology (wings of birds and insects, forelimbs of bat and rabbit)
- Adaptive modifications in feet of birds and mouth parts of insects (from slides)

## Paper III Cell Biology & Biochemistry

### Objectives

To develop understanding about

- Basic structure and function of cell and its organelles
- Cellular organization
- Basic concepts of cell cycle, cytoskeletal elements and cancer regulation
- Structure and function of biomolecules and enzymes
- Metabolism of biomolecules

### Syllabus

#### Unit-I

Structural organization and functions of

Plasma membrane	2
Mitochondria	2
Nucleus	2
Endoplasmic reticulum	2
Golgi Complex and Lysosomes	2

#### Unit-II

Cytoskeleton	3
Cell Cycle	2
Mitosis and Meiosis	5

#### Unit-III

<b>Carbohydrates:</b> Monosaccharides, Disaccharides and Polysaccharides, Glycolysis, Krebs cycle, Electron transport chain, Glycogenolysis, gluconeogenesis	7
<b>Lipids :</b> Structural and Functional classification	3

#### Unit-IV

<b>Proteins:</b> Aminoacids, Peptide Bond, Primary, Secondary, Tertiary and Quaternary structure of proteins	4
<b>Enzymes :</b> Cofactors, Prosthetic group, Coenzymes Isozymes, Mechanism of Enzyme Action, Michaelis-Menten Equation	6

### Suggested Reading

1. Boyer: Concepts in Biochemistry (3rd ed. 2006, Brooks/Cole)
2. Conn E., Stumpf P. (2009) Outlines Of Biochemistry, 5th edition, John Wiley & Son
3. Cooper, G.M. and Hausman, R.E. (2009). *The Cell: A Molecular Approach*. V Edition ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA
4. De Robertis, E.D.P. and De Robertis, E.M.F. (2006). *Cell and Molecular Biology*. VIII Edition. Lippincott Williams and Wilkins, Philadelphia
5. Karp, G. and Patton, J.G., 2013. Cell and molecular biology. John Wiley and Sons. Inc
6. Lehninger, Nelson & Cox: Principles of Biochemistry (4th ed, 2007, Worth)
7. Murray *et al*: Harper's Biochemistry (25th ed. 2000, Appleton & Lange)
8. Stryer: Biochemistry (5th ed. 2001, Freeman)

### **For Internal Assessment**

1. Project (500 words) highlighting recent, unique and interesting features.
2. Presentation highlighting recent, unique and interesting features.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question

### **Practical for Paper Cell Biology & Biochemistry**

- Preparation of temporary stained squash of onion root tip to study various stages of mitosis
- Study of permanent slides of meiosis
- Staining of cheek epithelial cells using methylene blue
- Qualitative tests for presence of glucose, acetone, amino acids and albumin.
- Preparation of bead and stick models of amino acids and dipeptides
- Action of salivary amylase under optimum conditions.
- Effect of pH, and temperature on the action of salivary amylase
- Demonstration of paper chromatography
- Detailed description of Paper chromatograph and pH Meter

## B.Sc. II Year

### Paper I Chordata

#### Objectives

The paper helps to understand:

- Animal diversity
- Animal identification
- Evolutionary advancement in animal form and function in chordates

#### Syllabus

##### Unit I

General Characteristics and Classification of Chordata (upto Order) 3

##### Urochordata

*Herdmania* 1

Retrogressive metamorphosis 1

##### Cephalochordata

*Amphioxus* (Morphology & Anatomy) 1

##### Agnatha

General features of *Petromyzon* and *Myxine* 1

##### Pisces

*Scoliodon* (Morphology & Anatomy) 3

##### Unit II

##### Amphibia

Parental Care, Neoteny, Paedogenesis 1

##### Reptilia

Venomous & Non venomous snakes of India & their identification 1

*Sphenodon* and Dinosaurs 1

##### Aves

Beak modifications 1

Feathers 1

Flight mechanism in Birds 1

*Archaeopteryx* 1

##### Mammalia

Egg laying mammals 1

Marsupials 1

Dentition in Mammals 1

##### Unit III

Comparative Study of Integument System 2



Digestive System	2
Respiratory System	2
Circulatory System	2
Urinogenital System	2

#### **Unit IV**

Comparative study of Histology	2
Nervous system	2
Sense organs	3
Endoskeleton	3

#### **Suggested Reading**

1. Eroschenko, Victor P. (2008). diFiore's Atlas of Histology with Functional correlations. XII Edition. Lippincott W. & Wilkins
2. Kenneth V. Kardong (2015). Vertebrates: Comparative Anatomy, Function, Evolution. McGraw Hill
3. Kotpal R.L. (2018) Modern Text Book of Zoology: Vertebrates. Rastogi Publications
4. Nigam H.C. (2017) Biology of Chordates. Vishal Publishing Co
5. Thomas Jeffrey Parker, William A. Haswell (2016) Parker & Haswell's A Textbook of Zoology Volume 2. WENTWORTH Press
6. Young, J. Z. (2004). The Life of Vertebrates. III Edition. Oxford University Press

#### **For Internal Assessment**

1. Project (500 words) highlighting recent, unique and interesting features.
2. Presentation highlighting recent, unique and interesting features.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question
7. Collection of Animals
8. Outreach activities promoting dissolution of superstitions associated with animals
9. Photography, identification and listing of local fauna

#### **Practical for Paper Chordata**

##### **Protochordata**

Study of prepared slides and specimens

##### **Cyclostomata**

Study of prepared slides and specimens

##### **Pisces**

Study of prepared slides and specimens

Permanent preparation of scales

##### *Labeo rohita*

Afferent branchial system

Efferent branchial system

V, VII, IX and X cranial nerves and their branches

Webberian ossicles

Air bladder

**Amphibia**

Study of prepared slides and specimens

**Reptilia**

Study of prepared slides and specimens

Study of carapace and plastron

**Aves**

Study of prepared slides and specimens

Beak modifications, feathers modifications

**Mammalia**

Study of prepared slides and specimens

Comparative histology of Amphibia and Mammalia

Comparative endoskeleton of Reptilia, Aves and Mammalia.

## **Paper II Animal Physiology & Immunology** (with special reference to mammals)

### **Objectives**

The paper aims to develop understanding of

- Physiology and immunology of organisms
- Basic comparative physiology
- Maintenance of internal steady state
- Acquiring and disposing of nutrients
- Detection and response to changes in their environments
- Evolution of physiological mechanisms in vertebrates
- Physiological and immunological disorders

### **Syllabus**

#### **Unit I**

##### **Physiology of Nutrition and Digestion**

Mechanical & Chemical Digestion of Food 2

Absorption of Nutrients 1

##### **Physiology of Respiration**

Breathing, Gaseous Exchange & Transport 2

Respiratory Volumes and Capacities 1

##### **Physiology of Circulation**

Blood components 1

Clotting Mechanism 1

Physiology of Heart Beat & Its regulation; Blood Pressure 2

#### **Unit II**

##### **Physiology of Excretion**

Urea cycle 1

Urine Formation 2

Regulation of Water and Acid-Base Balance 1

##### **Nerve Physiology**

Nerve Impulse: Its origin and Conduction 2

Neuromuscular junctions 1

Synaptic transmission 1

Muscle contraction 2

#### **Unit III**

##### **Physiology of Reproduction**

Physiology of male and female reproduction with special emphasis on oestrous, rut and menstrual cycle 4

##### **Physiology of Endocrine System**

Endocrine glands their secretions and functions 6

#### **Unit IV**

##### **Immunology**

Cells and organs of immune system 3

Innate and acquired immunity 2

Antigens, antibodies and agglutination 2

Vaccines	1
Allergies	2

### **Suggested Reading**

1. Chatterjee C C (2016) Human Physiology Volume 1 & 2. 11th edition. CBS Publishers
2. Christopher D. Moyes, Patricia M. Schulte 2016 Principles of Animal Physiology. 3rd Edition, Pearson Education,
3. Delves Peter J., Martin Seamus J., Burton Dennis R., Roitt Ivan M. (2017). Roitt's Essential Immunology, 13th Edition. Wiley Blackwell
4. Guyton, A.C. & Hall, J.E. (2006). Textbook of Medical Physiology. XI Edition. Hercourt Asia PTE Ltd. /W.B. Saunders Company
5. Nandini Shetty (2005) Immunology Introductory Textbook. New Age International.
6. Thomas J. Kindt, Richard A. Goldsby, Barbara A. Osborne, Janis Kuby (2007) Kuby Immunology. W H Freeman
7. Tortora, G.J. & Grabowski, S. (2006). Principles of Anatomy & Physiology. XI Edition John Wiley & sons

### **For Internal Assessment**

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question
7. Outreach activities promoting awareness of physiological and immunological diseases and disorders.
8. Surveys on health indices, disease spread in family, neighbours, communities.

### **Practical for Animal Physiology & Immunology**

- Preparation of haemin crystals
- Preparation of neuron, cartilage, striated muscle and smooth muscle.
- Demonstration of use of respirometer
- Study of blood film
- Blood group demonstration
- Rh factor
- Bleeding time and clotting time
- Haemoglobinometer
- Haemocytometer
- Kymograph

## Paper III Genetics and Molecular Biology

### Objectives

The paper aims to create understanding about:

1. Genes, Inheritance and its patterns
2. Application of genetic laws
3. Genetic disorders
4. Basic molecular life processes for enhancement and sustenance of life
5. Molecular basis of life

### Unit-I

Mendelian Genetics	4
Extensions (Codominance, Incomplete Dominance, Pleiotropy, Epistasis)	
Multiple Alleles	2
Linkage and Crossing over	2
Chromosomal mapping	2

### Unit-II

Sex determination	1
Sex linked, sex influenced and sex limited inheritance	2
Chromosomal aberration (Numerical and Structural)	3
Mutations	2
Cytoplasmic Inheritance	2

### Unit-III

Organization of Genetic Material in Chromosome	1
Giant Chromosomes	1
Nucleic Acids : Watson Crick Model of DNA	1
Clover leaf model of t-RNA	1
Structure of Ribosomes	1
Genetic Code and Central Dogma	1
DNA Replication (in Prokaryotes)	4

### Unit-IV

Transcription (in Prokaryotes)	3
Translation (in Prokaryotes)	3
Gene Regulation (including <i>lac</i> and <i>trp</i> Operon Concept)	4

### Suggested Reading:

1. Brown, T.A. Genomes 4. 4th Edition. Garland Science
2. Cooper, G.M. and Hausman, R.E. (2009). *The Cell: A Molecular Approach*. V Edition. ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA
3. De Robertis, E.D.P. and De Robertis, E.M.F. (2006). *Cell and Molecular Biology*. VIII Edition. Lippincott Williams and Wilkins, Philadelphia
4. Gardner, E.J., Simmons, M.J., Snustad, D.P. (2008). *Principles of Genetics*. VIII Edition. Wiley India
5. Karp, G. (2010). *Cell and Molecular Biology: Concepts and Experiments*. VI Edition. John Wiley and Sons. Inc  
Krebs et al. Lewin's GENES XII, Twelfth Edition. Jones and Bartlett Learning

## For Internal Assessment

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question

## Practical for Paper Genetics and Molecular Biology

- Study of Polytene chromosomes from *Chironomus* / *Drosophila* larvae
- Study and interpretation of electron micrographs/ photograph showing
  - a) DNA replication
  - b) Transcription
  - c) Split genes
- Preparation of models of nitrogenous bases, nucleosides and nucleotides
- Study of mode of inheritance of the following traits by pedigree charts – attached ear lobe, widow's peak and tongue rolling.
- Probability assessment of above traits for future generations.
- Frequency of the following genetic traits in human: widow's peak, attached ear lobe, dimple in chin, hypertrichosis, colour blindness.
- Experiments demonstrating genetic laws and their exceptions
- Pedigree analysis

## B.Sc. III year

### Paper I Developmental Biology and Biotechnology

#### Objectives

To understand

- The formation and function of gametes
- The process of fertilization across organisms
- The journey from a zygote to a fully developed organism
- Use of technology for modification of biological entities for human well being
- Application of such modified cells or organisms

#### Syllabus

##### Unit I

Gametogenesis	3
Fertilization (external and internal)	2
Cleavage	1
Blastulation	1
Gastrulation	2
Fate Maps	1

##### Unit II

Chick embryo development upto primitive streak formation	3
Embryonic induction and organizers	3
Extra embryonic membranes	2
Placenta: types and physiology	2

##### Unit III

Development of scales, feathers, hairs, eye, tooth and kidney	7
Metamorphosis (insects and amphibia)	2
Modes and mechanisms of regeneration	1

##### Unit IV

Concept and scope of biotechnology	1
Recombinant DNA technology	1
Cloning Vectors for <i>E.coli</i>	1
Restriction endonucleases	1
PCR	1
Transformation techniques	2
DNA fingerprinting	1
Animal Cell culture	2

#### Suggested Reading

1. Brown, T. A. (2010). Gene cloning and DNA analysis: An introduction. Hoboken: Wiley-Blackwell
2. Carlson BM. (1988) . Patten's Foundations of Embryology. 5th ed . New York: McGraw-Hill
3. Gilbert, Scott F. and Barresi, Michael J. F.. Developmental Biology, Eleventh Edition. By . Sunderland (Massachusetts): Sinauer Associates
4. Primrose, Sandy B. and Twyman Richard (2016). Principles of Gene Manipulation and Genomics, 8th Edition. Wiley-Blackwell

### **For Internal Assessment**

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question
7. Outreach activities promoting awareness of developmental disorders
8. Projects observing metamorphosis in insects and amphibians

### **Practical for Developmental Biology and Biotechnology**

- Study of whole mounts and sections of developmental stages of frog through permanent slides: Cleavage stages, blastula, gastrula, neurula, tail-bud stage, tadpole (external and internal gill stages)
- Study of whole mounts of developmental stages of chick through permanent slides: Primitive streak (13 and 18 hours), 21, 24, 28, 33, 36, 48, 72, and 96 hours of incubation (Hamilton and Hamburger stages)
- Case studies of DNA fingerprinting



## Paper II Ecology and Animal Behaviour

### Objectives

To understand:

- Distinctions between species, populations, communities, ecosystems and biomes.
- Factors that affect population size, density, distribution, and dynamics.
- Species interactions
- Succession in a community.
- Cycling of materials and energy
- Various trophic levels and their roles in an ecosystem
- Adaptations to nature
- Effect of human activity on nature
- Interaction of animals with nature and each other
- Biological clocks

### Syllabus

#### Unit I

Ecosystem: concept, components and fundamental operations (energy flow, energy transformation, nutrient cycling)	4
Trophic levels, Food chain and food web	1
Population: Characteristics, dynamics and regulation	4
r- and k-strategies	1

#### Unit II

Ecological succession	2
Ecological niche	2
Adaptations (aquatic, volant, arboreal, cursorial, fossorial and desert)	3
Pollution (causes, consequences and control)	3

#### Unit III

Introduction to Ethology	1
Patterns of Behaviour: Stereotyped Behaviours (Orientation, Reflexes); Individual Behavioural patterns; Instinct vs. Learnt Behaviour; Associative learning, classical and operant conditioning, Habituation, Imprinting.	7
Migration of Fishes and Birds	2

#### Unit IV

Biological Rhythms: types and characteristics	2
Concept of synchronization and masking	2
Photic and non-photic Zeitgebers	2
Relevance of biological rhythms	2
SCN (Suprachiasmatic nucleus)	2

### Suggested Reading

1. Alcock John (2013). Animal Behavior: An Evolutionary Approach. Sinauer
2. Dunlap Jay. C., Jennifer. J. Loros, Patricia J. DeCoursey (ed). 2004, Chronobiology: Biological Timekeeping; Sinauer Associates, Inc. Publishers, Sunderland, MA, USA

3. Krebs, Charles J. 2009. Ecology: the experimental analysis of distribution and abundance. Pearson
4. Manning & Dawkins: An Introduction to Animal Behaviour (5th ed. 1998, Cambridge)
5. Mathur Reena (2018). Animal Behaviour. Rastogi Publications
6. Mcfarland : Animal Behaviour, Psychology, Ethology and Evolution (1985, Pitman).
7. Moore et al. 1982. The Clock that times us
8. Odum E.P. (2005) Fundamentals of Ecology. Cengage Learning India Private Limited
9. Saunders, D.S., C.G.H. Steel, X., Afopoulou (ed.)R.D. Lewis. (3rdEd) 2002 Insect Clocks Barends and Noble Inc. New York, USA
10. Sharma PD (2018). Environmental Biology and Toxicology. Rastogi Publications
11. Sharma PD (2018). Fundamentals of Ecology. Rastogi Publications
12. Smith Thomas M., Smith Robert Leo (2014) Elements of Ecology. Pearson Education

### **For Internal Assessment**

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question
7. Surveys of local ecosystems and submission of report.
8. Ethological observations in the form of photographs or video with scientific background of the behaviour observed

### **Practical for Ecology and Animal Behaviour**

- Measurement of temperature, turbidity/penetration of light, determination of pH, and Dissolved Oxygen content (Winkler's method), Chemical Oxygen Demand and free CO<sub>2</sub>
- Habituation in earthworms/mosquito larvae
- Locomotory behaviour of dipteran larvae (Housefly/blowfly/fruitfly):
  - a) Locomotion on different types of substrata (writing paper, plastic sheet and sand paper)
  - b) Effects of light intensity and light quality on the rate of locomotion

## Paper III Applied Zoology and Biostatistics

### Objectives

To understand:

- The applications of zoology in product formation and loss regulation
- The need for sustenance and conservation of wildlife
- The tools used for handling biological data

### Syllabus

#### Unit I

Vectors, disease & control: Mosquito, housefly and rats	2
Pests: Termites, gundhi bug, sugarcane leaf hopper, grain moth	4
Parasites: <i>Trypanosoma</i> , <i>Entamoeba</i> , <i>Hymenolepis</i> , <i>Dracunculus</i> , <i>Meloidogyne</i>	4

#### Unit II

Aquaculture	2
Sericulture	2
Apiculture	2
Poultry	2
Vermicomposting	2

#### Unit III

IUCN Categories; Basis of Categorization	2
Wildlife conservation acts	2
<i>In situ</i> conservation: Sacred groves, Reserve Forests, National Parks, Sanctuaries and Biosphere reserves (special emphasis on Dudhwa National Park, Kukrail Gharial Breeding Centre, Katarniaghat Wildlife Sanctuary, Bakhira Bird Sanctuary, Pilibhit Tiger Reserve )	5
<i>Ex situ</i> conservation	1

#### Unit IV

Biological Data and Sampling	2
Measures of Central Tendency	2
Measures of Dispersion	2
Kurtosis and Skewness	2
Test of Significance (Student's t-test)	2

### Suggested Readings

1. Caughley, G., and Sinclair, A.R.E. (1994). Wildlife Ecology and Management. Blackwell Science
2. Nigam H C (2014) Emerging Trends in Biology & Economic Zoology. Vishal Publishing Co
3. Shukla GS & Upadhyay VB (2017) Economic Zoology Rastogi Publications
4. Sokal, R. R., & Rohlf, F. J. (1981). Biometry: The principles and practice of statistics in biological research. San Francisco: W.H. Freeman
5. Srivastava KP and Dhaliwal GS. Textbook of Applied Entomology Volume 1 & 2. Kalyani Publishers
6. Zar JH (2010) Biostatistical Analysis. 5th Edition. Pearson

### **For Internal Assessment**

1. Project (500 words) highlighting recent advancements.
2. Presentation highlighting recent advancements.
3. Analytical MCQ based questions
4. Biological Crosswords
5. Charts
6. 500 words answer to analytical question

### **Practical for Applied Zoology**

- Tools and products of Apiculture, Sericulture, Aquaculture, Poultry, vermicomposting
- Permanent slides and specimens of vectors, pests and parasites
- Biostatistical exercise based on theory syllabus.
- Report on a visit to National Park/Biodiversity Park/Wild life sanctuary.
- Reports applications of zoology in nearby localities
- Wildlife surveys and reports in nearby localities.

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रविशंकर बिहारी एन.ए.ए.ए.ए.ए.

UGC Common Minimum Program – 2019 - Chemistry

**Submitted to**

**Uttar Pradesh Higher Education Commission**

**Under Graduate**

**Proposed Common Minimum Curriculum**

**CHEMISTRY**

**2019**

**Department of Chemistry**

**University of Lucknow**

**Lucknow 226 007**

### **Learning Objectives of B.Sc. Theory and Practical Syllabus of Chemistry**

- The purpose of the undergraduate chemistry program is to provide the key knowledge base and laboratory resources to prepare students for careers as professionals in the field of chemistry.
- Be able to describe the fundamental scientific principles in the subfields of chemistry (analytical, inorganic, organic and physical), and apply these principles to problems.

### **Expected Learning Outcomes of B.Sc. Theory and Practical Syllabus of Chemistry**

- Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Inorganic, Organic and Physical Chemistries.
- Students will be able to design, carry out, record and analyze the results of chemical experiments.
- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Knowledge about the proper procedures and regulations for safe handling and use of chemicals and can follow the proper procedures and regulations for safe handling when using chemicals.
- Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behaviour in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
- Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
- Have firm foundations in the fundamentals and application of current chemical and scientific theories.

## UGC Common Minimum Program – 2019 - Chemistry

- Students will be able to use modern library searching and retrieval methods to obtain information about a topic, chemical, chemical technique, or an issue relating to chemistry.
- Students will be able to communicate the results of their work to chemists and non-chemists.
- Students will be able to understand the ethical, historic, philosophical, and environmental dimensions of problems and issues facing chemists.

## UGC Common Minimum Program – 2019 - Chemistry

Year	Paper	Paper Title	Maximum Marks
1	I	Inorganic Chemistry	100
	II	Organic Chemistry	100
	III	Physical Chemistry	100
	Practical	Based on Paper I, II and III	100
2	I	Inorganic Chemistry	100
	II	Organic Chemistry	100
	III	Physical Chemistry	100
	Practical	Based on Paper I, II and III	100
3	I	Inorganic Chemistry	100
	II	Organic Chemistry	100
	III	Physical Chemistry	100
	Practical	Based on Paper I, II and III	100

### Marks Distribution

#### Theory:

All papers of 100 maximum marks each with the following distribution

- Internal Assessment 20 marks
- Theory Examination 80 Marks

#### Practical

Practical in all three years of 100 marks each. Distribution is as follows

- Inorganic Chemistry Exercise 27 marks
- Organic Chemistry Exercise 27 marks
- Physical Chemistry Exercise 26 marks
- Practical Record 10 marks
- Viva 10 marks



## B.Sc. I Paper-I

### Inorganic Chemistry

#### UNIT I

##### I. Atomic Structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, Schrödinger wave equation, significance of  $\Psi$  and  $\Psi^2$ , quantum numbers, radial and angular wave functions and probability distribution curves, shapes of s, p, d orbitals. Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements, effective nuclear charge (The Slater's rule).

##### II. Periodic Properties

Atomic and ionic radii, ionization energy, electron affinity and electronegativity-definition, methods of determination or evaluation, trends in periodic table and applications in predicting and explaining the chemical behaviour.

#### UNIT II

##### III. Chemical Bonding

(A) Covalent bond: valence bond theory and its limitations, directional characteristic of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions. Valence Shell Electron Pair Repulsion (VSEPR) theory to  $\text{NH}_3$ ,  $\text{H}_3\text{O}^+$ ,  $\text{SF}_4$ ,  $\text{ClF}_3$ ,  $\text{ICl}_2^-$  and  $\text{H}_2\text{O}$ . Molecular Orbital theory for homonuclear and heteronuclear ( $\text{CO}$ ,  $\text{NO}$ ,  $\text{CN}^-$  and  $\text{NO}^+$ ) diatomic molecules. Bond strength and the bond energy, percentage ionic character from dipole moment and electronegativity difference.

(B) Ionic solid: ionic structures, radius ratio effect and coordination number, limitation of ratio rule, Lattice defects, semiconductors, Lattice energy and Born-Haber cycle, solvation energy and solubility of ionic solids, polarizing power and polarizability of ions. Fajan's rule.

(C) Weak interactions: hydrogen bonding, van der Waals forces.

#### UNIT III

##### IV. s-Block Elements

Comparative study, diagonal relationships, salient features of hydrides, solvation and complexation tendencies including their function in Biosystems. An introduction to alkyls and aryls.

##### V. Chemistry of Noble Gases

Chemical properties of the noble gases. Chemistry of xenon, structure and bonding of fluorides, oxides and oxyfluorides of xenon.

#### UNIT IV

##### VI. p-Block Elements

Comparative study (including diagonal relationship) of group 13-17 elements. Compounds like hydrides, oxides, oxyacids and halides of group 13-16, hydrides of boron-diborane and higher boranes, borazines, borohydrides, fullerenes, carbides, fluorocarbons, silicates (structural principle), tetrasulphur tetranitride, basic properties of halogens, interhalogens and polyhalides.

## B.Sc. I Paper-I

### Inorganic Chemistry

#### Text Books (Theory Courses):

- (a) Concise Inorganic Chemistry, J.D. Lee, Blackwell Science Ltd.
- (b) Inorganic Chemistry, Puri, Sharma, Kalia and Kaushal.
- (c) Pradeep's Inorganic Chemistry, K.K. Bhasin, Pradeep Publication.
- (d) Chemistry for degree students, R. L. Madan

#### Reference Books:

- (a) Inorganic Chemistry, J.E.Huheey, Ellen A. Keiter, Richard L. Keiter, Addison Wesley Longman (Singapore) Pvt. Ltd.
- (b) Inorganic Chemistry, D.E.Shriver, P W. Atkins and C.H.L. Langford, Oxford.
- (c) Basic Inorganic Chemistry, F.A. Cotton, G. Wilkinson and P.L. Gaus, Wiley.
- (d) Concepts of Models of Inorganic Chemistry, B. Douglas, D. McDaniel and J Alexander, John Wiley.
- (e) Inorganic Chemistry, W.W. Porterfield, Addison - Wesley.
- (f) Inorganic Chemistry, A.G. Sharpe, ELBS
- (g) Inorganic Chemistry, G.L. Meissler and D.A. Tarr, Prentice-Hall.

## B.Sc. I Paper II

### Organic Chemistry

#### Unit – I

##### I Structure and Bonding

Hybridization, bond lengths and bond angles, bond energy, localized and delocalized chemical bond, van der Waals interactions, inclusion compounds, clathrates, charge transfer complexes, resonance, hyperconjugation, aromaticity, inductive and field effects, hydrogen bonding.

##### II Mechanism of Organic Reactions

Curved arrow notation, drawing electron movements with allows, half-headed and double-headed arrows, homolytic and heterolytic bond breaking. Types of reagents – electrophiles and nucleophiles, Types of organic reactions, Energy considerations.

Reactive intermediates – Carbocations, carbanions, free radicals, carbenes, arynes and nitrenes (with examples). Assigning formal charges on intermediates and other ionic species.

Methods of determination of reaction mechanism (product analysis, intermediates, isotope effects, kinetic and stereochemical studies).

##### III Alkanes and Cycloalkanes

IUPAC nomenclature of branched and unbranched alkanes, the alkyl group, classification of carbon atom in alkanes, Isomerism in alkanes, sources methods of formation (with special reference to Wurtz reaction, Kolbe reaction, Corey-House reaction and decarboxylation of carboxylic acids), physical properties and chemical reactions of alkanes.

Mechanism of free radical halogenation of alkanes: orientation, reactivity and selectivity.

Cycloalkanes – nomenclature, methods of formation, chemical reactions, Baeyer's strain theory and its limitations. Ring strain in small rings (cyclopropane and cyclobutane), theory of strain less rings. The case of cyclopropane ring, banana bonds.

#### Unit – II

##### IV Stereochemistry of Organic Compounds

Concept of isomerism. Types of isomerism.

Optical isomerism – elements of symmetry, molecular chirality, enantiomers, stereogenic center, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centers, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization.

Relative and absolute configuration, sequence rules, D & L and R & S systems of nomenclature.

Geometric isomerism – determination of configuration of geometric isomers. E & Z system of nomenclature, geometric isomerism in oximes and alicyclic compounds.

Conformational isomerism -- conformational analysis of ethane and n-butane; conformations of cyclohexane, axial and equatorial bonds, conformation of mono substituted cyclohexane derivatives. Newman projection and Sawhorse formulae, Fischer and flying wedge formulae.

Difference between configuration and conformation.

### Unit – III

#### V Alkenes, Cycloalkenes, Dienes and Alkynes

Nomenclature of alkenes, methods of formation, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides, regioselectivity in alcohol dehydration. The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes.

Chemical reactions of alkenes – mechanism involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration-oxidation, oxymercuration-reduction. Epoxidation, ozonolysis, hydration, hydroxylation and oxidation with  $\text{KMnO}_4$ . Polymerization of alkenes. Substitution at the allylic and vinylic positions of alkenes. Industrial applications of ethylene and propene.

Methods of formation, conformation and chemical reactions of cycloalkenes.

Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of allenes and butadiene, methods of formation, polymerization, Chemical reaction – 1,2 and 1,4 additions, Diels-Alder reaction.

Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration-oxidation, metal-ammonia reductions, oxidation and polymerization.

### Unit – IV

#### VI Arenes and Aromaticity

Nomenclature of benzene derivatives. The aryl group. Aromatic nucleus and side chain. Structure of benzene: molecular formula and Kekulé structure. Stability and carbon-carbon bond lengths of benzene, resonance structure, MO picture.

Aromaticity: the Huckel rule, aromatic ions.

Aromatic electrophilic substitution – general pattern of the mechanism, role of  $\sigma$  and  $\pi$  complexes. Mechanism of nitration, halogenation, sulphonation, mercuriation and Friedel-Crafts reaction. Energy profile diagrams. Activating and deactivating substituents, orientation and ortho/para ratio. Side chain reactions of benzene derivatives. Birch reduction.

Methods of formation and chemical reactions of alkylbenzenes, alkynylbenzenes and biphenyl.

#### VII Alkyl and Aryl Halides

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms of nucleophilic substitution reactions of alkyl halides,  $\text{S}_{\text{N}}2$  and  $\text{S}_{\text{N}}1$  reactions with energy profile diagrams.

Polyhalogen compounds: chloroform, carbon tetrachloride.

Methods of formation of aryl halides, nuclear and side chain reactions. The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.

Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides. Synthesis and uses of DDT and BHC.

Text Books (Theory Courses):

- a. Organic Chemistry, Vol. I, I.L. Finar, Pearson Education.
- b. Organic Chemistry, M.K. Jain, Shoban Lal & Co.
- c. Pradeep's Organic Chemistry, S.N. Dhawan, Pradeep Publication.

Reference Books:

- a. Organic Chemistry, Morrison and Boyd, Prentice Hall.
- b. Organic Chemistry, L.G. Wade Jr. Prentice Hall.
- c. Fundamentals of Organic Chemistry Solomons, John Wiley.
- d. Organic Chemistry, Vol. I, II, III S.M. Mukherji, S.P. Singh and R.P. Kapoor, Wiley Eastern Ltd. (New Age International)
- e. Organic Chemistry, F.A. Carey, McGraw-Hill Inc.
- f. Introduction to Organic Chemistry, Streitwieser, Hathcock and Kosover, Macmillan.

## B. Sc. I Paper-III

### Physical Chemistry

#### UNIT- I

##### I. Mathematical Concepts and Computers

**(A) Mathematical Concepts:** Logarithmic relations, calculation of slopes, differentiation of simple functions like  $x$ ,  $e^x$ ,  $x^n$ ,  $\sin x$ ,  $\log x$ ; maxima and minima, partial differentiation and reciprocity relations. Integration of some useful/relevant functions; permutations and combinations. Factorials, Probability.

**(B) Computers:** General introduction to computers, different components of a computer. Hardware and software, input-output devices, binary numbers and arithmetic; introduction to computer languages. Programming and operating systems.

#### UNIT-II

##### II. Gaseous State:

Postulates of kinetic theory of gases, Deviation of gases from ideal behaviour, van der Waals equation of State.

**Critical phenomenon:** PV isotherms of real gases, continuity of states, the isotherms of van der Waals equations, relationship between critical constants and van der Waals constants, the law of corresponding states, reduced equation of states.

**Molecular Velocities:** Qualitative discussion of the Maxwell's distribution of molecular velocities, collision numbers, mean free path and collision diameter. Liquefaction of gases (based on Joule Thomson effect).

##### III. Liquid State:

Intermolecular forces, structure of liquids (a qualitative description)

Structural differences between solids, liquids and gases.

**Liquid crystals:** Difference between liquid crystal, solid and liquid. Classification, structure of nematic, smectic and cholesteric liquid crystals. Thermography and seven segment cell.

#### Unit-III

##### IV. Solid State: Definition of space lattice and unit cell.

Laws of crystallography: (i) Law of constancy of interfacial angles (ii) Law of rationality of indices (iii) Symmetry elements in crystals and law of symmetry.

X-ray diffraction by crystals. Derivation of Bragg's equation. Determination of crystal structure of NaCl, KCl and CsCl (Laue's method and powder method).

## V. Colloidal State

Definition of colloids, classification colloids.

*Solids in liquids (sols)*: properties- Kinetic, optical and electrical; stability of colloids, protective action, Hardy-Schulz law, gold number.

*Liquids in liquids(emulsions)*: types of emulsions, preparation. Emulsifier.

*Liquids in solids (gels)*: Classification, preparation and properties, inhibition, general applications of colloids.

## Unit-IV

### VI. Chemical Kinetics: Rate of reaction, molecularity and order of reaction, concentration dependence of rates, mathematical characteristics of simple chemical reactions- zero order, first order, second order, pseudo order reactions, half-life and mean life. Determination of the order of reaction- Differential method, method of integration, half-life method and isolation method.

Brief outlines of experimental methods of studying chemical kinetics: conductometric, potentiometric, optical methods, polarimetry and spectrophotometer.

Theories of chemical kinetics: Effect of temperature on the rate of reaction, Arrhenius equation, concept of activation energy.

Simple collision theory based on hard sphere model, transition state theory (equilibrium hypothesis). Expression for the rate constant based on equilibrium constant and thermodynamic aspects (no derivation).

Catalysis, characteristics of catalysed reactions, classification of catalysis, miscellaneous examples.

### Text Books (Theory Courses):

1. Physical Chemistry, Puri Sharma & Pathania.
2. Pradeep Physical Chemistry, Khetrpal, Pradeep Publication.
3. Computers and Common Sense, R. Hunt and Shelly, Prentice Hall.

### Reference Books:

1. Physical Chemistry. G.M. Barrow. International Student Edition, McGrawHill
2. Physical Chemistry, R.A. Alberty, Wiley Eastern Ltd.
3. The Elements of Physical Chemistry, P.W. Atkins, Oxford.
4. Physical Chemistry Through problems, S.K. Dogra and S. Dogra, Wiley Eastern Ltd.
5. Basic Programming with Application, V.K. Jain, Tata McGraw Hill.
6. Physical Chemistry, Glaston.

## B.Sc. I Practicals

180 Hrs (6 Hrs/week)

### Inorganic Chemistry

Semimicro Analysis – cation analysis, separation and identification of ions from Groups I, II, III, IV, V and VI. Anion analysis.

### Organic Chemistry

Laboratory techniques

#### *Calibration of Thermometer*

80-82° (Naphthalene), 113.5-114° (Acetanilide),  
132.5-133° (Urea), 100° (Distilled Water)

#### *Determination of melting point*

Naphthalene 80-82°, Benzoic acid 121.5-122°  
Urea 132.5-133°, Succinic acid 184.5-185°  
Cinnamic acid 132.5-133°, Salicylic acid 157.5-158°  
Acetanilide 113.5-114°, m-Dinitrobenzene 90°  
p-Dichlorobenzene 52° Aspirin 135°

#### *Determination of boiling points*

Ethanol 78°, Cyclohexane 81.4°, Toluene 110.6°, Benzene 80°

#### *Mixed melting point determination*

Urea-Cinnamic acid mixture of various compositions (1:4, 1:1, 4:1)

#### *Distillation*

Simple distillation of ethanol-water mixture using water condenser  
Distillation of nitrobenzene and aniline using air condenser

#### *Crystallization*

Concept of induction of crystallization  
Phthalic acid from hot water (using fluted filter paper and stemless funnel)  
Acetanilide from boiling water  
Naphthalene from ethanol  
Benzoic acid from water



### ***Decolorisation and crystallization using charcoal***

Decolorisation of brown sugar (sucrose) with animal charcoal using gravity filtration.

Crystallization and decolorisation of impure naphthalene (100g of naphthalene mixed with 0.3 g of Congo Red using 1g decolorising carbon) from ethanol.

### ***Sublimation (Simple and Vacuum)***

Camphor, Naphthalene, Phthalic acid and Succinic acid.

### **Qualitative Analysis**

Detection of extra elements (N, S and halogens) and functional groups (phenolic, carboxylic, carbonyl, esters, carbohydrates, amines, amides, nitro and anilide) in simple organic compounds.

## **PHYSICAL CHEMISTRY**

### ***Chemical Kinetics***

1. To determine the specific reaction rate of the hydrolysis of methyl acetate/ethyl acetate catalyzed by hydrogen ions at room temperature.
2. To study the effect of acid strength on the hydrolysis of an ester.
3. To compare the strengths of HCl and H<sub>2</sub>SO<sub>4</sub> by studying the kinetics of hydrolysis of ethyl acetate.
4. To study kinetically the reaction rate of decomposition of iodide by H<sub>2</sub>O<sub>2</sub>.

### ***Distribution Law***

1. To study the distribution of iodine between water and CCl<sub>4</sub>.
2. To study the distribution of benzoic acid between benzene and water.

### ***Colloids***

1. To prepare arsenious sulphide sol and compare the precipitating power of mono-, bi- and trivalent anions.

### ***Viscosity, Surface Tension***

1. To determine the percentage composition of a given mixture (non interacting systems) by viscosity method.
2. To determine the viscosity of amyl alcohol in water at different concentrations and calculate the excess viscosity of these solutions.
3. To determine the percentage composition of a given binary mixture by surface tension method (acetone & ethyl methyl ketone).

## B.Sc. II Paper-I

### Inorganic Chemistry

#### UNIT I

##### I. Chemistry of Elements of First Transition Series

Characteristic properties of d-block elements.

Binary compounds (hydrides, halides and oxides) of the elements of the first transition series and complexes with respect to relative stability of their oxidation states, coordination number and geometry.

##### II. Chemistry of Elements of Second and Third Transition Series

General characteristics, comparative treatment of Zr/Hf, Nb/Ta, Mo/W in respect of ionic radii, oxidation states, magnetic behavior, spectral properties and stereochemistry.

#### Unit - II

##### III. Coordination Compounds and double salts.

Werner's coordination theory and its experimental verification, Sidgwick's concept of effective atomic number, polydentate ligands or chelates, nomenclature of coordination compounds, isomerism in coordination compounds, valence bond theory of transition metal complexes, Limitations of VBT.

#### UNIT III

##### IV. Chemistry of Lanthanide Elements

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, ceric ammonium sulphate and its analytical uses.

##### V. Chemistry of Actinides

Electronic conformation, oxidation states and magnetic properties, chemistry of separation of Np, Pu and Am from U.

#### Unit IV

##### VI. Oxidation and Reduction

Electrode potential, electrochemical series and its applications. Principles involved in the extraction of the elements.

##### VII. Acids and Bases

Arrhenius, Brønsted-Lowry, the Lux-Flood, solvent system and Lewis concept of acids and bases.

##### VIII. Non-aqueous Solvents

Physical properties of a solvent, types of solvents and their general characteristics, Reactions in non-aqueous solvents with reference to liquid  $\text{NH}_3$  and liquid  $\text{SO}_2$ .

## B.Sc. II Paper-I

### Inorganic Chemistry

#### Text Books (Theory Courses):

- a. Concise Inorganic Chemistry, J.D. Lee, Blackwell Science Ltd.
- b. Inorganic Chemistry, Puri, Sharma, Kalia and Kaushal.
- c. Pradeep's Inorganic Chemistry, K.K. Bhasin, Pradeep Publication.
- d. Chemistry for degree students, R. L. Madan

#### Reference Books:

- a. Inorganic Chemistry, J.E.Huheey, Ellen A. Keiter, Richard L. Keiter, Addison Wesley Longman (Singapore) Pvt. Ltd.
- b. Inorganic Chemistry, D.E.Shriver, P W. Atkins and C.H.L. Langford, Oxford.
- c. Basic Inorganic Chemistry, F.A. Cotton, G. Wilkinson and P.L. Gaus, Wiley.
- d. Concepts of Models of Inorganic Chemistry, B.Douglas, D.McDaniel and J Alexander, John Wiley.
- e. Inorganic Chemistry, W.W. Porterfield, Addison - Wesley.
- f. Inorganic Chemistry, A.G. Sharpe, ELBS
- g. Inorganic Chemistry, G.L. Meissler and D.A. Tarr, Prentice-Hall.

## B.Sc. II Paper – II

### Organic Chemistry

#### Unit I

##### I. **Electromagnetic Spectrum Absorption Spectra:-**

Ultraviolet (UV) absorption spectroscopy - absorption laws (Beer-Lambert law); molar absorptivity, presentation and analysis of UV spectra, types of electronic transitions, effect of conjugation. Concept of chromophore and auxochrome, Bathochromic, hypsochromic, hyperchromic and hypochromic shifts. U.V. spectra of conjugated enes and enones.

Infrared (I.R.) absorption spectroscopy – molecular vibrations, Hooke's law, selection rules, intensity and position of I.R. bands, measurement of I.R. spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of I.R. spectra of simple organic compounds.

#### Unit II

##### II. **Alcohols:-**

Classification and nomenclature.

Monohydric alcohols – nomenclature, methods of formation by reduction of aldehydes, Ketones, Carboxylic acids and Esters, Hydrogen bonding, Acidic nature, Reactions of alcohols.

Dihydric alcohols – nomenclature, methods of formation, chemical reactions of vicinal glycols, oxidative cleavage [ $\text{Pb}(\text{OAc})_4$  and  $\text{HIO}_4$ ] and pinacolo-pinacolone rearrangement.

Trihydric alcohols – nomenclature and methods of formation, chemical reactions of glycerol.

##### III. **Phenols:-**

Nomenclature, structure and bonding, Preparation of phenols, physical properties and acidic character. Comparative acidic strengths of alcohols and phenols, resonance stabilization of phenoxide ion. Reactions of phenols – electrophilic aromatic substitution, acylation and carboxylation. Mechanisms of Fries rearrangement, Claisen rearrangement, Gatterman synthesis, Hauben-Hoesch reaction, Lederer-Manasse reaction and Reimer-Tiemann reaction.

#### Unit III

##### IV. **Ethers and Epoxides:-**

Nomenclature of ethers and methods of their formation, physical properties, Chemical reactions – cleavage and autoxidation, Ziesel's method.

Synthesis of epoxides, Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening, reactions of Grignard and organolithium reagents with epoxides.

##### V. **Aldehydes and Ketones:-**

Nomenclature and structure of the carbonyl groups, synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, synthesis of aldehydes and ketones using 1,3-dithianes, synthesis of ketones from nitrites and from carboxylic acids. Physical properties.

Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin, aldol, Perkin and Knoevenagel condensations, Condensation with ammonia and its derivatives. Wittig reaction, Mannich reaction.

Use of acetals as protecting group, Oxidation of aldehydes, Baeyer-Villiger oxidation of Ketones, Cannizzaro reaction, MPV, Clemmensen, Wolff-Kishner,  $\text{LiAlH}_4$  and  $\text{NaBH}_4$  reductions. Halogenation of enolizable ketones.

An introduction to  $\alpha,\beta$  unsaturated aldehydes and ketones.

#### Unit IV

##### VI. Carboxylic Acids:-

Nomenclature, structure and bonding, physical properties, acidity of carboxylic acids, effects of substituents on acid strength. Preparation of carboxylic acids, Reactions of carboxylic acids, Hell-Volhard-Zelinsky reaction, Synthesis of acid chlorides, esters and amides. Reduction of carboxylic acids, Mechanism of decarboxylation.

Methods of formation and chemical reactions of halo acids, Hydroxy acids: malic, tartaric and citric acids.

Methods of formation and chemical reactions of unsaturated monocarboxylic acids.

Dicarboxylic acids: methods of formation and effect of heat and dehydrating agents.

##### VII. Carboxylic Acid Derivatives:-

Structure and nomenclature of acid chlorides, esters, amides(urea) and acid anhydrides.

Relative stability of acyl derivatives. Physical properties, interconversion of acid derivatives by nucleophilic acyl substitution

Preparation of carboxylic acid derivatives, chemical reactions. Mechanisms of esterification and hydrolysis (acidic and basic)

##### VIII. Organic Compounds of Nitrogen:-

Preparation of nitroalkanes and nitroarenes. Chemical reactions of nitroalkanes. Mechanisms of nucleophilic substitution in nitroarenes and their reductions in acidic, neutral and alkaline media. Picric acid.

Halonitroarenes: reactivity, Structure and nomenclature of amines, physical properties. Stereochemistry of amines. Separation of a mixture of primary, secondary and tertiary amines. Structural features effecting basicity of amines. Amine salts as phase-transfer catalysts. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitrites), reductive amination of aldehydic and ketonic compounds. Gabriel-phthalimide reaction, Hofmann bromamide reaction. Reactions of amines, electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid. Synthetic transformations of aryl diazonium salts, azo coupling.

Books Suggested (Theory Courses)

- a. Organic Chemistry, Morrison and Boyd, Prentice Hall.
- b. Organic Chemistry, L.G. Wade Jr. Prentice Hall
- c. Fundamentals of Organic Chemistry Solomons, John Wiley.
- d. Organic Chemistry, Vol. I, II, III, S.M. Mukherji, S.P. Singh and
- a. R.P. Kapoor, Wiley Eastern Ltd. (New Age International).
- e. Organic Chemistry, F.A. Carey, McGraw-Hill Inc.
- f. Introduction to Organic Chemistry, Streitwieser, Hathcock and Kosover, Macmillan.
- g. Organic Chemistry, Vol. I, II, I.L. Finar
- h. Spectrometric Identification of organic compounds. Robert M.
- b. Silverstein, Clayton G. Bassler, Terence C. Morrill, John Wiley.

## B.Sc. II Paper – III

### Physical Chemistry

#### Unit I

#### (Thermodynamics & Chemical Equilibrium)

##### I. Thermodynamics – I

###### **Definition of thermodynamic terms**

System, surroundings etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work.

###### **First Law of Thermodynamics**

Statement, definition of internal energy and enthalpy. Heat capacity, heat capacities at constant volume and pressure and their relationship. Joule's law – Joule-Thomson coefficient and inversion temperature. Calculation of  $w, q, dU$  &  $dH$  for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process.

###### **Thermochemistry**

Standard state, standard enthalpy of formation – Hess's Law of heat summation and its applications. Heat of reaction at constant pressure and at constant volume. Enthalpy of neutralization. Bond dissociation energy and its calculation from thermo-chemical data, temperature dependence of enthalpy. Kirchhoff's equation.

##### II. Chemical Equilibrium

Thermodynamic derivation of law of mass action. Le Chatelier's principle. Reaction isotherm and reaction isochore – Clapeyron-Clausius equation and its applications.

#### Unit II

##### III. Thermodynamics – II

###### **Second law of thermodynamic**

Need for the law, different statements of the law. Carnot's cycle and its efficiency, Carnot's theorem. Thermodynamic scale of temperature.

###### **Concept of entropy**

Entropy as a state function, entropy as a function of  $V$  &  $T$ , entropy as a function of  $P$  &  $T$ , entropy change in physical change, Clausius inequality, entropy as a criteria of spontaneity and equilibrium.

###### **Gibbs and Helmholtz functions**

Gibbs function ( $G$ ) and Helmholtz function ( $A$ ) as thermodynamic quantities,  $A$  &  $G$  as criteria for thermodynamic equilibrium and spontaneity, their advantage over entropy change. Variation of  $G$  and  $A$  with  $P$ ,  $V$  and  $T$ . Relation between free energy and equilibrium constant.

**Third law of thermodynamics:**

Nernst heat theorem, statement and concept of residual entropy. Nernst distribution law –thermodynamic derivation, applications.

**Unit III**

**(Electrochemistry – I &Phase Equilibrium)**

**IV. Electrochemistry – I**

**Electrical transport** – conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution. Migration of ions and Kohlrausch's law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law its uses and limitations. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf's method and moving boundary method.

Applications of conductivity measurements: determination of degree of dissociation, determination of  $K_a$  of acids, determination of solubility product of a sparingly soluble salt, conductometric titrations.

**V. Phase Equilibrium**

Statement and meaning of the terms: phase, component and degree of freedom, derivation of Gibb's phase rule, phase equilibria of one component system – water,  $CO_2$  and S systems.

Phase equilibria of two component system - solid liquid equilibria, simple eutectic – Bi-Cd, Pb-Ag systems, de-silverisation of lead.

Solid solutions: compound formation with congruent melting point (Mg-Zn) and incongruent melting point, ( $FeCl_3-H_2O$ ) and ( $CuSO_4-H_2O$ ) system

**Unit IV**

**(Electrochemistry – II & Phase Equilibrium)**

**VI. Electrochemistry – II**

Types of reversible electrodes: gas-metal ion, metal-ion, metal-insoluble salt-anion and redox electrodes. Electrode reactions, Nernst equation, derivation of cell E.M.F. and single electrode potential, standard hydrogen electrode, reference electrodes- standard electrode potential, sign conventions, electrochemical series and its significance.

Electrolytic and Galvanic cells: reversible and irreversible cells, conventional representation of electrochemical cells.

EMF of a cell and its measurements. Computation of cell EMF. Calculation of thermodynamic quantities of cell reactions ( $\Delta G$ ,  $\Delta H$  and  $K$ )

Concentration cell with and without transport, liquid junction potential, application of concentration cells, valency of ions, solubility product and activity coefficient, potentiometric titrations.

Definition of pH and  $pK_a$ , determination of pH using hydrogen, quinhydrone and glass electrodes, by potentiometric methods.



Buffers: mechanism of buffer action, Henderson-Hassel equation. Hydrolysis of salts.

**Books Suggested (Theory Courses)**

1. Physical Chemistry, G.M. Barrow. International Student Edition, McGraw Hill.
2. Physical Chemistry, R.A. Alberty, Wiley Eastern Ltd.
3. The Elements of Physical Chemistry, P.W. Atkins, Oxford.
4. Physical Chemistry Through problems, S.K. Dogra and S. Dogra, Wiley Eastern Ltd.

## B.Sc. II Practical

### Inorganic Chemistry

Calibration of fractional weights, pipettes and burettes. Preparation of standard solutions.  
Dilution- 0.1 M to 0.001 M solutions.

### Quantitative Analysis

#### Volumetric Analysis

- (a) Determination of acetic acid in commercial vinegar using NaOH
- (b) Determination of alkali content – antacid tablet using HCl.
- (c) Estimation of calcium content in chalk as calcium oxalate by permanganometry.
- (d) Estimation of hardness of water by EDTA.
- (e) Estimation of ferrous and ferric by dichromate method.
- (f) Estimation of copper using thio sulphate.

#### Gravimetric Analysis

Analysis of Cu as CuSCN and Ni as Ni (dimethylglyoxime).

### Organic Chemistry

#### Laboratory Techniques

##### A. Thin Layer Chromatography

Determination of  $R_f$  values and identification of organic compounds.

- (a) Separation of green leaf pigments (spinach leaves may be used).
- (b) Preparation and separation of 2,4-dinitrophenylhydrazones of acetone, 2-butanone, hexan-2- and 3-one using toluene and light petroleum (40:60).
- (c) Separation of a mixture of dyes using cyclohexane and ethyl acetate (8.5:1.5).

##### B. Paper Chromatography: Ascending and Circular

Determination of  $R_f$  values and identification of organic compounds.

- (a) Separation of a mixture of phenylalanine and glycine. Alanine and aspartic acid. Leucine and glutamic acid. Spray reagent – ninhydrin.
- (b) Separation of a mixture of D, L – alanine, glycine, and L-Leucine using n-butanol:acetic acid:water (4:1:5). Spray reagent – ninhydrin.

- (c) Separation of monosaccharides – a mixture of D-galactose and D – fructose using n-butanol:acetone:water (4:5:1). Spray reagent – aniline hydrogen phthalate.

### **Qualitative Analysis**

Identification of an organic compound through the functional group analysis, determination of melting point and preparation of suitable derivatives.

### **Physical Chemistry**

#### **Transition Temperature**

1. Determination of the transition temperature of the given substance by thermometric/dilatometric method (e.g.  $\text{MnCl}_2 \cdot 4\text{H}_2\text{O}/\text{SrBr}_2 \cdot 2\text{H}_2\text{O}$ ).

#### **Phase Equilibrium**

1. To study the effect of a solute (e.g. NaCl, succinic acid) on the critical solution temperature of two partially miscible liquids (e.g. phenol-water system) and to determine the concentration of that solute in the given phenol-water system.
2. To construct the phase diagram of two component (e.g. diphenylamine -benzophenone) system by cooling curve method.

#### **Thermochemistry**

1. To determine the solubility of benzoic acid at different temperatures and to determine  $\Delta H$  of the dissolution process.
2. To determine the enthalpy of neutralisation of a weak acid/weak base versus strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
3. To determine the enthalpy of solution of solid calcium chloride and calculate the lattice energy of calcium chloride from its enthalpy data using Born Haber cycle.

**Inorganic Chemistry**

**Unit - I**

**I. Metal-ligand bonding in Transition Metal Complexes**

Limitation of valence bond theory, an elementary idea of crystal field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal field parameters.

**II. Thermodynamic and Kinetic Aspects of Metal Complexes**

A brief outline of thermodynamic stability of metal complexes and factors affecting the stability. Substitution reaction of square planar complexes. Trans effect.

**Unit - II**

**III. Magnetic Properties of Transition Metal Complexes**

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin only formula, L-S coupling, correlation of  $\mu_s$  and  $\mu_{\text{eff}}$  values. Orbital contribution to magnetic moments. Application of magnetic moment data for 3d metal complexes.

**IV. Electronic spectra of Transition Metal Complexes**

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states, spectrochemical series. Orgel-energy level diagram for  $d^1$  and  $d^9$  states, discussion of the electronic spectrum of  $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$  complex ion.

**Unit - III**

**V. Organometallic Chemistry**

Definition, nomenclature and classification of organometallic compounds.

Preparation, properties bonding and applications of alkyls and aryls of Li, Al, Hg and Sn.

Metal carbonyls: 18 electron rule, preparation, structure and nature of bonding in the metal carbonyls.

**VI. Silicones and phosphazenes**

Silicones and phosphazenes as examples of inorganic polymers. Nature of bonding in triphosphazenes.

**Unit - IV**

**VII. Hard and Soft Acids and bases (HSAB)**

Classification of acids and bases as hard and soft. Pearson's HSAB concept, acid base strength and hardness and softness. Symbiosis, theoretical basis of hardness and softness. Applications of HSAB principle, limitations of HSAB principle.

**VIII. Bioinorganic Chemistry**

Essential and trace elements in biological processes, metalloporphyrins with special reference to haemoglobin and myoglobin. Biological role of alkali and alkaline earth metal ions with special reference to  $\text{Ca}^{2+}$ .

## B.Sc. III Paper I

### Inorganic Chemistry

#### Text Books (Theory Courses):

- a. Concise Inorganic Chemistry, J.D. Lee, Blackwell Science Ltd.
- b. Inorganic Chemistry, Puri, Sharma, Kalia and Kaushal.
- c. Pradeep's Inorganic Chemistry, K.K. Bhasin, Pradeep Publication.
- d. Chemistry for degree students, R. L. Madan

#### Reference Books:

- a. Inorganic Chemistry, J.E. Huheey, Ellen A. Keiter, Richard L. Keiter, Addison Wesley Longman (Singapore) Pvt. Ltd.
- b. Inorganic Chemistry, D.E. Shriver, P.W. Atkins and C.H.L. Langford, Oxford.
- c. Basic Inorganic Chemistry, F.A. Cotton, G. Wilkinson and P.L. Gaus, Wiley.
- d. Concepts of Models of Inorganic Chemistry, B. Douglas, D. McDaniel and J. Alexander, John Wiley.
- e. Inorganic Chemistry, W.W. Porterfield, Addison - Wesley.
- f. Inorganic Chemistry, A.G. Sharpe, ELBS
- g. Inorganic Chemistry, G.L. Meissler and D.A. Tarr, Prentice-Hall.

## B.Sc. III Paper—II

### Organic Chemistry

#### Unit - I

##### I Spectroscopy

Nuclear magnetic resonance (NMR) spectroscopy, Proton magnetic resonance ( $^1\text{H}$  NMR) spectroscopy, nuclear shielding and deshielding, chemical shift and molecular structure, spin-spin splitting and coupling constants, areas of signals, interpretation of  $^1\text{H}$  NMR spectra of simple organic molecules such as ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromoethane, ethyl acetate, toluene and acetophenone. Problems pertaining to the structures elucidation of simple organic compounds using UV, IR and  $^1\text{H}$  NMR spectroscopic techniques.

#### Unit - II

##### II Organometallic Compounds

Organomagnesium compounds: the Grignard reagents, formation, structure and Chemical reactions.

Organozinc compounds: formation and chemical reactions.

Organolithium compounds: formation and chemical reactions.

##### III Organosulphur Compounds

Nomenclature, structural formation, Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides & Sulphaguamide.

##### IV Heterocyclic Compounds

Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine, Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution, Mechanism of nucleophilic substitution reaction in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole.

Introduction to condensed five and six membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis, Skraup synthesis and Bischler-Nepieralski synthesis. Mechanism of electrophilic substitution reactions of indole, quinoline and isoquinoline.

#### Unit - III

##### V Carbohydrates

Classification and nomenclature, Monosaccharides, mechanism of osazone formation, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses. Configuration of monosaccharides. Erythro and threo diastereomers, Conversion of glucose into mannose. Formation of glycosides, ethers and esters. Determination of ring size of monosaccharides. Cyclic structure of D(+)-glucose. Mechanism of mutarotation.

Structures of ribose and deoxyribose.

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

## VI **Amino Acids, Peptides, Proteins and Nucleic Acids**

Classification, structure and stereochemistry of amino acids. Acid-base behaviour, Isoelectric point and electrophoresis, Preparation and reactions of  $\alpha$ -amino acids. Structure and nomenclature of peptides and proteins. Classification of proteins, Peptide structure determination, end group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid-phase peptide synthesis. Structures of peptides and proteins. Levels of protein structure, Protein denaturation/renaturation. Nucleic acids: Introduction. Constituents of nucleic acids. Ribonucleosides and ribonucleotides. The double helical structure of DNA.

## Unit - IV

### VII **Fats, Oils and Detergents**

Natural fats, edible and industrial oils of vegetable origin, common fatty acids, glycerides, hydrogenation of unsaturated oils, Saponification value, iodine value, acid value, Soaps, synthetic detergents, alkyl and aryl sulphonates.

### VIII **Synthetic Polymers**

Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers. Condensation or step growth-polymerization. Polyesters, polyamides, phenol formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes. Natural and synthetic rubbers.

### IX **Synthetic Dyes**

Colour and constitution (electronic Concept), Classification of dyes. Chemistry and synthesis of Methyl orange, Congo red, Malachite green, Crystal violet, Phenolphthalein, Fluorescein, Alizarin and Indigo.

### X **Organic Synthesis via Enolates**

Acidity of  $\alpha$ -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation, Keto-enol tautomerism of ethyl acetoacetate. Alkylation of 1,3-dithianes, Alkylation and acylation of enamines.

**Text Books (Theory Courses):**

- a. Organic Chemistry, Vol. I, I.L. Finar, Pearson Education.
- b. Organic Chemistry, M.K. Jain, Shoban Lal & Co.
- c. Pradeep's Organic Chemistry, S.N. Dhawan, Pradeep Publication.

**Reference Books:**

- a. Organic Chemistry, Morrison and Boyd, Prentice Hall.
- b. Organic Chemistry, L.G. Wade Jr. Prentice Hall.
- c. Fundamentals of Organic Chemistry Solomons, John Wiley.
- d. Organic Chemistry, Vol. I, II, III S.M. Mukherji, S.P. Singh and R.P. Kapoor, Wiley Eastern Ltd. (New Age International)
- e. Organic Chemistry, F.A. Carey, McGraw-Hill Inc.
- f. Introduction to Organic Chemistry, Streitwieser, Hathcock and Kosover, Macmillan.



## B.Sc. III Paper- III

### Physical Chemistry

#### Unit I

#### (Introductory Quantum Mechanics, Spectroscopy, Physical Properties & Molecular Structure)

##### I. Introductory Quantum Mechanics

Black-body radiation, Planck's radiation law, photoelectric effect, heat capacity of solids, Bohr's model of hydrogen atom (no derivation) and its defects, Compton effect. de Broglie's hypothesis, the Heisenberg's uncertainty principle, Hamiltonian operator.

##### II. Spectroscopy

Introduction: electromagnetic radiation, regions of the spectrum, basic features of different spectrophotometers, statement of the Born-Oppenheimer approximation, degrees of freedom.

##### III. Physical Properties and Molecular Structure

Optical activity, polarization - (Clausius – Mossotti equation), orientation of dipoles in an electric field, dipole moment, induced dipole moment, measurement of dipole moment-temperature method and refractivity method, dipole moment and structure of molecules, magnetic properties-paramagnetism, diamagnetism and ferromagnetics.

#### Unit II

##### IV. Elementary Quantum Mechanics

Schrodinger wave equation and its importance, physical interpretation of the wave function, postulates of quantum mechanics, particle in a one-dimensional box.

Schrodinger wave equation for H-atom, separation into three equations (without derivation), quantum numbers and their importance, hydrogen like wave functions, radial wave functions, angular wave functions.

Molecular orbital theory, basic ideas – criteria for forming M.O from A.O., construction of M.O's by LCAO –  $H_2^+$  ion, calculation of energy levels from wave functions, physical picture of bonding and antibonding wave functions, concept of  $\sigma$ ,  $\sigma^*$ ,  $\pi$ ,  $\pi^*$  orbitals and their characteristics. Hybrid orbitals –  $sp$ ,  $sp^2$ ,  $sp^3$ ; calculation of coefficients of A.O's used in  $sp$  and  $sp^2$  hybrid orbitals. Introduction to valence bond model of  $H_2$ , comparison of M.O. and V.B. models.

#### Unit III

#### (Spectroscopy)

##### V. Rotational Spectrum

Diatomic molecules: Energy levels of a rigid rotor (semi-classical principles), selection rules, spectral intensity, distribution using population distribution (Maxwell-

Boltzmann distribution) determination of bond length, qualitative description of non-rigid rotor, isotope effect.

### **Vibrational Spectrum**

Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies, effect of anharmonic motion and isotope on the spectrum, idea of vibrational frequencies of different functional groups.

Raman Spectrum: concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules.

Electronic Spectrum: Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative description of selection rules and Franck-Condon principle.

*Qualitative description of  $\sigma$ ,  $\pi^*$  and n M.O., their energy levels and the respective transitions.*

## **Unit IV**

### **(Photochemistry, Dilute Solutions, Colligative Properties and Solutions)**

#### **VI. Photochemistry**

Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grothus – Drapper law, Stark – Einstein law, Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, nonradiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions – energy transfer processes (simple examples).

#### ***Dilute Solutions, Colligative Properties and Solutions***

Dilute solution, colligative properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination, Osmosis, law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing, Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression in freezing point. Experimental methods for determining various colligative properties. Abnormal molar mass, degree of dissociation and association of solutes.

#### **Solutions**

Liquid – Liquid mixtures – Ideal liquid mixtures, Raoult's and Henry's law. Nonideal system-azeotropes – HCl-H<sub>2</sub>O and ethanol – water systems.

Partially miscible liquids – Phenol-water, trimethylamine-water, nicotine-water systems. Immiscible liquids, steam distillation.

#### **Books suggested (Theory Courses)**

1. Physical Chemistry, G.M. Barrow, International Student Edition, McGraw Hill.

2. Physical Chemistry, R.A. Alberty, Wiley Eastern Ltd.
3. The Elements of Physical Chemistry, P.W. Atkins, Oxford.
4. Physical Chemistry Through Problems, S.K. Dogra and S. Dogra Wiley Eastern Ltd.
5. Basic Inorganic Chemistry, F.A. Cotton & G. Wilkinson and P.L. Gaus Wiley.
6. Concise Inorganic Chemistry, J.D. Lee, ELBS.
7. Organic chemistry, Morrison and Boyd, Prentice Hall.
8. Fundamentals of Organic Chemistry Solomons / John Wiley.

## B.Sc. III Practicals

180 Hrs (6 Hrs/week)

### INORGANIC CHEMISTRY

#### Synthesis and Analysis

- (a) Preparation of sodium trioxalato ferrate (III),  $\text{Na}_3[\text{Fe}(\text{C}_2\text{O}_4)_3]$  and determination of its composition by permanganometry.
- (b) Preparation of Ni-DMG complex,  $[\text{Ni}(\text{DMG})_2]$ .
- (c) Preparation of copper tetraammine complex,  $(\text{Cu}(\text{NH}_3)_4)\text{SO}_4$ .
- (d) Preparation of *cis*- and *trans*- bisoxalato diaqua chromate(III) ion.

#### Instrumentation

##### *Colorimetry*

- (a) Job's method
  - (b) Mole-ratio method
- Adulteration – Food stuffs.  
Effluent analysis, water analysis.

#### Solvent Extraction

Separation and estimation of Mg(II) and Fe(II)

#### Ion Exchange Method

Separation and estimation of Mg(II) and Zn(II).

### ORGANIC CHEMISTRY

#### Laboratory Techniques

##### *Steam Distillation*

- Naphthalene from its suspension in water
- Clove oil from cloves
- Separation of *o*- and *p*-nitrophenols

##### *Column Chromatography*

- Separation of fluorescein and methylene blue
- Separation of leaf pigments from spinach leaves
- Resolution of racemic mixture of (±) mandelic acid

### Qualitative Analysis

Analysis of an organic mixture containing two solid components using water,  $\text{NaHCO}_3$ ,  $\text{NaOH}$  for separation and preparation of suitable derivatives.

### Synthesis of Organic Compounds

- (a) Acetylation of salicylic acid, aniline, glucose and hydroquinone. Benzoylation of aniline and phenol
- (b) Aliphatic electrophilic substitution  
Preparation of iodoform from ethanol and acetone
- (c) Aromatic electrophilic substitution  
Nitration  
Preparation of m-dinitrobenzene  
Preparation of p-nitroacetanilide  
Halogenation  
Preparation of p-bromoacetanilide  
Preparation of 2,4,6-tribromophenol
- (d) Diazotization/coupling  
Preparation of methyl orange and methyl red
- (e) Oxidation  
Preparation of benzoic acid from toluene
- (f) Reduction  
Preparation of aniline from nitrobenzene  
Preparation of m-nitroaniline from m-dinitrobenzene.

### Stereochemical Study of Organic Compounds via Models

R and S configuration of optical isomers.  
E, Z configuration of geometrical isomers.  
Conformational analysis of cyclohexanes and substituted cyclohexanes.

### PHYSICAL CHEMISTRY

#### Electrochemistry

- (a) To determine the strength of the given acid conductometrically using standard alkali solution.
- (b) To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically.
- (c) To study the saponification of ethyl acetate conductometrically.
- (d) To determine the ionisation constant of a weak acid conductometrically.
- (e) To titrate potentiometrically the given ferrous ammonium sulphate solution using

$\text{KMnO}_4/\text{K}_2\text{Cr}_2\text{O}_7$  as titrant and calculate the redox potential of  $\text{Fe}^{++}/\text{Fe}^{+++}$  system on the hydrogen scale.

#### **Refractometry, Polarimetry**

- (a) To verify law of refraction of mixtures (e.g., of glycerol and water) using Abbe's refractometer.
- (b) To determine the specific rotation of a given optically active compound.

#### **Molecular Weight Determination**

- (a) Determination of molecular weight of a non-volatile solute by Rast method/Beckmann freezing point method.
- (b) Determination of the apparent degree of dissociation of an electrolyte (e.g., NaCl) in aqueous solution at different concentrations by ebullioscopy.

#### **Colorimetry**

To verify Beer – Lambert law for  $\text{KMnO}_4/\text{K}_2\text{Cr}_2\text{O}_7$  and determine the concentration of the given solution of the substance.

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शैक्षिक विभाग  
मुंबई, महाराष्ट्र

# **COMMON MINIMUM CURRICULUM**

for

**B.Sc. with PHYSICS**

**PROPOSAL**

**Submitted by**

**DEPARTMENT OF PHYSICS**

**UNIVERSITY OF LUCKNOW**

**LUCKNOW**

**2019**

## COURSE CONTENT

Class/ Paper	Paper- I	Paper-II	Paper-III	Practical
<b>B.Sc. I</b>	Mechanics and Wave Motion	Circuit Fundamental and Basic Electronics	Optics	Practicals & Skill Development
<b>B.Sc. II</b>	Electricity and Magnetism	Thermal Physics and Elementary Statistical Mechanics	Perspectives of Modern Physics	Practicals & Skill Development
<b>B.Sc. III</b>	Classical Mechanics and Theory of Relativity	Solid State and Nuclear Physics	Electronics	Practicals & Skill Development

**I. TOTAL FOR EACH THEORY PAPER : 100 marks**

**1. Annual Examination : 80 marks**

**2. Continuous Assessment : 20 marks**

**a. Class Tests : 10**

**b. Assignment/Project : 05**

**c. Attendance : 05**

**II. TOTAL FOR EACH PRACTICAL EXAM : 100 marks**

**1. Annual Examination : 80 marks**

**2. Continuous Assessment : 20 marks**

**a. Laboratory Viva : 10**

**b. Skill Development Assessment : 10**



**B. Sc. - Part I**  
**PHYSICS**  
**MECHANICS AND WAVE MOTION**  
**PAPER I**

**Unit I**

Inertial and non-inertial reference frames, radial and transverse components of velocity and acceleration using polar coordinates, Newton's laws of motion. Dynamics of particle in rectilinear and circular motion, Conservative and Non-Conservative forces, conservation of energy, linear momentum, and angular momentum. Collision in one and two dimensions, cross section.

**Unit II**

Rotational energy and rotational inertia for simple bodies (ring, disk, rod, solid and hollow sphere, cylinder, rectangular lamina). The combined translational and rotational motion of a rigid body on horizontal and inclined planes. Simple treatment of the motion of a top. Relations between elastic constants, bending of beam and torsion of cylinder.

**Unit III**

Central forces, Two body central force problem, Reduced mass and its equation of motion, Centre of mass motion, Newton's law of gravitation; Gravitational binding energy, Equivalence of inertial and gravitational mass, Gravitational field and potential at a point inside and outside a hollow and solid sphere. Kepler's laws, motion of planets and satellites, geo-stationary satellites.

**Unit IV**

Differential equation of Simple Harmonic Motion (SHM) and its solution, use of complex notation, damped and forced oscillations, Quality factor. Composition of simple harmonic motion, Lissajous figures. Differential equation of wave motion, plane progressive waves in fluid media, reflection of waves, phase change on reflection, Principle of superposition of waves, stationary waves, pressure and energy distribution, phase and group velocity.

**Reference books:**

**Unit I-III**

1. Berkeley Physics Course Vol I: Mechanics –C. Kittel et al.(McGraw Hill 2017)
2. Feynman Lectures in Physics Vol I – Feynman, Leighton and Sands (Addison– Wesley 2005)
3. Physics Vol I – Resnick, Halliday and Walker (Wiley India Pvt. Ltd. 2007)
4. University Physics – Sears, Zemansky and Young (Pearson 1973)

5.

**Unit IV**

1. Vibrations and Waves – A. P. French (CRC Press, 1971)
2. Vibrations and Waves in Physics– I. G. Main (Cambridge University Press, 1993)
3. Berkeley Physics Course Vol 3: F.S.Crawford (McGraw Hill 2011)

**Learning objectives & outcomes:**

1. To understand the difference between conservative and non-conservative forces.
2. To study the response of the classical systems to external forces and their elastic deformation.
3. To understand the dynamics of planetary motion.
4. To understand the different features of Simple harmonic, damped and forced harmonic motion.

**B. Sc. - Part I**  
**PHYSICS**  
**CIRCUIT FUNDAMENTALS AND BASIC ELECTRONICS**  
**PAPER II**

**UNIT – I**

Diodes: Zener diode regulator circuit diagram and explanation for load and line regulation, disadvantages of Zener diode regulator; Tunnel diode; Point contact diode; Light emitting diodes (LEDs); Photodiodes, Thermistors.

Transistors: Equivalent circuit for transistors, Basic model, hybrid model and y-parameter equivalent circuit, input and output impedances, Transistor Power amplifiers: Class A and B operation, maximum power output, effect of temperature, Distortion in amplifiers, cascading of stages.

**UNIT – II**

Field Effect Transistors: JFET, Construction, Idea of Channel Formation, Pinch-Off and Saturation Voltage, Current-Voltage Output Characteristics. MOSFET, types of MOSFETs, Circuit symbols, Working and Characteristic curves of Depletion type MOSFET (both N channel and P Channel) and Enhancement type MOSFET (both N channel and P channel). Complimentary MOS (CMOS)

Power Devices: Unijunction transistors (UJT), basic construction and working, Silicon controlled rectifier (SCR) construction, working and characteristics, Triac, Diac, IGBT, MESFET, operation and applications.

**UNIT – III**

Basic Operational Amplifier: Concept of differential amplifiers (Dual input balanced and unbalanced output), constant current bias, current mirror, cascaded differential amplifier stages with concept of level translator, block diagram of an operational amplifier (IC 741). Inverting, Non-inverting, Summing and difference amplifier, Integrator, Differentiator, Voltage to current converter, Current to voltage converter. Comparators: Basic comparator, Level detector, Voltage limiters, Schmitt Trigger.

**UNIT – IV**

Number System and Codes: Decimal, Binary, Hexadecimal and Octal number systems, base conversions, Binary, octal and hexadecimal arithmetic (addition, subtraction and multiplication), representation of signed and unsigned numbers, Binary Coded Decimal codes.

Logic Gates and Boolean algebra: Introduction to Boolean Algebra and Boolean operators,

Truth Tables of OR, AND, NOT, Basic postulates and fundamental theorems of Boolean algebra, Truth tables, construction and symbolic representation of XOR, XNOR, Universal (NOR and NAND) gates. Digital Logic families: Fan-in, Fan out, Noise Margin, Power Dissipation, Figure of merit, Speed power product, TTL and CMOS families and their comparison.

**References:**

1. Semiconductor Devices by Kanaan Kano
2. Basic Electronic Devices and Circuits by R. Y. Borse
3. S. M. Sze, Semiconductor Devices: Physics and Technology
4. Digital Principles and Application by Leach & Malvino
5. Digital Electronic Principles by A P Malvino

**Learning Objectives and Outcomes-**

1. Understanding the basic components of electronic devices
2. To design simple electronic circuits
3. Understanding the applications of various electronic devices

**B. Sc.- Part I  
PHYSICS  
OPTICS  
PAPER III**

**Unit I**

Interference of two beams of light, Conditions for interference, Spatial and temporal coherence, classification of interference, Division of Wavefront: Fresnel's Biprism, Lloyd's Mirror. Division of amplitude: Newton's rings, Michelson's Interferometer, Fringes of equal inclination, Fringes of equal thickness, Interference involving multiple reflections, Stokes' treatment, interference in transmitted light, Fabry-Perot interferometer, Edser- Butler interferometer.

**Unit II**

Fresnel and Fraunhofer Diffraction, Diffraction by a single and double slits. Derivation of equation for intensity, comparison of single-slit and double slit patterns, distinction between interference and diffraction, missing orders. Diffraction grating, formation of spectra by a grating, principal maxima, difference between spectra of prism and grating, production of ruled grating.

**Unit III**

Rayleigh's criterion of resolution, Resolving power of Grating, Resolving power of a telescope, Fresnel's half period zones, the straight edge, diffraction at a narrow wire, Zone plate. Polarization, polarization by reflection, polarizing angle, Brewster's law, Law of Malus, Polarization by dichroic crystals, birefringence, anisotropic crystals, Nicol prism, Retardation plates, Babinet compensator, Analysis of polarized light.

**Unit IV**

Optical activity and Fresnel's explanation, Half shade and Biquartz polarimeters, Jones matrix, matrix representation of plane polarized waves, matrices for polarizers, retardation plates and rotators; Sources of light: Incoherent (Sodium, Neon, Mercury) and coherent (Laser-simple treatment).

**Reference books**

1. Principles of Optics – Born and Wolf (Pergamon Press 1970)
2. Optics – F.W. Sears (Addison-Wesley 1975)
3. Fundamentals of Optics – Jenkins and White (McGraw Hill Education, 2017))
4. Optics - A. K. Ghatak (McGraw Hill Education 1992)

**Learning objectives and outcomes:**

1. To be able to understand the behaviour of light in optical systems.
2. To understand the effects of superposition of light and their applications physical systems.
3. To understand the differences between polarised and un-polarised light.

**B. Sc.- Part I**  
**PHYSICS**  
**PRACTICALS**

1. Determination of 'g' by compound pendulum
2. Determination of the modulus of rigidity of material of a wire by statical method.
3. Determination of the Young's modulus of the material of a beam by flexure method.
4. Determination of the frequency of AC mains using Sonometer.
5. Determination of Surface Tension of water by capillary rise method.
6. Determination of specific rotation of an optically active substance by Polarimeter.
7. Determination of resolving power of a Telescope.
8. Determination of the wavelength of light by Newton's rings.
9. Determination of the wavelength of sodium light by Fresnel biprism.
10. Determination of the diameter of a wire by diffraction.
11. Determination of the wavelength of mercury lines using transmission grating.
12. Verification of Brewster's law.
13. Determination of dispersive power of a prism.
14. Determination of melting point by Thermocouple.
15. Determination of height of a building by sextant.
16. Determination of mechanical equivalent of heat by Callender and Barne's method.

**General Skill Development and Training:**

- Least count of measuring instruments
- Levelling of optical benches and prism table using spirit level
- Removing optical bench error
- Use of Plumb Bob
- Focusing of spectrometer by Schuster's method

**B.Sc. - Part II**  
**PHYSICS**  
**ELECTRICITY AND MAGNETISM**  
**PAPER I**

**Unit I**

**Electrostatics:** Electric Field and Lines, Electric Field  $E$  due to a Ring of Charge. Electric Flux; Gauss's law, Gauss's law in Differential form. Applications of Gauss's Law :  $E$  due to (1) an Infinite Line of Charge, (2) a Charged Cylindrical Conductor, (3) an Infinite Sheet of Charge and Two Parallel Charged Sheets, (4) a Charged Spherical Shell, (5) a Charged Conducting Sphere, (6) a Uniformly Charged Sphere, (7) Two Charged Concentric Spherical Shells and (8) a Charged Conductor. Force on the Surface of a Charged Conductor and Electrostatic Energy in the Medium surrounding a Charged Conductor. Electric Potential: Line Integral of Electric Field. Electric Potential Difference and Electric Potential  $V$  (Line integral). Conservative Nature of Electrostatic Field. Relation between  $E$  and  $V$ . Electrostatic Potential Energy of a System of Charges. Potential and Electric Field of (1) a Dipole, (2) Quadrupole (3) a Charged Wire and (4) a Charged Disc. Force and Torque on a Dipole. Conductors in an Electrostatic Field. Description of a System of Charged Conductors. An Isolated Conductor and Capacitance. Electrostatic Energy stored in (1) a Point Charge, (2) a System of Point Charges, (3) a Uniform Sphere, (4) a Capacitor.

**Unit -II**

**Magnetism:** Magnetostatics: Magnetic Effect of Currents, Magnetic Field  $B$ . Magnetic Force between Current Elements and Definition of  $B$ . Magnetic Flux. Biot-Savart's Law :  $B$  due to (1) a Straight Current Carrying Conductor, (2) Current Loop and (3) Solenoid. Current Loop as a Magnetic Dipole and its Dipole Moment (Analogy with Electric Dipole). Ampere's Circuital law (Integral and Differential Forms):  $B$  due to (1) a Solenoid and (2) a Toroid. Properties of  $B$ . Curl and Divergence of  $B$ . Vector Potential. Forces on an Isolated Moving Charge. Magnetic Force on a Current Carrying Wire. Torque on a Current Loop in a Uniform Magnetic Field. Magnetic Properties of Matter: Gauss's law of magnetism (Integral and Differential Forms). Magnetization current. Relative Permeability of a Material. Magnetic Susceptibility. Magnetization Vector ( $M$ ). Magnetic Intensity ( $H$ ). Relation between  $B$ ,  $M$  and  $H$ . Magnetic Energy stored in Vacuum and Matter. Magnetic Circuit. B-H Curve and Energy Loss in Hysteresis.

**Unit -III**

**Electromagnetic Induction:** Faraday's laws of Electromagnetic Induction, Lenz's Law, Self and Mutual Inductance,  $L$  of Single Coil,  $M$  of Two Coils. Skin effect. Motion of Electron in Changing Magnetic field, Betatron.

**Ballistic Galvanometer:** Potential Energy of a Current Loop. Ballistic Galvanometer: Current and Charge sensitivity. Electromagnetic Damping. Logarithmic Damping.



## Unit –IV

**Dielectrics:** Electric Field in Matter. Dielectric Constant. Parallel Plate Capacitor with a Dielectric. Polarization, Polarization Charges and Polarization Vector. Electric Susceptibility. Gauss's law in Dielectrics. Displacement Vector  $\mathbf{D}$ . Relations between the three Electric Vectors. Capacitors filled with Dielectrics. Electrostatic equation with dielectrics, Field, Force and Energy in Dielectrics.

**Maxwell's equations and Electromagnetic wave propagation:** Equation of Continuity of Current, Displacement Current, Magnetic field due to Time varying Electric Field. Maxwell's Equations, Poynting vector, Energy Density in Electromagnetic Field, Electromagnetic Wave Propagation through Vacuum and Isotropic Dielectric Medium, Transverse nature of EM Waves.

### Suggested Books:

1. Electricity and Magnetism by Edward M. Purcell (McGraw-Hill Education, 1986)
2. Fundamentals of Electricity and Magnetism by Arthur F. Kip (McGraw-Hill, 1968)
3. Electricity and Magnetism by J H Fewkes & John Yarwood. Vol. I (Oxford Univ. Press, 1991).
4. Electricity and Magnetism. By D C Tayal (Himalaya Publishing House, 1988).
5. David J. Griffiths, Introduction to Electrodynamics, 3<sup>rd</sup> Ed, (Benjamin Cummings, 1998).
6. A Student's Guide to Maxwell's Equations by Daniel A. Fleisch, Cambridge University Press 2008.

### **Learning objectives and outcomes:**

1. Better understanding of Electrical and Magnetic phenomenon in daily life.
2. Gaining knowledge about Electromagnetic radiations
3. To understand the working of basic electrical devices
4. To be able to troubleshoot simple problem related to electrical devices.

**B.Sc. Part II**  
**PHYSICS**  
**THERMAL PHYSICS AND ELEMENTARY STATISTICAL MECHANICS**  
**PAPER II**

**Unit I**

**Thermodynamics:** Zeroth Law of thermodynamics and temperature. First law and internal energy, conversion of heat into work, Various Thermo-dynamical Processes, Applications of First Law: General Relation between  $C_p$  &  $C_v$ , Work Done during Isothermal and Adiabatic Processes, Compressibility & Expansion Coefficient, Reversible & irreversible processes, Second law & Entropy, Carnot 's cycle & theorem, Entropy changes in reversible & irreversible processes. Clausius Inequality, entropy and unavailable energy, Entropy-temperature diagrams, Third law of thermodynamics, Unattainability of absolute zero.

**Thermodynamic Potentials:** Enthalpy, Gibbs, Helmholtz and Internal Energy functions, Maxwell's relations & applications - Joule-Thompson Effect, Clausius-Clapeyron Equation, Expression for  $(C_p - C_v)$ ,  $C_p/C_v$ , TdS equations.

**Unit II**

**Kinetic Theory of Gases:** RMS speed, Kinetic Interpretation of temperature, Degree of Freedom, Law of equipartition of energy (no derivation) and its applications to specific heat of gases; mono-atomic and diatomic Gases. Mean free path, Transport Phenomena: Viscosity, Conduction and Diffusion (for vertical case), Derivation of Maxwell's law of distribution of velocities and its experimental verification.

**Unit III**

**Theory of Radiation:** Blackbody radiation, Spectral distribution, Concept of Energy Density, Concept and derivation of Planck's law, Deduction of Wien's distribution law, Rayleigh-Jeans Law, Stefan-Boltzmann Law and Wien's displacement law from Planck's law. Solar Constant.

**Unit IV**

**Statistical Mechanics:** Phase space, Macrostate and Microstate, Entropy and Thermodynamic probability, Maxwell-Boltzmann law - distribution of velocity -Quantum statistics - Fermi-Dirac distribution law - electron gas - Bose-Einstein distribution law - photon gas - comparison of three statistics.

**Reference books:**

1. Thermal Physics - S. Garg, R. Bansal and C. Ghosh (McGraw Hill Education 1993)
2. A Treatise on Heat - Meghnad Saha, and B.N. Srivastava (Indian Press 1969)
3. Heat and Thermodynamics - M.W.Zemasky and R. Dittman (McGraw-Hill College 1996)
4. Thermodynamics, Kinetic theory & Statistical thermodynamics - F.W.Sears & G.L.Salinger (Pearson 1975 )

5. Fundamentals of Statistical and Thermal Physics – F. Reif, Waveland Press 2009.
6. Statistical and Thermal Physics - S.Loknathan and R.S.Gambhir (BPB Publications, Delhi)

**Learning objectives and outcomes:**

1. To understand the dynamics of thermodynamic systems.
2. To understanding concepts of Black body Radiation.
3. To appreciate the concept of entropy.
4. To understand the different statistical behaviour of system of particles.

**B.Sc. - Part II**  
**PHYSICS**  
**PERSPECTIVES OF MODERN PHYSICS**  
**PAPER III**

**Unit I**

Inadequacies of classical mechanics, Photoelectric Effect, The Quantum Theory of Light, Continuous and characteristic X-ray, X-ray generation and uses, Compton effect, Gravitational Red Shift, de Broglie waves, de Broglie Wave Function and its Properties, Interpretation of wave function, de Broglie Wave Velocity, Complementary principle, Principle of superposition, Wave and Group Velocity, Motion of Wave Packets Davisson and Germer Experiment-Diffraction of Electrons, Wave-particle duality Experiment.

**Unit II**

Heisenberg's Uncertainty principle and its applications, Estimating minimum energy of a confined particle using uncertainty principle, Estimate of Hydrogen Ground State Energy; Wave Equation, Wave Equivalent of an unrestricted Particle, Time Dependent Schrödinger wave equation: Eigenvalues and Eigen Functions, Probability Current; Expectation values, Expectation Values of Energy and Momentum Operators, Ehrenfest theorem.

**Unit III**

Continuity of wave Function, Boundary Condition and Discrete Energy Levels, Steady State Schrödinger Equation, Application of Schrödinger Wave Equation for Particle in an infinitely Rigid Box: Energy and Momentum Quantization, Normalization, Quantum Dot as an example; One Dimensional Step Potential, Rectangular Barrier, Square Well Potential.

**Unit IV**

Bohr atomic model, de Broglie Waves and Stationary Orbits, Hydrogen Atom Spectrum, Atomic Excitation-Franck Hertz Experiment, Correspondence Principle, Sommerfeld Elliptic Orbits. Electron Angular Momentum, Space Quantization, Electron Spin and Spin Angular Momentum, Spin Magnetic Moment, Stern – Gerlach Experiment, Pauli's Exclusion Principle and Periodic Table. Fine structure, Spin Orbit Coupling, Spectral Notation for Atomic States, Total Angular Momentum, Vector Model, Coupling schemes (LS and jj) for two electron systems. Zeeman Effect for one Electron System.

**Reference Books:**

6. Concepts of Modern Physics- Arthur Beiser ( McGraw-Hill, 2009).
7. Modern Physics- John R. Taylor, Chris D. Zafiratos, Michael A. Dubson (PHI Learning 2009 ).
8. Six Ideas that Shaped Physics: Particles Behave like Waves, Thomas A. Moore, (McGraw Hill, 2009).

4. Modern Physics - R.A. Serway, C.J. Moses, and C.A. Moyer ( Third Edition, 2005, Cengage Learning
5. A Text book of Quantum Mechanics- P.M. Mathews & K. Venkatesan (2nd Ed., 2010, McGraw Hill).
6. Quantum Mechanics: Theory and Applications - Ajoy Ghatak, S. Lokanathan.( Macmillan Publishers India Limited).
7. Fundamentals of Modern Physics - R.M. Eisberg ( Wiley, New York).
8. Introduction to Atomic Spectra -H.E. White,( McGraw-Hill, New York).

**Learning objectives and outcomes:**

1. To be able to understand the Physics behind the foundation of micro-world.
2. To understand applications of X-rays in science.
3. To gain knowledge the constituents of an atom.

**B. Sc.- Part II**  
**PHYSICS**  
**PRACTICALS**

1. To study the time constant in a C.R. Circuit.
2. To study the solid state common power supply.
3. To determine the field along the axis of Helmholtz coil.
4. To measure magnetic field using a ballistic galvanometer.
5. To determine the capacity of condenser by absolute method.
6. To determine the coefficient of mutual induction between two coils.
7. To determine high resistance by leakage method.
8. To study the characteristics of junction and Zener diodes.
9. To Study the Characteristics of p-n-p transistor.
10. To measure 'L' & 'C' by A.C. bridge.
11. To measure 'H' by Earth Inductor.
12. To determine the coefficient of Self Induction.
13. To verify Maximum Power Transfer Theorem
14. To calibrate an oscillator using CRO.

**Skill Development and Training:**

1. To study colour coding of Resistances and Capacitances and determine their values.
2. To use a multimeter for measuring (i) Resistances (ii) AC and DC voltages & currents (iii) continuity of electrical circuits (checking electrical fuse etc.) (iv) testing of electronic devices e.g. pn junction diode, pnp transistor etc..

**B. Sc. – Part III**  
**PHYSICS**  
**ELEMENTS OF RELATIVISTIC AND CLASSICAL MECHANICS**  
**Paper I**

**Unit I**

Frame of reference, Earth as an inertial reference frame, Galilean transformation equations for the position, velocity and acceleration of a particle, Failure of Galilean relativity, Deduction of the law of linear momentum using Galilean invariance, Michelson – Morley experiment and its outcome, Explanation and its interpretation of the negative results with significance, Einstein's postulates of special theory of relativity, Lorentz transformation equations, Inverse Lorentz transformation equations.

**Unit II**

Length contraction or apparent length contraction, Numerical problems based on length contraction, Twin paradox, Relativistic Doppler effect, Applications of Doppler effect, Time dilation, Experimental verification of time dilation, Concept of simultaneity, Relativistic addition of velocities, Variation of mass with velocity or relativity of mass, Numerical problems based on variation of mass with velocity and mass energy equivalence. Limiting velocity of a material particle, Relativistic momentum and force, Mass energy equivalence and experimental verification, Relativistic relation between energy and momentum, Relativistic relation between kinetic energy and momentum, Gravitational red shift, General theory of relativity.

**Unit III**

Classical mechanics in Physics and some basic definitions, Mechanics of a system of particles, Constraints and their classification, Examples of constraints, Principle of virtual work, D'Alembert's principle and its applications, Degree of freedom, Generalized coordinates, Lagrangian formulation and Lagrange's equations of motion, Theorem on total energy, Cyclic or ignorable coordinates, Calculus of variation and its applications, The Hamilton formulation and Hamilton's equation of motion.

**Unit IV**

Definitions and properties of the central force, Two-body central force problem, reduction to equivalent one body problem, The equation of motion and first integrals, Classification of orbits, Integrable power laws of the central force, Kepler's laws – derivation of equations, Kepler's problem in velocity space; Inadequacy of Classical Mechanics, Virial theorem and its examples.

**Reference books:****Unit I and II:**

1. Concepts of Modern Physics - Arthur Beiser (Tata McGraw-Hill 2008)
2. Modern Physics - S. K. Gupta and B.S. Agarwal (Publisher: Kedar Nath Ram Nath, 2017)
3. Modern Physics – R. Murugesan, and K. Sivaprasath (S. Chand Publishing, 2016)

**Unit III and IV:**

4. Classical Mechanics - H. Goldstein, C. P. Poole, and J. L. Safko (Addison-Wesley 2001)
5. Introduction to Classical Mechanics - P. Puranik, R. Takwale (McGraw Hill Education, 2017)

**Learning objectives and outcome:**

1. To understand the distinctive features of Galilean, Special Relativistic and General Relativistic approaches.
2. To understand the dynamics of Classical Systems.
3. To improve our understanding of the universe.



**B.Sc. – Part III**  
**PHYSICS**  
**SOLID STATE AND NUCLEAR PHYSICS**  
**Paper II**

**Unit –I**

**Crystal Structure:** Lattice Translation Vectors and Lattice, Basis and Crystal Structure, Primitive and Unit Cells, Two and Three dimensional lattice types, Symmetry operations, Points groups and space groups, Miller indices, Simple crystal structures, NaCl, CsCl, Diamond, Cubic, ZnS and Hexagonal, Glasses.

X-ray Diffraction, Laue Equations, Bragg's Law, Experimental Diffraction Method, Laue Method, Rotating-Crystal Method, Powder Method, Derivation of Scattered Wave Amplitude, Reciprocal Lattice Vectors, Diffraction Conditions, Ewald Method, Brillouin Zones, Reciprocal Lattice to SC, BCC and FCC lattices, Fourier Analysis of the Basis and Atomic and Crystal Structure Factor.

**Unit – II**

**Crystal Bindings:** Crystal of Inert Gases, Van der Waals-London Interaction Repulsive Interaction, Equilibrium Lattice Constants, Cohesive Energy, Compressibility and Bulk Modulus of Ionic Crystal, Madelung Energy and Evaluation of Madelung Constant, Covalent Crystals, Metallic Bond, Hydrogen-Bonded Crystals, Atomic Radii.

**Elementary Lattice Dynamics:** Lattice Vibrations and Phonons, Linear Mono- and Diatomic Chains, Acoustic and Optical Phonons (Qualitative treatment only), Qualitative Description of Phonon in Solids, Dulong and Petit's Law, Einstein Theory of Specific Heat of solids.

**Electrical and Thermal Properties of Materials:** Free Electron Theory, Fermi Energy, Density of States, Heat Capacity of Electron Gas, Paramagnetic Susceptibility of Conduction Electrons, Hall Effect in Metals. Origin of Band Theory, Qualitative Idea of Bloch Theorem, Kronig-Penney Model, Number of Orbitals in a Band, Effective Mass of Electron, Concept of Holes, Band Gap, Energy Band Diagram and Classification of Solids.

**Unit III**

**Basic Properties of Nuclei:** Mass, Radii, Charge, angular Momentum, Spin, Parity, Magnetic Dipole moment, Electric Quadrupole Moment, Binding Energy and Nuclear Stability.

**Nuclear Forces:** Deuteron ground state properties and basic characteristics of Nuclear force.

**Nuclear Models:** Liquid drop model, Bethe Weizsacker mass formula, Single particle shell model (only the level scheme in the context of reproduction of magic numbers), basic idea of Collective model.

**Natural Radioactivity:** Basic ideas about  $\alpha$ ,  $\beta$  and  $\gamma$  decay. Radioactive growth and decay, ideal, transient, and secular equilibrium.

## Unit IV

**Nuclear Reactions:** Nuclear reactions and their conservation laws, Cross section of nuclear reactions, Theory of fission (Qualitative), Nuclear reactors and Nuclear fusion.

**Accelerators and detectors:** Van de Graaff generator, linear accelerator, Cyclotron and Synchrotron, Interaction of charged particles and gamma rays with matter (qualitative), GM counter, Scintillation counter, principle of Semi-Conductor (SC) detectors.

**Elementary Particles:** Basic interactions and their mediating quanta, types of particles and their families, Fermions and Bosons, Leptons and Hadrons. Baryon number, Lepton number, particles and antiparticles, idea of resonance states, conservation laws in fundamental interactions, Strangeness, Isospin, concept of Quark model.

### Reference Books:

#### Unit I and II

- 1 Introduction to Solid State Physics- Charles Kittel (Wiley 2012)
- 2 Elements of Solid State Physics - J P Srivastava (Prentice-Hall of India, 2006)
- 3 Introduction to Solids - L V Azaroff (Tata McGraw Hill 1993)
- 4 Solid State Physics - Ashcroft and Mermin (Cengage Learning 2009)
- 5 Solid State Physics – A J Dekker (Macmillan 1965)

#### Unit III and IV

6. Introductory nuclear Physics - Kenneth S. Krane (Wiley 2008)
7. Concepts of Nuclear Physics - Bernard L. Cohen (McGraw Hill Education, 2017)
8. Introduction to the Physics of Nuclei & Particles - R. A. Dunlap (Brooks/Cole 2003)
9. Introduction to Elementary Particles - D. Griffiths (Wiley-VCH, 2008)
10. Basic ideas and concepts in Nuclear Physics - An Introductory Approach - K. Heyde (CRC Press 2004)

### Learning objectives and outcomes:

1. To learn applications of crystallography in the study of materials.
2. To understand how crystallography aids in building new materials.
3. To Study the Structure and Stability of Nucleus and thus help understand the Evolution of Universe
4. To learn application of Nuclear Physics in Nuclear Medicine Diagnosis and Treatment as well building safe reactors (Fission/ Fusion Type) to provide clean energy.

**B.Sc. – Part III  
PHYSICS  
PRACTICAL**

1. To study the characteristics of Field Effect Transistor.
2. Study of FET as a Voltage Variable Resistor(VVR) and application of FET as a VVR in Voltage Controlled Attenuator (VCA)
3. Study of IC amplifier.
4. Frequency response of RC coupled amplifier.
5. Determination of the velocity of sound by Cathode Ray Oscilloscope.
6. Determination of Stefan's constant.
7. To study resonance in series and parallel LCR circuit.
8. Wavelength of mercury lines by transmission grating up to two orders.
9. Resolving power of grating.
10. Determination of wavelength of sodium light and thickness of mica sheet by Fresnel's biprism.
11. Measurement of variation of Capacitance and Permittivity of air.
12. Rectifier Efficiency and ripple factor of a stabilised power supply.

**Skill Development and Training**

- To study the waveform and measure (i) voltage (ii) Frequency of a periodic waveform using a Cathode Ray Oscilloscope.
- Designing of Audio Frequency RC Coupled Amplifier for a given Bandwidth.
- Designing a Common Power Supply.

18

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## **B.A./B.Sc. I Mathematics**

### **Paper I (Differential Calculus)**

**Learning Objective :** The learning objective is to give foundation for pursuing research in Mathematics as well as to provide quantitative skills.

**Learning Outcome :** By the time students complete the course they have wide ranging applications of the subject and has the knowledge of real valued functions such as sequences and convergence. He has the knowledge about curvature, envelope and evolutes and trace curve in polar and cartesian systems.

#### **Unit I**

Definition of a sequence, Theorems on limits of sequences, Bounded and Monotonic sequences, Cauchy's convergence criterion, Cauchy sequence, limit superior and limit inferior of a sequence, subsequence, Series of non-negative terms, convergence and divergence; Comparison tests, Cauchy's integral test, Ratio tests, nth Root test, Raabe's, logarithmic, De Morgan and Bertrand's tests, Alternating series, Leibnitz's theorem, Absolute and conditional convergence.

#### **Unit II**

Limit, Continuity and differentiability of functions of single variable, Cauchy's definition, Heine's definition, equivalence of definition of Cauchy and Heine, Uniform continuity, Borel's theorem, boundedness theorem, Bolzano's theorem, Intermediate value theorem, Extreme value theorem, Darboux's intermediate value theorem for derivatives, Chain rule, Indeterminate forms.

#### **Unit III**

Successive differentiation, Leibnitz theorem, Maclaurin's and Taylor's series, Rolle's theorem, Lagrange and Cauchy Mean value theorems, Mean value theorems of higher order, Taylor's theorem with various forms of remainders, Partial differentiation, Euler's theorem on homogeneous function.

#### **Unit IV**

Tangent and Normals, Asymptotes, Curvature, Envelops and evolutes, Tests for concavity and convexity, Points of inflexion, Multiple points, Tracing of curves in Cartesian and Polar forms.

#### **Books recommended:**

1. R. G. Bartle & D. R. Sherbert, Introduction to Real Analysis, John Wiley & Sons
2. T.M. Apostol, Calculus Vol. I, John Wiley & Sons Inc.
3. S. Balachandra Rao & C.K. Shantha, Differential Calculus, New Age Publication.

## **Paper II (Integral Calculus)**

**Learning Objective :** The main objective of the course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to solve a variety of practical problems in science and engineering.

**Learning Outcome :** The student is equipped with standard concepts and tools at an intermediate to advanced level that will serve him well towards taking more advanced level courses in Mathematics.

### **Unit I**

Definite integrals as limit of the sum, Riemann integral, Integrability of continuous and monotonic functions, Fundamental theorem of integral calculus, Mean value theorems of integral calculus, Differentiation under the sign of Integration.

### **Unit II**

Improper integrals: their classifications and convergence, Comparison test,  $\mu$ -test, Abel's test, Dirichlet's test, quotient test, Beta and Gamma functions: properties and convergence.

### **Unit III**

Rectification, Volumes and Surfaces of Solid of revolution, Pappus theorem, Multiple integrals, change of order of double integration, Dirichlet's theorem, Liouville's theorem for multiple integrals

### **Unit IV**

Vector Differentiation, Gradient, Divergence and Curl, Normal on a surface, Directional Derivative, Vector Integration, Theorems of Gauss, Green, Stokes and related problems

### **Books recommended:**

1. T.M. Apostol, Calculus Vol. II, JohnWiley Publication.
2. Shanti Narayan & Dr. P.K. Mittal, Integral Calculas, S. Chand
3. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons .

## **Paper III (Matrices & Differential Equations)**

**Learning Objective :** The subjects of the course are designed in such a way that they focus on developing mathematical skills in algebra, calculus and analysis and give in depth knowledge of geometry, calculus, algebra and other theories.

**Learning Outcome :** The student will be able to find the rank, eigen values of matrices and study the linear homogeneous and non-homogeneous equations. The course in differential equation intends to develop problem solving skills for solving various types of differential equation and geometrical meaning of differential equation.

### **Unit I**

Types of Matrices, Elementary operations on Matrices, Rank of a Matrix, Echelon form of a Matrix, Normal form of a Matrix, Inverse of a Matrix by elementary operations, System of linear homogeneous and non-homogeneous equations, Theorems on consistency of a system of linear equations.

### **Unit II**

Eigen values, Eigen vectors and characteristic equation of a matrix, Cayley-Hamilton theorem and its use in finding inverse of a matrix, Complex functions and its separation into real and imaginary parts, Exponential and Logarithmic functions, Inverse trigonometric and hyperbolic functions.

### **Unit III**

Formation of differential equations, Geometrical meaning of a differential equation, Equation of first order and first degree, Equation in which the variables are separable, Homogeneous equations, Exact differential equations and equations reducible to the exact form, Linear equations.

### **Unit IV**

First order higher degree equations solvable for  $x$ ,  $y$ ,  $p$ , Clairaut's equation and singular solutions, orthogonal trajectories, Linear differential equation of order greater than one with constant coefficients, Cauchy- Euler form.

### **Books recommended:**

1. Stephen.H. Friedberg, A.J Insel & L.E. Spence, Linear Algebra, Pearson
2. B. Rai, D.P. Choudhury & H.I. Freedman, A course in Ordinary Differential Equations , Narosa .
3. D.A. Murray, Introductory Course in Differential Equations, Orient Longman

## **Paper IV (Geometry)**

**Learning Objective :** The students learn and visualize the fundamental ideas about coordinate geometry and learn to describe some of the surfaces by using analytical geometry.

**Learning Outcome :** On successful completion of the course students have gained knowledge about regular geometrical figures and their properties. They have the foundation for going for higher course in Geometry.

### **Unit I**

General equation of second degree, System of conics, Tracing of conics, Confocal conics, Polar equation of conics and its properties.

### **Unit II**

Three-Dimensional Coordinates, Projection and Direction Cosine, Plane (Cartesian and vector form), Straight line in three dimension (Cartesian and vector form).

### **Unit III**

Sphere, Cone and Cylinder.

### **Unit IV**

Central conicoids, Paraboloids, Plane section of conicoids, Generating lines, Confocal conicoids, Reduction of second degree equations.

### **Books recommended:**

1. Robert J.T Bell, Elementary Treatise on Coordinate Geometry of three dimensions, Macmillan India Ltd.
2. P.R. Vittal, Analytical Geometry 2D & 3D, Pearson.

## **B.A./B.Sc. Part II Mathematics**

### **Paper I (Algebra)**

**Learning Objective:** Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of Group, Ring theory and their properties.

**Learning Outcome:** A student learning this course gets a concept of Group, Ring, Integral domain and their properties. This course will lead the student to basic courses in advanced Mathematics and Algebra.

#### **Unit I**

Equivalence relations and partitions, Congruence modulo  $n$ , Definition of a group with examples and simple properties, Subgroups, Generators of a group, Cyclic groups.

#### **Unit II**

Permutation groups, Even and odd permutations, The alternating group, Cayley's theorem, Direct products, Coset decomposition, Lagrange's theorem and its consequences, Fermat and Euler theorems

#### **Unit III**

Normal subgroups, Quotient groups, Homomorphism and isomorphism, Fundamental theorem of homomorphism, Theorems on isomorphism.

#### **Unit IV**

Rings, Subrings, Integral domains and fields, Characteristic of a ring, Ideal and quotient rings, Ring homomorphism, Field of quotient of an integral domain.

#### **Books recommended:**

1. J.B. Fraleigh, A first course in Abstract Algebra, Addison -wesley.
2. I.N. Herstein, Topics in Algebra, John Wiley & Sons.



## **Paper II: Mathematical Methods**

**Learning Objective:** The course gives emphasis to enhance students knowledge of functions of two variables, Laplace Transforms, Fourier Series.

**Learning Outcome:** On successful completion of the course students should have gained knowledge about higher different mathematical methods and will help him in going for higher studies and research.

### **Unit I**

Limit and Continuity of functions of two variables, Differentiation of function of two variables, Necessary and sufficient condition for differentiability of functions two variables, Schwarz's and Young theorem, Taylor's theorem for functions of two variables with examples, Maxima and minima for functions of two variables, Lagrange multiplier method, Jacobians.

### **Unit II**

Existence theorems for Laplace transforms, Linearity of Laplace transform and their properties, Laplace transform of the derivatives and integrals of a function, Convolution theorem, inverse Laplace transforms, Solution of the differential equations using Laplace transforms.

### **Unit III**

Fourier series, Fourier expansion of piecewise monotonic functions, Half and full range expansions, Fourier transforms (finite and infinite), Fourier integral.

### **Unit IV**

Calculus of variations-Variational problems with fixed boundaries- Euler's equation for functionals containing first order derivative and one independent variable, Extremals, Functionals dependent on higher order derivatives, Functionals dependent on more than one independent variable, Variational problems in parametric form.

### **Books recommended:**

1. T.M. Apostol, Mathematical Analysis, Pearson.
2. G.F. Simmons, Differential Equations with Applications and Historical Notes by Tata-McGrawHill
3. Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons Inc.

## **Paper III: Differential Equations**

**Learning Objective:** The objective of this course is to familiarize the students with various methods of solving differential equations, partial differential equations of first order and second order and to have a qualitative applications.

**Learning Outcome:** A student doing this course is able to solve differential equations and is able to model problems in nature using ordinary differential equations. After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc. All these courses are important in engineering and industrial applications for solving boundary value problem.

### **Unit I**

Second order linear differential equations with variable coefficients: Use of a known solution to find another, normal form, method of undetermined coefficient, variation of parameters, Series solutions of differential equations, Power series method.

### **Unit II**

Bessel, Legendre and hypergeometric functions and their properties, recurrence and generating relations.

### **Unit-III**

Origin of first order partial differential equations. Partial differential equations of the first order and degree one, Lagrange's solution, Partial differential equation of first order and degree greater than one. Charpit's method of solution, Surfaces Orthogonal to the given system of surfaces.

### **Unit-IV**

Origin of second order PDE, Solution of partial differential equations of the second and higher order with constant coefficients, Classification of linear partial differential equations of second order, Solution of second order partial differential equations with variable coefficients, Monge's method of solution.

### **Books recommended:**

1. G.F. Simmons, Differential Equations with Applications and Historical Notes, Tata McGraw-Hill.
2. B.Rai, D.P. Choudhury & H.I. Freedman, A Course of Ordinary Differential Equations, Narosa.
3. Ian N. Snedden, Elements of Partial Differential Equations, Dover Publication.
4. L.E. Elsgolts, Differential Equations and calculus of Variations, University press of the Pacific.

## **Paper IV: Mechanics**

**Learning Objective:** The object of the paper is to give students knowledge of basic mechanics like simple harmonic motion, motion under other laws and forces.

**Learning Outcome:** The student, after completing the course can go for higher problems in mechanic such as Hydrodynamics, this will be helpful in getting employment in industry.

### **Unit I**

Frame of reference, work energy principle, Forces in three dimensions, Poincot's central axis, Wrenches, Null lines and planes.

### **Unit II**

Virtual work, Stable and Unstable equilibrium, Catenary, Catenary of uniform strength

### **Unit III**

Velocities and accelerations along radial and transverse directions, and along tangential and normal directions, Simple Harmonic motion, Motion under other law of forces. Elastic strings, Motion in resisting medium, Constrained motion, Motion on smooth and rough plane curves.

### **Unit IV**

Motion of particles of varying mass, Rocket motion, Central orbit, Kepler's laws of motion,, Motion of particle in three dimensions, Rotating frame of reference, Rotating Earth, Acceleration in terms of different coordinates systems.

### **Books recommended:**

1. R.C. Hibbeler, Engineering Mechanics-Statics, Prentice Hall Publishers.
2. R.C. Hibbeler, Engineering Mechanics-Dynamics, Prentice Hall Publishers.
3. A. Nelson, Engineering Mechanics Statics and Dynamics, Tata McGraw Hill
4. J.L. Synge & B.A. Griffith, Principles of Mechanics by Tata McGraw-Hill.

## **B.A./B.Sc. III Mathematics**

### **Paper I: Analysis**

**Learning Objective:** The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena and gives the student the foundation in Mathematics.

**Learning Outcome:** After completion of this course the student will have rigorous and deeper understanding of fundamental concepts in Mathematics. This will be helpful to the student in understanding Pure Mathematics and in research.

#### **Unit I**

Definition and examples of metric spaces, Neighbourhoods, Interior points, Limit points, Open and closed sets, Convergent and Cauchy sequences, Completeness, Cantor's intersection theorem, Series of arbitrary terms, Convergence divergence and oscillation, Uniform convergence of sequences and series of functions, Uniform convergence and continuity, Uniform convergence and integration, Uniform convergence and differentiation, Power series.

#### **Unit II**

Complex numbers as ordered pairs, geometric representation of complex numbers, Stereographic projection, Continuity and Differentiability of functions of complex variables, Analytic functions, Cauchy Riemann equations, Harmonic functions.

#### **Unit III**

Complex integration, Cauchy-Goursat theorem, Cauchy's integral formula, Formulae for first, second and nth derivatives, Cauchy's Inequality, Maximum Moduli theorem, Liouville's Theorem, Elementary functions, Mapping by elementary functions.

#### **Unit IV**

Taylor and Laurent Series, Absolute and uniform convergence of Power series, Residues and Poles, Residue theorem, Zeros and Poles of order  $m$ , Evaluation of improper real integrals, Improper Integrals and definite integrals involving sines and cosines, conformal mapping.

#### **Books recommended:**

1. J.W.Brown & R.V.Churchill, Complex Variables and Applications, McGraw Hill
2. S.C. Malik & Savita Arora, Mathematical Analysis, New Age Publication.

## **Paper II: Linear & Abstract Algebra**

**Learning Objective:** Linear algebra is a basic course in almost all branches of science. The objective of this course is to introduce a student to the basics of linear algebra and some of its applications.

**Learning Outcome:** The student will use this knowledge in computer science, finance mathematics, industrial mathematics and bio mathematics. After completion of this course students appreciate its interdisciplinary nature.

### **Unit I**

Automorphism, inner automorphism, automorphism groups and their computations, Conjugacy relations, Normaliser, Counting principle and the class equation of a finite group, Center of group of prime power order, Sylow's theorems, Sylow  $p$ -subgroup.

### **Unit II**

Prime and maximal ideals, Euclidean Rings, Principal ideal rings, Polynomial Rings, Polynomial over the Rational Field, The Eisenstein Criterion, Polynomial Rings over Commutative Rings, unique factorization domain.

### **Unit III**

Vector spaces, Subspaces, Linear independence and dependence of vectors, Basis and Dimension, Quotient space, Coordinates, Computation concerning subspaces, Linear transformations, The Algebra of linear transformations, rank nullity theorem, their representation as matrices

### **Unit IV**

Linear functionals, Dual space, transpose of a linear transformation, Characteristic values, annihilating polynomials, Cayley Hamilton Theorem, Inner product spaces, Cauchy-Schwarz inequality, orthogonal vectors, Orthogonal complements, Orthonormal sets and bases, Bessel's inequality for finite dimensional spaces, Gram-Schmidt orthogonalization process, Bilinear, Quadratic and Hermitian forms.

### **Books recommended:**

1. I.N. Herstein, Topics in Algebra, JohnWiley & Sons .
2. K. Hoffman and R. Kunze, Linear Algebra, Prentice Hall India learning

## **Paper III: Numerical Analysis**

**Learning Objective:** The aim of this course is to teach the student the application of various numerical techniques for variety of problems occurring in daily life. At the end of the course the student will be able to understand the basic concept of Numerical Analysis and to solve algebraic and differential equation.

**Learning Outcome:** The main outcome will be that students will be able to handle problems and finding approximated solution. Later he can opt for advance course in Numerical Analysis in higher Mathematics.

### **Unit I**

Solution of equations: bisection, Secant, Regula Falsi, Newton Raphson's method, Newton's method for multiple roots, Newton's method for system of two non-linear equations, Interpolation, Lagrange and Hermite interpolation, Difference schemes, Divided differences, Interpolation formula using differences.

### **Unit II**

Numerical differentiation, Numerical Quadrature: Newton Cotes Formulas, Gaussian Quadrature Formulas, System of Linear equations: Direct method for solving systems of linear equations (Gauss elimination, LU Decomposition, Cholesky Decomposition), Iterative methods (Jacobi, Gauss Seidel, Relaxation methods). The Algebraic Eigen value problem: Jacobi's method, Givens method, Power method

### **Unit III**

Numerical solution of Ordinary differential equations: Euler method, single step methods, Runge-Kutta method, Multi-step methods, Milne-Simpson method, Types of approximation, Least square polynomial approximation, Uniform approximation, Chebyshev polynomial approximation.

### **Unit IV**

Difference Equations and their solutions, Shooting method and Difference equation method for solving Linear second order differential equation with boundary conditions of first, second and third type.

#### **Books recommended:**

1. M. K. Jain, S. R. K. Iyengar & R. K. Jain, Numerical Methods for Scientific and Engineering computation, New Age International.
2. S. S. Sastry, Introductory methods of Numerical Analysis, Prentice- Hall of India.
3. B. Bradie, A friendly introduction to Numerical Analysis, Pearson Education.

## **Paper IV: Differential Geometry & Tensor Analysis**

**Learning Objective:** The objective of the course is to have basic concepts of tensors and understand the role of Tensors in Differential Geometry.

**Learning Outcome:** After doing the basic course in Tensors and Differential Geometry the student will have basic knowledge of tensors and will enable him to go for higher course in Tensors and Differential Geometry leading to research in Differential Geometry.

### **Unit I**

Local theory of curves- Space curves, Examples, Plane curves, tangent and normal and binormal, Osculating plane, normal plane and rectifying plane, Helices, Serret-Frenet apparatus, contact between curve and surfaces, tangent surfaces, involutes and evolutes of curves, Bertrand curves, Intrinsic equations, fundamental existence theorem for space curves, Local theory of surfaces- Parametric patches on surface curve of a surface, family of surfaces (one parameter), edge of regression, ruled surfaces, skew ruled surfaces and developable surfaces, surfaces of revolutions, Helicoids.

### **Unit II**

Metric-first fundamental form and arc length, Local theory of surfaces, Direction coefficients, families of curves, intrinsic properties, geodesics, canonical geodesic equations, normal properties of geodesics, geodesics curvature, geodesics polars, Gauss-Bonnet theorem, Gaussian curvature, normal curvature, Meusnier's theorem, mean curvature, Gaussian curvature, umbilic points, lines of curvature, Rodrigue's formula, Euler's theorem.

### **Unit III**

Tensor algebra : Vector spaces, the dual spaces, tensor product of vector spaces, transformation formulae, contraction, special tensor, inner product, associated tensor.

Tensor Analysis: Contravariant and covariant vectors and tensors, Mixed tensors, Symmetric and skew-symmetric tensors, Algebra of tensors, Contraction and inner product, Quotient theorem, Reciprocal tensors, Christoffel's symbols, Covariant differentiation.

### **Unit IV**

Gradient of scalars, Divergence of a contra-variant vector, covariant vector and conservative vectors, Laplacian of an invariant, curl of a covariant vector, irrotational vector, Riemannian space, Riemannian curvatures and their properties, Ricci tensor, and scalar curvature, Einstein

space and Einstein tensor, intrinsic derivative, Geodesics, Geodesics coordinate, parallelism of vectors.

**Books recommended:**

1. T. J. Willmore, An Introduction to Differential Geometry, Dover Publications.
2. J.A. Thorpe, Introduction to Differential Geometry by Springer-Verlag



**ANTHROPOLOGY**

Anthropology is the study of human beings in time and space. The syllabus is based on the integrated approach to the subject incorporating insight from physical, social and archaeological anthropology. The thrust is laid on an in-depth understanding involving holistic approach of anthropology using theoretical and practical teaching. The program is based on professional competence of subject in the light of perceivable need of trained anthropologist in academic and research institute, Non-government organizations, health sectors and applied sciences. The focus of the program is to equip the learners to employ anthropological insight to understand and relate current biosocial shift. It provides an opportunity to a large segment of people desirous to understand the essence of the subject.

**B. Sc Part – I**

**Learning Objectives:**

- 1. What does anthropology mean?
- 2. The subject matter of social anthropology
- 3. How social anthropology had developed
- 4. The journey of anthropology in India and
- 5. Future perspective and present scenario

**Paper –I: Introduction to Social-Cultural Anthropology**

**Unit-I**

Anthropology and its branches; Meaning and scope of Social-Cultural Anthropology. Future perspective and present Scenario. Its relationship with other social sciences (esp : Sociology and History).

Society and Community, Group and Institution, Status and Role, Caste and Class, Written and Unwritten language, Speech. Language and Dialect. Phonemes and Morphemes defined and distinguished.

**Unit-II**

Definition, types and forms of marriage. Marriage payments : Dowry and bride wealth. Rules and regulations (Prohibition, preferential, exogamy, endogamy, levirate and sororate).

The natural history and universality of family. Types of family. Joint family system in India.

### Unit-III

Kinship terms and usages. Descriptive and classificatory systems, Morgan's and Murdock's view, Avoidance and joking relationship. Patterns of residence and descent. Kin groups- lineage, clan, Phratry, moiety.

Economic Anthropology and Economic Theory. Production and Modes of exchange in primitive societies. Money and market exchange.

### Unit-IV

Social Order in stateless political systems, State and its formation. Anthropology and the study of law. Cultural background of law (suitable cases)

Theories of origin of religion – Animism, Animatism, Naturism etc. Thoughts on magic, religion and science. Totemism and Taboo.

### Suggested Readings

- Eriksen, Thomas Hylland. 1995. Small Places, Large Issues: An Introduction to Social and Cultural Anthropology. 2nd edition 2001, London: Pluto Press.
- Mair, Lucy. 1972. An Introduction to Social Anthropology. Oxford: Oxford University Press.
- Majumdar, D.N. and T.N. Madan. 1957. An Introduction to Social Anthropology. Bombay: Asia Publishing House
- Vidyarthi, L.P. 1978. Rise of Anthropology in India. Delhi: Concept Publishing Company.
- Misra & Hasnain 1998: Introducing Social-Cultural Anthropology, Jawahar Publishers and Distributors, Delhi

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

**Outcomes:**

1. In this unit the focus is on how social anthropology has developed as a discipline covering the different aspects of human life.
2. We will know about different theoretical frameworks of social anthropology.
3. Different approaches considering the geographical variations, present and future scenario of social anthropology have also been a part of it.

## **Paper - II: Human Evolution**

### **Learning Objectives:**

1. Definition of physical anthropology and its historical background;
2. Scope of physical anthropology;
3. Meaning of Applied physical anthropology
4. Different branches of physical anthropology

### **Unit-I**

Evolutionary Anthropology—its scope, place in Physical Anthropology and other branches of Anthropology. Applied Physical Anthropology.

Origin of Life and Evidence of Evolution. Theories of Organic Evolution: Lamarckian paradigm and the Mechanism of Evolutionary change. Darwin's theory of Natural Selection and its criticism. Neo-Darwinism and the Synthetic Theory of Evolution. Neutral theory of Molecular Evolution.

### **Unit-II**

Taxonomy and Classification. The Binomial Nomenclature. Man's place in the Animal Kingdom. The Phylum Chordata and its sub-division. The Vertebrates and their general characteristics. The class Mammalia, general characteristics and classification.

The Primates, their evolutionary tendencies and classification. Detailed study of the general characteristics of the following: Tree shrews, Lemurs, Tarsiers, Monkeys, Apes and Man.

### **Unit-III**

General Characteristics of Primate Skeleton. Their Patterns of Locomotion, Manipulation, Mastication and the Mental Processes.

Evolution of Man's posture—Theories concerning the origin of Man's posture. Evolution of Orthograde spine, postural adaptations of shoulders, thorax, abdomen, the viscera, pelvis and the evolution of human foot.

## Unit-IV

Fossil Evidence for the Emergence of man. Fossils and fossilization. Geological time scale and dating methods. Early hominid fossils – Ramapithecus and Australopithecus, Homo habilis.

Emergence of Man–Homo Erectus–general characteristics, cultural context and phylogenetic position. Mousterian Man–Homo Neanderthalensis–progressive and conservative controversy–its general characteristics, disappearance, cultural context and its place in Human Phylogeny. Homo Sapiens–Rhodesian man, Cromagnon Race, Chancelade and Grimaldi, Races and Species of Fossils.

### Suggested Readings

- a. Boaz, N.T and Almquist, A.J. 1999. Essentials of Biological Anthropology, New Jersey, Prentice Hall.
- b. Harrison, G.A., Weiner, J.S., Tanner, J.M. and Barnicot, N.A.1964. Human Biology.Oxford University Press
- c. Harrison, G.A, Weiner, J.S., Tanner, J.M., Barnicot, N.A. and Reynolds,V. 1977. Human Biology, An Introduction to Human Evolution, Variation, Growth and Ecology. Oxford University Press.
- d. Sarkar, R.M. 2000. Fundamentals of Physical Anthropology. Calcutta, Vidyodaya Library Private Limited.
- e. Shukla, B. R.K. and Rastogi, S. 1999. Physical Anthropology and Human Genetics- An Introduction. Delhi, Palka Prakashan.
- f. Stein, P. L. and Rowe, B.M. 1974. Physical Anthropology. New York, McGrawHill.

### Distribution of Marks

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### Outcomes

1. The learners will come to know the various definitions of physical anthropology given depending upon the focus at that time.

2. The mechanisms of biological evolution, genetic inheritance, human adaptability and variation, primatology and the fossil record of human evolution constitute Physical Anthropology reflecting an important scenario in today's increasingly specialised world of science.
3. Provide information on human genetics, growth and development and evolutionary history
4. It will also provide studies to facilitate in the understanding of reliable history of the origin and evolution of mankind and its varieties; and attempts to evaluate the reasons of human variation.

## **Paper - III: Introduction to Indian Culture**

### **Learning Objectives:**

1. Understand how Indian culture evolved through centuries, how culture is the integral part of our endeavour.
2. Appreciate the interdependence of several aspects of human life through which one develops oneself as a cultured person.
3. Acquire a brief overview of the compositeness of Indian culture, its nature of plurality and also about the diverse elements of society in understanding culture.

### **Unit-I**

Tribal cultures of India : demographic, regional, economic and linguistics classification of India tribes. Approaches to the study of India culture. Indian culture : its unity and diversity.

Linguistic map of India. Linguistic diversity and language-culture. Language issues and National integration, and Nation-building.

### **Unit-II**

Hindu religious, and philosophical tradition : The six classical philosophical systems.

Purushartha and Varna-ashrama, Dharma. Social disabilities in a caste society and their eradication.

### **Unit-III**

Processes of change - Sanskritization and Westernization. Industrialization and Urbanization. Impact of change on Indian society and culture.

Contribution of non-Hindus to Indian culture (Jainism, Buddhism, Islam and Christians)

### **Unit-IV**

Pre-British, British and post-independence educational system and their evaluation.

Aesthetic and creative aspects of Indian Culture : architecture, sculpture, music and dance.

### **Suggested Readings**

Basham, A.L.1977. Wonder That Was India, Sidgwick and Jackson, U.K.  
Cohn, Barnard 1971. India: The Social Anthropology of a Civilization, Prentice Hall, USA  
Gupta D. (Ed.) (1992). Social Stratification Delhi: Oxford University Press.  
Mandelbaum 2016 : Society in India, Sage publications, India  
Hasnain, Nadeem 2010 : Indian Society and Culture : Continuity and Change, Jawahar Publishers and Distributors, New Delhi.  
Hasnain, Nadeem 2012: Samakalin Bhartiya Samaj : Ek Samsjshastriya Paridrishya, Bharat Book Centre, Lucknow  
Sharma, K.L. 1997: Social Stratification in India:Issues and Themes, New Delhi: Sage Publications.

### **Distribution of Marks:**

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### **Outcomes:**

Learners will come to know about Industrialization and urbanization and its vital role in generating mobility both in the caste and class societies by emphasizing on the role of achievement and skill acquired through education. It will also give insights on changes occurring from time to time during historical period and how Indian society sustained each time.



## Paper - IV: Practical

### Learning Objectives

1. Learn about the utility and benefits of Anthropometry
2. Applied anthropometric applications
3. To understand Human variation and human evolution

Cephalometry (List of measurements provided by the department)

Somatometry (List of measurements provided by the department)

Cranionometry (List of measurements provided by the department)

Indices (List provided by the department)

Somatoscopic Observations (List provided by the department)

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
Written	<b>60</b>
Viva	<b>20</b>
Internal assessment (distribution as below)	<b>20</b>
• Lab Work	<b>15</b>
• Attendance	<b>05</b>

### Outcome

1. This module will provide an understanding of human evolution and population variation.
2. This will focus on the practical training in the applied areas of health sciences.

### Suggested Reading

Shukla and Rastogi . 2017 A laboratory manual of physical anthropology.  
Bharat book center, Lucknow

Wilder. P.1920 A Laboratory Manual of Anthropometry, Harris Hawthorne  
Blakiston's Son & Company

## **B. Sc Part-II**

### **Paper - I: Introduction to Archaeological Anthropology**

#### **Learning Objectives:**

1. Understand the importance of human cultural study
2. Define subject matter thoroughly and indicate the close relationship between archaeology and how this relation is helpful for the study of human culture across time and space.
3. Understand about the origin of our ancestors and discuss the antiquity and cultural manifestations of Stone Age cultures.

#### **Unit-I**

The meaning and scope of Archaeological Anthropology. Various branches of Archaeological anthropology.

Short range and long range methods of dating in Archaeology, The Stone Age tool technology and typology.

#### **Unit-II**

The Great Ice Age : Pluvials and Interpluvials.

Stratigraphic and other evidences of ice age, eg., river terraces, moraines and eustatic fluctuations. Alpine and Himalayan glaciations.

The Chief subdivisions and cultures of west European Paleolithic period, their stratigraphic and technological features (including the tool types and the techniques of their manufacture). The main features of European Upper Paleolithic art and their significance.

#### **Unit-III**

A brief description of Indian Palaeolithic sites with reference to Soan and Bhimbetka, Bellan Valley, Madras Hand axe industry, Kandivili site and their stratigraphic and technological features (including the tool types and the technique of their manufacture).

Mesolithic in Northern and Western Europe and the brief description of the corresponding Stone age industries in India with reference to Bhimbetka, Bagor – (Rajasthan), Langhnaj, (Gujarat), Birbhanpur, Teri Sites).

## Unit-IV

The chief features of the Neolithic Revolution. The Neolithic Complex in India.  
The chief characteristics of the Indus civilization.

What are Megaliths? The Distribution and main characteristics of the India  
Megalithic monuments.

### Suggested Readings

- Binford, L.R.1983. In Pursuit of the Past: Decoding the Archaeological Record. London: Thames and Hudson.
- Childe, V.G.1956. Piecing together the Past: the Interpretation of Archaeological Data. London: Routledge & Kegan Paul.
- Daniel, G.E.1975. 150 Years Archaeology. London: Duckworth.
- Clark, J.G.D,1939. Archaeology and Society. London: Methuen.
- Binford, L.R.1922a. An Archaeological Perspective. New York: Seminar Press.
- Halder, I.1986. Reading the Past. Cambridge University Press.
- Raman, K.V.1991. Principles and Methods of Archaeology. Madras: Parthajan Publications.
- Sankalia, H.D.1956. An Introduction to Archaeology. Pune: Deccan College.
- Paddayya, K.1979. Palaeoethnography vis a vis the Stone Age Cultures of India:Some Methodological Considerations. Bulletin of the Deccan College Research institute 38:63-90.
- Trigger, B. 1989. A History of Archaeological Thought. Cambridge University Press.
- Paddayya, K.1996. New Archaeology Aftermath. Pune: Ravish.
- Sankalia, H.D. 1964. Stone Age Tools: Their Techniques, Names and Probable Functions. Pune: Deccan College

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### Outcomes:

This paper will make efforts to understand how archaeology emerged as a distinct discipline.

Provide insights on the development of different cultures in time and space.

## **Paper - II: Conceptual Background to Social- Cultural Anthropology**

### **Learning Objectives:**

1. To discuss classical theories.
2. Criticism of these theories.
3. Follower of the theories and their approach to the study of Human Beings.

### **Unit-I**

Definition of Culture. Attributes of the scientific concept of culture in contemporary anthropology – (a) Learned and historically derived, (b) Plurality, (c) Relativity, (d)

Functional integration. Society, Culture and civilization distinguished

### **Unit-II**

Cultural Evolutionism : Unilineal, Neo-evolutionism (Morgan, White and Steward).

Culture trait, culture complex, culture area, age area and culture focus, American distributionism Diffusion of culture. Contribution of the British, German and American diffusionists.

### **Unit-III**

Function and structure. Functionalism (Malinowski) and Structural Functionalism (Radcliffe-Brown), Structure as model. Structuralism (Levi-Strauss).

Pattern, ethos and eidos, Configurationism. Basic personality and model personality.

### **Unit-IV**

Innovation, cultural lag, acculturation, enculturation and trans-culturation.

Field work tradition in Anthropology and the basic attributes of field work in Anthropology, Contribution of Malinowski, Radcliffe-Brown, M. N. Srinivas and D.N. Majumdar.

## Suggested Readings

- Bachofen, J.J. 1861. *Myth, Religion, and Mother Right: Selected Writings of J.J. Bachofen*. London: Routledge and Kegan Paul. Reprint 1968.
- Barnes, H. E. 1948. *Historical Sociology: Its Origins and Development*. New York: Philosophical Library.
- Engels, Friedrich. 1884. *The Origin of the Family, Private Property and the State*. Reprinted in 2004. Australia. Resistance Books.
- Harris, Marvin. 1968. *The Rise of Anthropological Theory, A History of Theories of Culture*. London: Routledge and Kegan Paul.
- Kuper, Adam. 1973. *Anthropologists and Anthropology: The Modern British School*. London: Routledge. Reprint 1996.
- Maine, Henry. 1861. *Ancient Law, Its Connection with the Early History of Society, and its Relation to Modern Ideas*. London: J.M. Dent. Reprint 1931.
- McLennan, John F. 1865. *Primitive Marriage: An enquiry into the Origin of the Form of Capture in Marriage Ceremonies*. Edinburgh: Adam and Charles Black.
- Morgan, Lewis Henry. 1877. *Ancient Society*. New York: Gordon Press.
- Upadhyay, V.S & Gaya Pandey. 1993. *History of Anthropological Thought*. New Delhi: Concept Publishing Company.

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### Outcomes:

1. The paper will focus on the starting point of the theories and their criticisms.
2. To provide the foundation for the anthropological thoughts.
3. Provide Speculations on evolution and spread of culture and its relative aspects in the present era.

## **Paper - III: Human Genetics and Ethnic Variation**

### **Learning Objectives:**

1. To understand about the subjects of human genetics, its origin growth and origin.
2. Discuss the importance of clinical diagnosis, genetic counselling and management of genetic diseases.
3. Explain how the traits are inherited from parents to offspring.

### **Unit-I**

Human Genetics-Its Definition, Scope, and Anthropological perspective. The Animal cell: Cell Division – Mitosis, Meiosis and Biological variation, process of Gametogenesis.

Mendel's Laws of Inheritance, Mendelism and its application to Man-some examples.

### **Unit-II**

The Autosomal Dominant Inheritance in Man-some examples. The Autosomal Recessive Inheritance in Man – some examples.

The Multiple Alleles and the ABO blood groups. The MNS and the RH blood groups and Erythroblastosis Foetalis.

### **Unit-III**

Genetics of Sex – Sex Determination, Sex Ratio, Sex Linkage – X and Y linkage, Sex limited and Sex Influenced Inheritance. Multifactorial or Polygenic Inheritance – some examples.

Dermatoglyphics of finger and palm.

### **Unit-IV**

Human Variation – its components, causes and influencing factors.

The Ethnic Diversity and the human types. Ethnic Typology; the morphological and the genetical traits.

World's major Races – The Caucasoid, the Negroid and the Mongoloid division, their general characteristics and geographical distribution.

## Suggested Readings

Emery, A. E. H. 1986. Methodology in Medical Genetics, 2nd edition. Edinburgh:Churchill Livingstone.

Emery, A. E. H. 1984. An Introduction to Recombinant DNA. Chichester: John Wiley.

McConkey, E. H. 1993. Human Genetics the Molecular Revolution. Jones & Bartlett: Boston.

Pasternak, J. J. 2005. An Introduction to Human Molecular Genetics: Mechanisms of Inherited Diseases, 2nd Edition. New York: Wiley-LISS.

## Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
<b>1. Written</b>	<b>80</b>
<b>2. Internal assessment (distribution as below)</b>	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

## Outcomes:

1. It will open the avenues for studying human health and genetic makeup of the individual.
2. Will provide information on different branches of genetics and rapid progress in the subject.
3. Chromosomal abnormalities due to mutation and variation in DNA.

## Paper – IV: Practical

### Learning Objectives:

1. To provide insight about the advancement about change in technology and human development.
2. To provide information about the finger print patterns and the blood group systems

### Practical

- (a) Identification, sketching and description of Palaeolithic tools.
  - (b) Identification, sketching and labelling of the bones of the lower and upper limbs.
  - (c) ABO blood group typing of at least 10 individuals.
- Or
- (d) Dermatoglyphic study of 10 cases of finger ball and palm prints.
- (Any one of (c) or (d) can be offered by the College/University department concerned

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
Written	<b>60</b>
Viva	<b>20</b>
Internal assessment (distribution as below)	<b>20</b>
• Lab Work	<b>15</b>
• Attendance	<b>05</b>

### Outcomes:

1. It will help the students to well understand the human anatomy by studying bones of limbs.
2. Studying tools will make them understand the pattern of cultural evolution taken by man in advancement human evolution.
3. It will make them Identify the blood types and there application in anthropology.



## **B. Sc Part – III**

### **Paper - I: Comparative Ethnography**

#### **Learning Objectives:**

1. To capture behaviour in the different contexts of everyday life.
2. To facilitate reliable and valid study of human behaviour and social life.
3. To make them understand the standpoint of those studied.

#### **Unit - I**

The students have to study any one of the following monographs.

1. Barnett, H. G- Being a Palauan. New York : Holt, Rinehart and Winston, Inc. (Case studies in cultural Anthropology).
2. Beals, Alan R. – Gopalpur : A south Indian Village New York: Holt, Rinehart and Winston Inc. (Case studies in Cultural Anthropology).
3. Beattie, John-Bunyoro : An African Kingdom, New York : Holt, Rinehart and Winston Inc. (Case studies in Cultural Anthropology).
4. Downs, James F. The Navajo, New York : Holt, Rinehart and Winston Inc. (Case studies in Cultural Anthropology)
5. Evans – Pritchard, E. E – The Nuer.

#### **Unit – II**

The students have to study any one of the following monographs.

6. Fraser, Thomas M. – Fishermen of South Thailand : The Malay Village, New York : Holt, Rinehart and Winston Inc (Case studies in Cultural Anthropology)
7. Friedel, E – Vasilika : A Village in Modern Greece, New York : Holt, Rinehart and Winston Inc. (Case studies ion cultural Anthropology).
8. Hort, C.W.M. & Pilling A. R – The Tiwi of North Australia, New York : Holt, Rinehart and Winston Inc. (Case Studies in Cultural Anthropology)
9. Kuper, Hilda-The Swazi : A South African Kingdom, New York : Holt, Rinchart and Winstone Inc. (Case Studies in Cultural Anthropology).
10. Srinivas, M. N. - Religion and Society among the Coorgs of South India.
11. Majumdar, D. N – Himalayan Polyandry, Bombay : Asia Publishing House.
12. Dube, S. C - Indian Village (Available in both English and Hindi)

#### **Unit-III**

Social Survey and Social Research, Contributions of Verrier Elwin, D. N. Majumdar and L.P. Vidyarthi to Indian anthropology. Fieldwork Tradition in Anthropology.

## Unit-IV

Tools of Data Collection: Observation, Interview, Case Study, Case History, Questionnaire. PRA,PLA and Focus Group Discussion

### Suggested Readings

Kothari C. R 1990 Research Methodology – Methods & Techniques 2ed., – Vishwa Prakashan – New Delhi

Bernard, Russell 2011 Research methods in Anthropology, Altamira Press, California, US

### Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
Written	<b>80</b>
Internal assessment (distribution as below)	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### Outcomes:

1. It will help to discover patterns in human behaviour.
2. It will provide an insight about the analysis in research along with the justification for using specific tools.
3. It will develop a rich understanding of how people think, behave and interact as they do in a given community.

## **Paper - II: Human Biology**

### **Learning Objectives:**

To systematically understand our evolutionary origins, our distinctiveness as a species and the great diversity in our forms of social existence across the world and time.

#### **Unit-I**

Human Biology : aims and scope. Human Genetics : its aims and relevance in Anthropology

Mechanism of Inheritance : role of Mitotic and Meiotic Cell division and Gametogenesis.

Chromosomes and Associated Syndromes.

#### **Unit-II**

Type of Inheritance: Autosomal, Sex Linked, Sex Influenced and Sex Limited Traits in Man.

Heredity-Environment Interaction. The Twin Method and the types of Twins and their importance in the Genetic Investigation.

Genetic Counselling, Paternity Determination on the basis of Immunological, Serological and Morphological Traits.

#### **Unit-III**

Definition and Scope of Growth and Development.

Methods of studying Growth :Longitudinal, Semi-Longitudinal and Cross Sectional Methods, their relative merits and demerits, Nutritional requirements for Normal Growth, Common Nutritional Disorders and their Manifestations.

#### **Unit-IV**

Applications of Human Biology. Anthropometry, Ergonomics, Forensic Anthropology, Sports Anthropology, Medical Genetics.

The Definition of Race/Ethnic group. Major Ethnic stocks of the World and their broad sub-divisions. Ethnic Elements in Indian subcontinent.

Human ecology: definition and scope, varieties of Human Eco-systems.

### **Suggested Readings**

Emery, A. E. H. 1984. An Introduction to Recombinant DNA. Chichester: John Wiley.

McConkey, E. H. 1993. Human Genetics the Molecular Revolution. Jones & Bartlett: Boston.

Pasternak, J. J. 2005. An Introduction to Human Molecular Genetics: Mechanisms of Inherited Diseases, 2nd Edition. New York: Wiley-LISS.

### **Distribution of Marks:**

<b>Total no of marks</b>	<b>100</b>
Written	<b>80</b>
Internal assessment (distribution as below)	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

### **Outcomes:**

1. It will look at how biological traits are passed along from one generation to another.
2. It will also give close insight at evolution, change in populations over time through inherited genetic characteristics.

## **Paper - III : Anthropology in Indian Context**

### **Learning Objectives:**

1. To recognise that cultures exist in time and space and are unique to that time and that space.
2. To understand culture distinctiveness in Indian Anthropology.

### **Unit-I**

The origin and growth of India Anthropology. Approaches to the study of Indian society, culture and civilization : Indological, Anthropological and Historical.

The basic concepts used : Great Tradition and Little Tradition, Sacred Complex, Universalization and Parochialization, Tribe-Caste continuum, Sanskritization, Westernization, Dominant Caste.

### **Unit-II**

Ethnographic profiles of Indian tribes : Racial, linguistic and socio-economic characteristics.

The different approaches to tribal problems. Problems of tribal people, land alienation, bonded labour, indebtedness, shifting cultivation, forest and tribals, Unemployment health, education. Tribal revolts. Special problems of hunting, food gathering and other minor tribes.

### **Unit-III**

The problems of culture-contact: Impact of urbanization and industrialization, depopulation, displacement, ethno-political movements.

History of tribal administration. The constitutional safeguards for the Scheduled Tribes. Policies, plans and programmes of tribal development and their implementation. The response of the tribal people to the governmental measures for them. The role of Anthropology in tribal development.

### **Unit-IV**

The Constitutional provisions regarding the Schedules Castes. Social disabilities suffered by the Schedules Castes and the socio-economic problems faced by them,  
Status of Other Backwards Classes (OBCs), and Religious Minorities.

## Suggested Readings

Dube, S.C. ed.1977. Tribal Heritage of India. Delhi: Vikas Publications  
Vidyarthi L.P. & Rai 1977: Tribal Cultures of India, Concept Publications, Delhi  
Singh Yogendra 1973 Modernization of Indian Tradition: A Systemic Study of Social Change, Thomson Press (India), Publication Division,  
Hasnain, Nadeem 2001. Indian Anthropology. Palka Prakashan  
Hasnain, Nadeem 2001 Tribal India, Palka Prakashan (Also available in Hindi)

## Distribution of Marks:

<b>Total no of marks</b>	<b>100</b>
Written	<b>80</b>
Internal assessment (distribution as below)	<b>20</b>
• Assignment	<b>10</b>
• Oral presentation	<b>05</b>
• Attendance	<b>05</b>

## Outcomes:

1. It will create learning environments which will enable the students to understand and appreciate human diversity, develop a critical perspective on their own society.
2. Will focus on the social disabilities of SCs, STs and other backward Classes

## **Paper - IV : Practical**

### **Learning Objectives:**

1. It will provide insight about the type of tools used and trace the path of cultural evolution.
2. To provide hand on experience of using Research tools.

### **Practical**

Technology : Identification and technological description of primitive implements for food-gathering, hunting and fishing.

Construction of Interview schedules and genealogies, Project report based on empirical investigation under the supervision of a teacher.

### **Distribution of Marks:**

<b>Total no of marks</b>	<b>100</b>
Written	<b>60</b>
Viva	<b>20</b>
Internal assessment (distribution as below)	<b>20</b>
• Lab Work	<b>15</b>
• Attendance	<b>05</b>

### **Outcomes:**

1. It will give an idea about the advancement in human evolution.
2. It will help them to learn the justification and usage of specific tools in research methodology.

### **Suggestive Readings:**

Basu & Basu 1975. A study on Material Culture. World Press, Calcutta

(20) कॉम्प्यूटर साइंस, एलएनयू आरआर

## **BACHELOR OF SCIENCE**

**(B.Sc. in Computer Science)**

**(Three year Program)**

**Proposed Syllabus**

**(2019)**



**Department of Computer Science**

**University of Lucknow**

**Lucknow**





## **B.Sc. (Computer Science) Yearly Syllabus 2019**

Computer science is one of the most profitable education options for students seeking a challenging and rewarding career. Continuing advances in Computer Science create an almost unlimited demand for people with a background in this area. Computer jobs pay a lucrative salary and are expected to be in demand for several years. After the completion of B.Sc. (Computer Science) three year program, the student shall have ample chance to be Software engineer, Application Analyst, Database Administrator, Games Developer, Information Systems Manager, IT Consultant, Systems Analyst, Web Designer in government and private organization.

### **Learning Objective & Outcome of B.Sc. (CS) First year**

#### **Learning Objective of B.Sc. (Computer Science) First year**

B.Sc. (Computer Science) first year course comprises three theory papers and one practical. The first paper provides basic knowledge of computers, its organizations and its generation-wise development to students. Additionally, it furnishes the recent development details to students in the field of information technology. The second paper System Analysis and Design helps to develop the skills to form basic structure of software and data flow among its various components and to validate the software accordingly. Third paper, programming in C helps students to create the programs, their validations and organizing them to form software. The practical part makes the students capable to develop programs as per requirement, executing them to get desired output to meet objectives

#### **Outcome of B.Sc. (Computer Science) First year**

The B.Sc. (Computer Science) first year course provides students a great opportunity to know the basics of computers, its utilization in the field of Computer science and to enter the real world where aspiring computer science professionals can showcase their talent.

### **Learning Objective & Outcome of B.Sc. (CS) Second year**

#### **Learning Objective of B.Sc. (Computer Science) Second year**

B.Sc. (Computer Science) second year course consist of three theory papers and one practical. The first paper Data Structure Using C++ helps students to know the basic organization and storage of data in computer memory effectively and to extract the stored data efficiently. It helps to develop understanding among students about writing algorithms and step by step approach in solving problems. Second paper operating system helps to understand the services provided by and the design of an operating system. This paper furnish the details about the structure and organization of file system and makes the students able to grasp the knowledge about process, its scheduling and synchronization. The third paper links computer science subject with information technology and provides ample chance to students to know the structure and formation of internet. The practical work of second year makes the students able to develop effective and efficient algorithm and to design program accordingly to develop most appropriate solution of any real time problem through Python.

#### **Outcome of B.Sc. (Computer Science) Second year**

Computer science is one of the most profitable education options for students seeking a challenging and rewarding career. The B.Sc. second year course offers opportunity to students to learn data organization

within minimum memory so that it can be searched and retrieved quickly. In this year students learn the functioning of various operating systems, their filing system, scheduling and serialization in order to connect application software with the computer hardware. Students become able to connect their systems with World Wide Web (W3) and participate in various social, educational and personal activities.

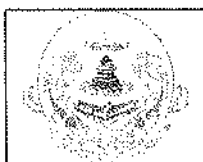
## **Learning Objective & Outcome of B.Sc. (CS) Third year**

### **Learning Objective of B.Sc. (Computer Science) third year**

The field of Computer Science does not complete without database management. The first paper of B.Sc. (Computer Science) third year is Database and software engineering. The purpose to incorporate database subject in course is to impart the knowledge of basic organization of data and its flow in software and their security as well. The software engineering helps the students to test, verify and validate software as per requirement and their cost estimation too. The second paper in third year is computer architecture and microprocessor which makes the student able to analyze, design, writing and to test assembly language programs with minimum time-complexity and space complexity. The third paper Application Development with Java and .NET framework makes the student able to develop real time software with the latest technologies and meet the real time challenges of this digital world. The practical work of this year benefits the students to develop real time projects using Object Oriented Languages concepts and motivate the students to not only deal with coding but with memory and accessibility at the same time.

### **Outcome of B.Sc. (Computer Science) Third year**

In B.Sc. (Computer Science) Third year, the students learn how to manage Data, its security and duplicity filtering. Several important software phases like requirement analysis, design, coding, testing and implementation are taught to verify the functioning of software and to validate them as per requirement. The application development part helps students to implement the coding phase of projects.



**B.Sc (Computer Science) Yearly Syllabus 2019**

B.Sc-I Year					
S.N	Paper Code	Paper Name	Theory Marks	Internal Marks	Total Marks
1.	B.Sc.-101	Computer Fundamentals	80	20	100
2.	B.Sc.-102	System Analysis and Design	80	20	100
3.	B.Sc.-103	Programming in C	80	20	100
4.	B.Sc.-104P	Practical (C Language, Ms-Office)			100
<b>Total Marks</b>					<b>400</b>

B.Sc-II Year					
S.N	Paper Code	Paper Name	Theory Marks	Internal Marks	Total Marks
1.	B.Sc.-201	Data Structure Using C++	80	20	100
2.	B.Sc.-202	Operating System	80	20	100
3.	B.Sc.-203	Data Communication and Computer Network	80	20	100
4.	B.Sc.-204P	Practical (Data Structure using C++, Python)			100
<b>Total Marks</b>					<b>400</b>

B.Sc-III Year					
S.N	Paper Code	Paper Name	Theory Marks	Internal Marks	Total Marks
1.	B.Sc.-301	Database and Software Engineering	80	20	100
2.	B.Sc.-302	Computer Architecture and Microprocessor	80	20	100
3.	B.Sc.-303	Application Development With java and .NET framework	80	20	100
4.	B.Sc.-304P	Practical (Java, .NET framework, Microprocessor 8086, Database)			100
<b>Total Marks</b>					<b>400</b>


**Note:**

(i) **B.Sc. (Computer Science) Three year Program of Total Marks: 1200**

(ii) **Internal Assessment Marks : 20 Marks in each Theory Paper**


Internal Assessment Breakup :

- (i) Assignment: 10 Marks
- (ii) Presentation/Report: 5 Marks
- (iii) Attendance: 5 Marks

	<b><u>B.Sc-I Year (Computer Science) Syllabus</u></b>	
	<b>Paper Title: Computer Fundamentals</b>	<b>Paper Number: First</b>
<b>Paper Code: B.Sc.-101</b>	<b>Maximum Marks: 80</b>	
<b>Unit -I</b>		
Computer Definition, Evolution of Computers, Generation of Computers, Classification of Computers, Hardware and Software, Analog Digital and Hybrid Computers, Classification of Computers according to size, Super Computers, Mainframe Computers, Personal Computers, Different Terminals , Characteristics and Limitations of Computers, Basic Organization & Block Diagram of a Digital Computer, Difference between Computer and Calculator, Input devices, Output Devices, Optical Devices, Optical Character Recognition (OCR), Optical Mark Recognition (OMR), Magnetic Ink Character Reader (MICR), Printers and plotters, Basic Input/ Output System (BIOS)		
<b>Unit –II</b>		
Definition and Purpose of Different Programming Languages, Compiler, Interpreter, Assembler, Classification of software, Flowchart, Pseudo code, Algorithm, Number system (Decimal, Binary, Octal and Hexadecimal) and their Conversion, Binary addition, Binary Subtraction, Binary Multiplication, 1's Complement, 2's Complement, 9's Complement and 10's Complement, BCD codes, ASCII Code.		
<b>Unit –III</b>		
Logic Gates and its application, Universal Gates, Boolean Algebra, Boolean Laws, De-Morgan's theorem based expression Problems, Simplification of expression using Boolean Laws, Karnaugh Map, SOP & POS techniques, Simplification of expression using Karnaugh Map (2 variables, 3 variables and 4 variables)		
<b>Unit –IV</b>		
Computer Memory, Memory Hierarchy, classification of memory, Semiconductor memory, Magnetic Memory, Optical Memory, Cache Memory, Different types of secondary Memory, virtual memory, Graphical User Based operating system, Command line Based operating system, Disk Operating System, External and Internal Command in DOS.		


**Referenced Books:**

- [1] Pradeep K. Sinha and Priti Sinha, "Computer Fundamentals", BPB Publication, Sixth Edition.
- [2] M. Morris Mano, "Digital Logic and Computer Design", PHI publication.
- [3] M. Morris Mano, "Computer System Architecture", PHI publication.

	<b><u>B.Sc-I Year (Computer Science) Syllabus</u></b>	
<b>Paper Title:</b> System Analysis and Design	<b>Paper Number:</b> Second	
<b>Paper Code:</b> B.Sc.-102	<b>Maximum Marks:</b> 80	
<b>Unit –I</b>		
System concept, Definition, System study, system analysis, System approach, Characteristics and Types of system, Elements of system analysis, System models and types of models, system environment and boundaries, system analyst, role of system analyst, qualification and responsibilities, System analyst as an agent of change, Open and Closed System, Formal and Informal Information Systems, Computer based Information Systems, Management Information System, Decision Support System, General Business Knowledge, Interpersonal Communicational System.		
<b>Unit –II</b>		
System Development Life Cycle and its various phases, Preliminary investigation, Determination of system requirements, Development of software, System testing, Implementation, evaluation and maintenance, system documentation and consideration, Data flow diagram (DFD) and its various levels, system requirement specification (SRS).		
<b>Unit –III</b>		
System Planning, Feasibility study and its report and importance, various tools and technique, Software Crisis: From programmer’s point of view, from users point of view.		
<b>Unit –IV</b>		
System design and modeling, state of system design, process modeling, logical and physical design, system flow chart and structured charts, data flow diagrams, file organization and data base design, system testing and quantity assurance implementation and software maintenance.		

**Referenced Books:**

- [1] Brijendra Singh, "System Analysis and Design", New Age International Publishers.
- [2] Elias M. Awad, "System Analysis and Design", Galgotia publications.

	<b><u>B.Sc-I Year (Computer Science) Syllabus</u></b>	
<b>Paper Title:</b> Programming in C	<b>Paper Number:</b> Third	
<b>Paper Code:</b> B.Sc.-103	<b>Maximum Marks:</b> 80	
<b>Unit –I</b>		
History of C, Structure of a C program, The C character set, Constants, Variables, keywords, Data types, arithmetic instructions, Integer and float conversions, Type conversion, Operators in C, Hierarchy of operators, control instructions, Input-Output statements in C (Formatted and Unformatted), Comment statements.		
<b>Unit –II</b>		
Decision control structures, Logical operators, conditional operator and relational operators, Loop control structures –while, do-while, for loop, Break statement, Continue statement, switch-case control structure, goto statement Bitwise operators, Bitwise AND, OR, exclusive OR, compliment, right shift and left shift operators.		
<b>Unit –III</b>		
One dimensional and multidimensional array, declaration, initialization and array Manipulations, sorting (Bubble sort) Strings – Basic Concepts, Library Functions, Definition, function definition and prototyping, types of functions, type of arguments, Recursion, passing arrays to functions, storage class in C-automatic, register, external and static variables.		
<b>Unit –IV</b>		
Pointers Definition, notation, pointers of arrays, array of pointers and functions – call by value and Call by reference, Pointers to pointers. Definition, declaration, accessing structure elements, Array of structure, Pointers and structures, Unions – definition, declaration, accessing union elements, typedef, Enum Bit fields, Types of C preprocessor directives, Macros, data file handling, file opening modes, Text and Binary files.		

**Referenced Books:**

- [1] Brian W. Kernighan, Dennis M. Ritchie , “The C Programming Language”, Prentice Hall software series, Second Edition.
- [2] S.K. Srivastava and Deepali Srivastava, “C in Depth”, BPB Publications.
- [3] Yashavant Kanetkar , “Let us C”, BPB publication, 15<sup>th</sup> edition.

## B.Sc-I Year (Computer Science) Syllabus

**B.Sc. -104P                      Practical (C Programming & MS-Office)**  
**MM-100**


### List of Exercise based on C Programming & MS-Office:

#### **C Programming:**

1. Exercise on different operators used in C Language-Arithmetic/Logical/ Relational/Bit wise/Increment-Decrement/Ternary/ Special operators.
2. Data types/variable implementation.
3. Formatted and unformatted I/O function implementation.
4. Branching Statement-if, if-else, nested if-else, Else if ladder, Switch-case.
5. Looping Statement-while, do while, for.
6. Array implementation-single and multidimensional.
7. Structure & Union implementation.
8. Pointer implementation, types-void pointer.
9. Enum and storage classes implementation.
10. Pre-processor Directive, file handling through various functions.

#### **MS Office:**


1. Creating, Opening, Saving a Document. (Shortcut keys)
2. Formatting a document — setting paragraph, headings, font size and colour, line spacing, indentation, alignment of Document.
3. Mail-merge- envelopes labels and documents.
4. Protection of document- Adding Password and Digital Signature. Inspecting and managing a document.
5. Table operations in MS Word.
6. Hyperlinking and linking documents internally and externally.
7. Formatting operations in MS-Word.
8. Spread Sheet formatting.
9. Referencing cell in spreadsheet.
10. Preparing Charts on data fields.
11. Use of functions and formulas in single and multiple spreadsheets.
12. Preparing graph and charts in spreadsheets.
13. PPT-introduction slides & formatting slides, Sound-videos insertion in slide.
14. Animation & graphics implementation in slides.
15. Slide show (Manual/Rehearse Timing).

	<b>B.Sc-II Year (Computer Science) Syllabus</b>
<b>Paper Title: Data Structure Using C++</b>	<b>Paper Number: First</b>
<b>Paper Code: B.Sc.-201</b>	<b>Maximum Marks: 80</b>
<b>Unit –I</b>	
OOPs concept, Procedural vs OOP programming, OOP terminology and features, Tokens, Character set, Keywords, Data-types, Data Types declarations, Constants and variables, expressions, Standard Library and header files, Classes and Objects, Operator and Expressions: Arithmetic Operator, Increment/Decrement Operator, Relational Operator, Logical Operator and conditional operators, library functions, Logical Expressions, C++ shorthand.	
<b>Unit –II</b>	
While, Do-while, For statements nested loops. If-else, switch, break, continue and Go to statements, Classes and Objects: Need for Classes, Declaration of Classes, referencing class Members, Scope of class and its members Nested Classes, Functions in a class: Inline Functions, Constant Member functions, Nesting of Member Functions, Memory allocation of objects, Arrays of objects, Static Class Member, Constructor, Destructor, inheritance, Polymorphism, encapsulation, friend function, this operator, inline function.	
<b>Unit –III</b>	
Data Structure definition and its classification, objective to study data structure, Algorithms and their complexity related issues, Dynamic Memory Allocation, Malloc () Vs Calloc () functions, Abstract Data Types (ADT), Stack definition, application and Implementation, Polish Notation, Queue definition, application and Implementation, Doubly Ended queue, Circular Queue, Priority Queue, Linked list, Single Linked list and Doubly Linked List, Circular Linked list, Disadvantages of Queue and Stacks, Advantages of Linked list over Queue and Stacks.	
<b>Unit –IV</b>	
Searching, linear and non-linear searching, Binary searching, sorting, Internal Sorting Vs External Sorting, Insertion sort, selection sort, bubble sort, Hashing and Collision Resolution techniques, Graph, Basic Terminology, Graph Traversal, Minimal Spanning Tree, Binary Trees, In order Traversal, Post order Traversal, Preorder Traversal, Binary Search Trees, Operations on a BST, Complete Binary tree, Strictly Binary tree, AVL tree.	

**Referenced Books:**


- [1] Bjarne Stroustrup, "A Tour of C++", C++ in Depth Series.
- [2] E. Balagurusamy, "Object Oriented Programming with C++", Mcgraw Hill publication.
- [3] Barbara Johnston, "C++ Programming Today", Pearson Education.
- [4] R B Patel, "Expert Data Structure with C", Khanna Publication, Fourth Edition.
- [5] Seymour Lipschutz, "Data Structures with C", Schaum's Outlines, Mc Graw Hill Publication.
- [6] S. K Srivastava and Deepali Srivastava "Data Structure through C In Depth", BPB publication.



	<b><u>B.Sc-II Year (Computer Science) Syllabus</u></b>
<b>Paper Title: Operating System</b>	<b>Paper Number: Second</b>
<b>Paper Code: B.Sc.-202</b>	<b>Maximum Marks: 80</b>
<b>Unit –I</b>	
Definition of operating system (OS), History of OS, Different types of OS, GUI Vs CLI Interface, Kernel and Shells architecture, Simple Batch Systems, Multiprogramming Vs Multitasking operating system, Multi-programmed Batched Systems, Time-Sharing Systems, Distributed Systems and Real-Time Systems, Operating System Structures-Command Interpreter System, Operating System Services, System Calls, System Programs, Process Concept, Process control Block, process Scheduling,	
<b>Unit –II</b>	
CPU scheduling-Basic Concepts, Scheduling Criteria, Shortest Job First (SJF) Scheduling, First-Come First-Serve Scheduling (FCFS), Priority Scheduling , Round Robin Scheduling, Multilevel Queue Scheduling.	
<b>Unit –III</b>	
Memory Partitioning Basic Concepts, Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Virtual Memory, Demand Paging, Paging Replacement, Fragmentation and its types, Thrashing and Demand Segmentation, File Concept, Access Methods, Directory Structure, Protection, File System Structure. Allocation methods, Free Space Management.	
<b>Unit –IV</b>	
Deadlock, Deadlock Characterizations, method for Handling Deadlocks, Deadlock prevention, Avoidance, Detection, recovery from Deadlock, Safe state.	

**Referenced Books:**

- [1] Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, "Operating System Concepts", WILEY Publication, Ninth Edition.
- [2] Andrew S. Tanenbaum, "Modern Operating Systems", Pearson Prentice Hall, Third Edition

	<b><u>B.Sc-II Year (Computer Science) Syllabus</u></b>	
<b>Paper Title:</b> Data Communication and Computer Network	<b>Paper Number:</b> Third	
<b>Paper Code:</b> B.Sc.-203	<b>Maximum Marks:</b> 80	
<b>Unit –I</b>		
Data, Information, Data Vs Information, Data Communication and its Component, Communication Media, Data transmission Modes, Modem and its major types, Computer network and its advantages, World Wide Web, Internet, LAN, MAN, WAN, Bridge, router, Switch, Repeater.		
<b>Unit –II</b>		
OSI reference Model, TCP/IP Model, OSI Model Vs TCP/IP Model, Network topologies, IEEE Standards for Local Area Networks, IEEE 802.3 Ethernet Technologies, IEEE 802.4 Token Bus, IEEE 802.5 Token Ring, IEEE 802.6 Distributed, Queue Dual Bus, FDDI.		
<b>Unit –III</b>		
Sliding Window Protocols, Point-to-Point Protocol (PPP), Multiple Access Protocols, Error Detection and Error Correction, IPV6, IPV4, FTP, SMTP.		
<b>Unit –IV</b>		
Network Security and AIC triad (availability, integrity and confidentiality), Cryptography: Notion of Plain Text, Encryption, Key, Cipher Text, Decryption and cryptanalysis, Public Key Encryption, digital Signatures and Authentication.		

**Referenced Books:**

- [1] Brijendra Singh, "Data Communication and Computer Networks", PHI Publication, Fourth Edition.
- [2] Brijendra Singh, "Network Security and Management", PHI Publication, Third Edition.
- [3] Behrouz A Forouzan, "Data Communication and Networking", McGraw Hill Publication, Fifth Edition.

**B.Sc-II Year (Computer Science) Syllabus**

**B.Sc. -204 P  
MM-100**

**Practical (Data Structure Using C++, Python Basics)**

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**List of Exercise based on Data Structure using C++, Python:**

**Data Structure using C++:**

1. Implementation of dynamic memory allocation
2. Implementation of single dimensional and multidimensional arrays
3. Structure implementation
4. Stack Implementation with all operations
5. Stack Implementation as abstract data type
6. Stack application for In-fix, Post-fix and Pre-fix polish expression.
7. Implementation of Recursion
8. Queue Implementation with insertion and deletions of elements.
9. De-queue Implementation
10. Circular Queue Implementation
11. Priority Queue Implementation
12. Single linked Creation with all kind of operations in all conditions
13. Implementation of pointers
14. Stack Implementation using linked list
15. Queue Implementation using Linked list
16. Doubly Linked list creation with all kind of operations in all possible conditions.
17. Circular Linked list creation with all kind of operations in all possible conditions.
18. Creation of tree and performing insertion and deletion of nodes.
19. Creation of Binary tree.
20. Traversal of Binary tree (In Order, Pre Order, Post Order)
21. Implementation of sequential search.
22. Implementation of Binary search.
23. Implementation of Insertion sort
24. Implementation of Selection sort
25. Implementation of Bubble sort


**Python:**

1. Implementation of Standard input and output statement
2. Implementation of variables and operators
3. Implementation of conditional and decision making statement
4. Implementation of control and looping structure
5. Implementation of strings and text

	<b><u>B.Sc-III Year (Computer Science) Syllabus</u></b>	
<b>Paper Title:</b> Database and Software Engineering	<b>Paper Number:</b> First	
<b>Paper Code:</b> B.Sc.-301	<b>Maximum Marks:</b> 80	
<b>Unit –I</b>		
Data, Information and Knowledge, Introducing Databases and Different kinds of database users, Concept of a Database, Interacting with a Database, Architecture of a Database, Using Relational Databases, Basics of Relational Databases, Using Relational Databases, Identifiers For Relations, characteristics of database, database system concepts and Data Independence, Content of Data Dictionary, Data administration function, DBMS, Concurrency control, Database security, Database recovery.		
<b>Unit –II</b>		
Traditional Data Model – ANSI/SPRC 3-level Architecture, Overview of three Traditional models, Hierarchical, Network and Relational Models, Comparison of these models, File organization technique—Random file organization technique, Multi key file organization technique, Entity relationship Model, (ER Model), Structured Query Language- Introduction, Data definition, views and queries in SQL, Specifying constraints and indexes in SQL, Data Manipulation, Data maintenance, Multiple Table Operations, Transaction integrity facilities.		
<b>Unit –III</b>		
Why Software Engineering? Software processes-Software Process model (water Fall model, iterative, spiral model, Prototype Model, COCOMO Model) Software Requirements: Functional and non-functional requirements user requirements, system requirements Software requirement document, DFD, Pert Chart, ER Diagram.		
<b>Unit –IV</b>		
Software Testing –System testing, Component testing, Integration testing, Black Box testing, White Box testing, alpha testing, Beta testing, Validation Vs Verification, Software requirement specification (SRS) and its characteristics, Cohesion and its types, Coupling and its major types.		


**Referenced Books:**

- {1} Korth Silberschatz, Sudarshan, "Database System Concepts", McGraw-Hill Publication.
- {2} Bipin C. Desai, "An Introduction to Database System", Galgotia publication.
- {3} Pankaj Jalote, " Software Engineering: A Precise Approach", Wiley publication.
- {3} Rajib Mall, " Fundamentals of Software Engineering", PHI publication.

	<b><u>B.Sc-III Year(Computer Science) Syllabus</u></b>	
<b>Paper Title:</b> Computer Architecture and Microprocessor	<b>Paper Number:</b> Second	
<b>Paper Code:</b> B.Sc.-302	<b>Maximum Marks:</b> 80	
<b>Unit –I</b>		
Sequential circuit, Combinational Circuit, Flip-Flops (RS, Clocked RS, T, D, JK, Master Slave), Counters and its types, Registers, Encoder and Decoder, Half Adder, Full Adder, Half Sub-tractor, Multiplexer, De-Multiplexer.		
<b>Unit –II</b>		
Introduction of Microprocessor: Evolution of microprocessor, Embedded microprocessor, Bit-Slice Processor, RISC and CISC Processor, Vector Processor Array processor, Intel 8086 Microprocessor: Pin description of Intel 8086, operating model of 8086, Register organization of 8086, Bus Interface and Execution Unit (BIU and EU), Interrupts 8086 Read and write Bus Cycle.		
<b>Unit –III</b>		
8086 Instruction Group: Data transfer Instruction , Arithmetic Instruction, Logical Instruction processor Control Instructing, string Instructions, Interrupts instructions, Addressing modes of 8086 Micro-Processor		
<b>Unit –IV</b>		
Synchronous Data Transfer, Asynchronous Data Transfer, Interrupt Driven Data Transfer DMA Controller Address space partitioning – Memory mapped I/O scheme, I/O mapped I/O scheme.		

**Referenced Books:**

- [1] V. Rajaraman and T. Radhakrishnan, "Digital Logic and Computer Organization", PHI Publication, Fourth Edition.
- [2] B. Ram, "Fundamentals of Microprocessor and Microcomputers", Dhanpat Rai Publications, Sixth Edition.
- [3] M. Morris Mano, "Computer System Architecture", PHI publication, Third Edition.

	<b><u>B.Sc-III Year (Computer Science) Syllabus</u></b>
<b>Paper Title:</b> Application Development With java and .NET framework	<b>Paper Number:</b> Third
<b>Paper Code:</b> B.Sc.-303	<b>Maximum Marks:</b> 80
<b>Unit –I</b>	
Introduction, The Origin of .Net Technology, Common Language Runtime (CLR), Common Type System (CTS), Common Language Specification (CLS), Microsoft Intermediate Language (MSIL), Just-In –Time Compilation, Framework Base Classes	
<b>Unit –II</b>	
HTML Tags, Paragraphing, line Break tag, Bullet and Numbering tag, Text formatting tags, (Bold, Italic, Underline, strike through, subscript, superscript) Marquee tag, Hyperlink tag, Inserting Back ground image, Horizontal Rule, Changing the Background and fore ground color, Creating table, merging cells, splitter cells, Inserting Colum heading table caption etc. Java Script, Cascading Style Sheet (CSS).	
<b>Unit –III</b>	
Control Flow Statements, Iterations, looping Structure, Array : Accessing Array elements, Multidimensional Arrays, Dynamic Arrays, Lbound and Ubound statements Option Base Statement, Interacting with the basic Controls, Forms, Form Collection, Controlling one form within another MDI form, command Buttons, Label Control, Text Box Control, Capturing the Key Strokes, List Box Controls, Combo Box Controls, more Controls : Radio Buttons, Scrollbars, timer Control, Running Lights Application, Image Control, Drive List Box, Searching a drive the directory list box, file Box copying a file, Deleting a File, Renaming a File, Moving a File.	
<b>Unit –IV</b>	
Java Programming Language and its oops features, Java features, java and world wide web, java environment and JDK (Java Development toolkit), Process of compilation, Java tokens, Identifiers, operators, variables and its declaration rules, data types, type-casting, java operators, control statement and looping structure in java, exception handling in java, servlet life cycle, swing and java Beans.	

**Referenced Books:**

- [1] Christian Nagel, Bill Evjen, Jay Glynn, Karli Watson, Morgan Skinner “Professional C# 2012 and .NET 4.5”, Wiley Publication.
- [2] Conrad Akunga, “Mastering C# 7.2 and .NET core 2.1 Application Development, Kindle Edition.
- [3] Ivan Bayross, “Web enabled commercial application Development using HTML, Javascript, DHTML, and PHP”, BPB Publication, 4<sup>th</sup> Revised Edition.
- [3] E Balagurusamy, “Programming with Java a primer”, McGraw Hill Publication, 3<sup>rd</sup> Edition.

**B. Sc-III Year (Computer Science) Syllabus 2019**

**B.Sc – 304P Practical (Java, .NET framework, Microprocessor 8086, Database)  
MM-100**

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**List of Exercise based on Java, .NET framework, Microprocessor 8086, Database:**

**Java:**

1. Input output based simple java program
2. Control statement based java program
3. Looping structure based java program
4. Implementation of arrays and strings
5. Implementation nested loops.
6. Implementation of OOPs Concepts ,
7. Implementation of access modifiers.

**HTML and CSS implementation using .NET framework:**

1. Implementation of single and paired tags
2. Implementation of tables and frames
3. Implementation of cell spacing and cell padding
4. Implementation of marquee
5. Implementation of row span and column span
6. Implementation of java with HTML
7. CSS attachment and Implementation

**Exercise based on Database (Oracle latest version):**

1. Database, record and field creation.
2. Schema building
3. Implementation of DDL command
4. Implementation of DML command
5. Primary key, foreign key and composite key Implementation
6. Records insertion and retrieval through queries
7. Database connection to HTML page and inserting and retrieval of records through HTML pages.

**Exercise based on Microprocessor 8086:**

1. Implementation of Data transfer instructions
2. Implementation of Arithmetic Instructions
3. Implementation of logical instructions
4. Implementation of Branching Instructions
5. Implementation of Adders and Subtractors

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भूगर्भ विज्ञान, लखनऊ वि.वि.

# **Common Minimum Syllabus**

**B.Sc.**

**Geology**



## **Learning objectives and Learning outcome for Theory and Practical examinations of B.Sc. Geology Syllabus.**

The subject of Geology is introduced to the students at graduation level throughout the country. The course curriculum has been designed in such a way that the students are introduced to the basics of the subject at the beginning. The three papers at the B.Sc. I level are designed in such a way as to make the students understand about the natural physical and deformational processes that lead to shaping the present day earth along with the origin, distribution and occurrence of various rock forming minerals. In B.Sc. II year, the emphasis is on understanding the origin and distribution of various rock types, morphological descriptions of animal and plant fossils and various rock formations distributed in time and space. Thus after studying geology in the first two years, even a student who does not pursue Geology in higher classes gets the basic knowledge of the subject. In B.Sc. III year, emphasis is on understanding the applied aspects of geology especially related to origin and distribution of Economic minerals resources, groundwater investigation and natural hazards.

Practicals related to various branches studied in theory papers are distributed in all the three years of study. Geology being a field science requires basic learning and understanding the geological disposition and distribution various landforms, minerals and rocks, structures, fossils, age relationships, economic minerals etc. in field itself. Geological excursions ideally should be part of the syllabus and is being proposed during the second and third years.

## B. Sc. Syllabus for Geology

### B.Sc. I<sup>st</sup> Year

Subject	Paper and Code	Name of the paper	Internal Assessment 20* Marks	Theory 80 Marks	Total 100 Marks
GEOLOGY	Paper- I	Physical Geology	20	80	100
	Paper- II	Structural Geology	20	80	100
	Paper- III	Crystallography and Mineralogy	20	80	100
		Practical	20#	80	100
<b>Total</b>					<b>400</b>

\*Assignment 10 marks, Presentation 5 marks, Attendance 5 marks

#Sessional record 10 marks, Viva Voce- 10

### B.Sc. II<sup>nd</sup> Year

Subject	Paper and Code	Name of the paper	Internal Assessment 20* Marks	Theory 80 Marks	Total 100 Marks
GEOLOGY	Paper- I	Petrology (Igneous metamorphic )	20	80	100
	Paper- II	Palaeontology	20	80	100
	Paper- III	Statigraphy	20	80	100
		Practical	20#	80	100
<b>Total</b>					<b>400</b>

\*Assignment 10 marks, Presentation 5 marks, Attendance 5 marks.

#Sessional record, Viva Voce based on field work.

### B.Sc. III<sup>rd</sup> Year

Subject	Paper and Code	Name of the paper	Internal Assessment 20* Marks	Theory 80 Marks	Total 100 Marks
GEOLOGY	Paper- I	Sedimentology	20	80	100
	Paper- II	Economic Geology	20	80	100
	Paper- III	Applied Geology and Remote Sensing	20	80	100
		Practical	20#	80	100
<b>Total</b>					<b>400</b>

\*Assignment 10 marks, Presentation 5 marks, Attendance 5 marks.

#Sessional record, Viva Voce based on field work.

## **Department of Geology**

### ***B.Sc. I<sup>st</sup> Year Geology***

#### **Paper I: Physical Geology**

##### **Unit I**

Introduction to Geology; Radiometric dating methods of rocks: K/Ar, Rb/Sr, U/Pb, and <sup>14</sup>C; Geological time scale origin, Shape and dynamics of solid earth.

##### **Unit II**

Mechanical and chemical weathering; Erosion, transportation and deposition by wind and their related landforms; Lakes: their types and origin.

##### **Unit III**

Erosion, transportation and deposition by rivers and glaciers, and their related landforms; Glacial periods and causes of glaciations.

##### **Unit IV**

Generation of oceanic currents; Coastal processes and landforms; Erosion and transportation by ocean currents; Wave erosion; Relief of ocean floor; Coral reefs.

##### **References:**

Author Holmes: Principles of Physical Geology, Wiley Publication.

D.H. Carlson and C.C. Plummer Physical Geology: Earth Revealed. Mc. Graw Hill Publication.

F.K. Lutgens and E.J. Tarbuck, Essentials of Geology, Pearson Publication.

Sreepat Jain: Fundamentals of Physical Geology Springer Publication.

#### **Paper II: Structural Geology**

##### **Unit I**

Introduction to structural geology; Crustal processes, behaviour of the crust during deformation; Sea-floor spreading; Basic concepts of plate-tectonics; Basic concepts of stress and strain.

##### **Unit II**

Study of outcrop; Identification of bedding; Measurement of dip, strike and thickness of beds; Outliers and Inliers; Forms of igneous bodies: concordant and discordant; Unconformities: their classification, recognition and geological significance, onlap and offlap; Simple deformational structures: Fold morphology, their geometric and genetic classification.

### **Unit III**

Geometric and genetic classification of Faults (normal, reverse and strike-slip faults); Recognition of faults in the field; Effects of faults on folded beds; Geometric and genetic classification of Joints; Foliation: descriptive terminology, origin and relation to major structures; Lamination: descriptive terminology, kinds and origin, and relation to major structures.

### **Unit IV**

Interior of the Earth: internal structure and chemical composition of various layers; Recognition of top and bottom beds; Neotectonics.

#### **References:**

- Badley, P.C., 1965: Structural and Tectonics. Harper and Row.  
Davis, G.R., 1984: Structural Geology of Rocks and Region. John Wiley.  
Park, R.G., Fundamentals of Structural Geology, Blackie Publication.  
Billings, M.P. Outline of Structural Geology.

## **Paper III- Crystallography and Mineralogy**

### **Unit I**

Basic idea about crystal, crystal growth and crystallisation; Laws of crystallography; Crystal morphology; Crystallographic axes; Elements of symmetry; Crystallographic notations; Symmetry and forms of Cubic (Galena type, Pyrite type and Tetrahedrite type), and Tetragonal (Zircon type) Crystal Systems.

### **Unit II**

Crystal forms; Habit and classification; Preliminary idea about various types of projection, Crystal aggregate; Twinning and common twin laws; Symmetry and forms of Hexagonal (beryl type and calcite type), Orthorhombic (Barytes type), Monoclinic (Gypsum type), and Triclinic (Axinite type) Crystal Systems.

### **Unit III**

Definition of mineral; Atomic bonding; Physical properties of minerals: colour, lustre, form, isomorphism, pseudomorphism, polymorphism, hardness, fracture, cleavage, specific gravity, and characters based on heat, electricity and magnetism; Physical properties, chemical composition, occurrences, and uses of minerals belonging to the Silica and Feldspar families, and clay minerals.

### **Unit IV**

Physical properties; chemical composition, occurrences, and uses of minerals belonging to the Feldspathoid, Amphibole, Pyroxene, Olivine, Mica and Garnet families; Silicate structure.

#### **References:**

- Hutchinson, C.S., 1974: Laboratory Handbook of Petrographic Techniques, John Wiley.  
Klein, C. and Hurlbut Jr., C.S., 1993: Mineralogy John Wiley.

Phillips, Win, R. and Griffen, D.T., 1986: Optical Mineralogy, CBS Edition.  
Putnis, Andrew, 1992: Introduction to Mineral Sciences Cambridge University Press.  
Spear, F.S. 1993: Mineralogy Phase Equilibria and Pressure – Temperature – Time Paths.  
Mineralogical Society of America Publ.  
Read H.H. Rutley's Elements of Mineralogy.

### **Paper IV- Laboratory Work**

#### **LAB -1:**

Problems on dip, strike and thickness of beds; Contour maps and completion of outcrops; study and Interpretation of topographical maps; Geological maps and cross-sections; Geological history; Use of Clinometer compass.

#### **LAB-2:**

Verification of Euler's formula; Graphical construction of crystallographic axes of Cubic system; Clinographic projections of typical crystals of Cube, Rhombdodecahedron, Tetrahexahedron, Trapezohedron, Pyritohedron, Tetrahedron, Zircon, Calcite.

#### **LAB- 3:**

Determination of physical properties of rock forming minerals; Identification of important rock forming minerals in hand specimens.

## ***B.Sc. II<sup>nd</sup> Year Geology***

### **Paper I- Petrology (Igneous and Metamorphic)**

#### **UNIT I**

Nicol prism; Optically isotropic and anisotropic minerals; Polarisation of light; Optical properties of minerals under polarised light and crossed polars: refractive index, pleochroism, relief, twinkling, birefringence, interference colours, extinction and twinning; Classification of minerals into uniaxial and biaxial minerals.

#### **UNIT II**

Brief introduction to rocks; Magma: definition, composition and origin; Bowen's reaction series; Magmatic differentiation and assimilation; Textures of igneous rocks; IUGS classification of igneous rocks.

#### **UNIT III**

Phase Rule; Laws of thermodynamics; Phase equilibria studies in SiO<sub>2</sub>, Diopside-Anorthite, Albite-Anorthite, Leucite-Silica and Diopside-Albite-Anorthitesystems; Brief petrographic description of common igneous rocks.

#### **UNIT IV**

Origin and classification of sedimentary rocks; Definition, agents, types and grades of metamorphism; Metamorphic rocks: texture, structure and classification; Concept of index minerals, isograds and metamorphic facies; Regional metamorphism of pelitic, calcareous and basic rocks; anatexis; Brief description of common metamorphic rocks.

#### **References:**

##### **Igneous Petrology**

Best, M.G., 1986: Igneous Petrology. CBS Publ.

Bose, M.K., 1997: Igneous Petrology World Press.

Philpotts, A, 1992: Igneous and Metamorphic Petrology prentice Hall.

##### **Metamorphic Petrology**

Kretz, R., 1994: Metamorphic Crystallization. John Wiley.

Turner, F.J., 1980: Metamorphic Petrology. McGraw Hill, New York.

Yardley, B.W. 1989: An Introduction of Metamorphic Petrology. Longman New York.

Harvey Blatt, Robert Tracy, Brent Owens: Petrology (Igneous Metamorphic), W. H. Freeman Publication; 3<sup>rd</sup> edition 2005.

Mason, R. (1978): Petrology of Metamorphic Rocks, CBS Publ.

Winter, J.D. (2011); Principles of Igneous and Metamorphic Petrology.

### **Paper II- Palaeontology**

#### **UNIT- I**

Introduction to palaeontology; processes of fossilisation; Distribution of organisms in marine environment, their modes of life; Preliminary idea of origin of life and Precambrian fossil records; Basic idea of trace fossils and their uses.

## **UNIT II**

Morphology and geological history of Bivalvia, Gastropoda and Brachiopoda.

## **UNIT III**

Morphology and geological history of Cephalopoda, Echinoidea and Anthozoa.

## **UNIT IV**

Morphology and geological history of Trilobita and Graptolithina; Introduction to Palaeobotany; Important Gondwana plant fossils.

### **References:**

R.M. Black, Elements of Palaeontology.

H. Woods Palaeontology, Invertebrate

E N A Clarkson, Invertebrate Palaeontology and Evolution IV Ed. Blackwell.

Stearn, C.W. & Carroll, R.L., 1989: Palaeontology- the record of life, John Wiley.

1994: Systematic and the Fossils Record-Documenting Evolutionary Patterns, Blackwell.

Prothero, D.R., 1998: Bringing Fossils to life – An Introduction to Palaeobiology McGraw.

William and Shrock Robert R.: Principles of Invertebrate Palaeontology, CBS Publishers & Distributors Pvt. Ltd.

Jain, Sreepat, Fundamentals of Invertebrate Palaeontology- Springer

## **Paper III- Stratigraphy**

### **UNIT I**

Principles of stratigraphy: Lithostratigraphic, Chronostratigraphic and Biostratigraphic units; Stratigraphic correlation; Physical and structural subdivisions of the Indian subcontinent and their characters.

### **UNIT II**

Brief idea of Archaean successions of Peninsular India with special reference to the Dharwar Supergroup; Unmetamorphosed Proterozoic successions: Cuddapah and Vindhyan Supergroups.

### **UNIT III**

Marine Palaeozoic sequences of the Himalaya and Peninsular India; Gondwana Supergroup; Marine Triassic and Jurassic successions of India.

### **UNIT IV**

Marine, and non-marine Cretaceous successions of Trichinopoly; Deccan Traps and Intertrappean beds; Tertiary successions of India; Siwalik Group.

### **References:**

Kumar Ravindra: Fundamentals of Historical Geology and Stratigraphy of India, New Age Publication.

Boggs, Sam Jr, 1995: Principles of Sedimentology and Stratigraphy, Prentice Hall.

Doyle, P. and Bennett, M.R. 1996: Unlocking the Stratigraphy Record, John Wiley.

## **Paper IV- Laboratory Work (Inclusive of Field Work)**

### **LAB - 1**

Study of the morphology of representative fossil invertebrates of Mollusca (Bivalvia, Gastropoda and Cephalopoda), Brachiopoda, Echinodermata (Echinoidea) and Cnidaria (Anthozoa); Study of important Gondwana plant fossils.

### **LAB - 2**

Petrological microscope and its use; Optical properties of common rock forming minerals.

Study of rock types in hand specimens and thin sections: Granite, Syenite, Diorite, Dolerite, Gabbro, Dunite, Rhyolite, Basalt, Quartzite, Marble, Schist and Charnockite.

Study of rock types in hand specimens only: Pegmatite, Sandstone, Limestone, Conglomerate, Shale, Phyllite, Slate and Gneiss.

### **LAB - 3**

Study of geological maps, and preparation of cross-sections; Simple dip-strike problems by stereographic projection.

#### **Sessional Work:**

Every student shall be required to keep and maintain up-to-date record of practical work during the session, properly signed by the teachers concerned and submit it to the Head of the Department at the time of their Practical Examination.

#### **Fieldwork:**

Every student shall be required to attend the field training and submit to the Head of the Department, a record of field observations and specimens collected, properly labelled and arranged; and a *viva-voce* examination based on the fieldwork shall also be conducted at the time of the Practical Examination. The marks assigned to the fieldwork shall be on the basis of the field records and collections, and performance in the field.



## ***B.Sc. III<sup>rd</sup> Year Geology***

### **Paper I –Sedimentology**

#### **UNIT I**

Introduction to sedimentary rocks and their origin; Flow dynamics; Froude number; Reynolds number; Flow regime; Types of flow.

#### **UNIT II**

Sediment characteristics; Diagenesis; Textures of sedimentary rocks; Sedimentary structures.

#### **UNIT III**

Classification of sedimentary rocks: clastic and non-clastic; Classification of sandstone and carbonates; Sedimentary basins in different tectonic settings.

#### **UNIT IV**

Concept of facies and Walther's law of facies; Transgression and regression; Depositional environments: Shallow marine environments; Fluvial environment; Deltaic environment; Deep sea environment.

#### **References:**

Supriya Sengupta: Introduction of Sedimentology, Routledge Publication.

Miall, A.D., 2000 Principles of Sedimentary Basin Analysis Springer-Verlag.

Prothero, D.R. and Schwab. F., 1996: Sedimentary Geology Freeman.

### **Paper II–Economic Geology**

#### **UNIT I**

Classification of mineral deposits; Processes of formation of ores: magmatic, hydrothermal, oxidation and supergene enrichment; Concept of critical, essential and strategic minerals.

#### **UNIT II**

Occurrence, origin and distribution of the important mineral deposits of India: Copper, Iron, Manganese, Aluminium, Chromium, Lead and Zinc.

#### **UNIT III**

Conventional energy resources: Coal, Petroleum, Radioactive minerals (Uranium and Thorium).

Non-conventional energy resources: Geothermal energy – hot springs; Non-metallic minerals related to refractory and cement industry.

#### **UNIT IV**

Concepts of Geophysical, Geochemical and Geobotanical mineral exploration; Concept of surface and subsurface mining.

## **References:**

- Barnes, H.L., 1979: *Geochemistry of Hydrothermal Ore Deposits*. John Wiley.  
Craig, J.M. & Vaughan, D.J., 1981: *Ore Petrography and Mineralogy*. John Wiley.  
Evans, A.M., 1993: *Ore Geology and Industrial Minerals* Blackwell.  
Guilbert, J.M. and Park, Jr. C.F., 1986: *The Geology of Ore Deposits* Freeman.  
Klemm, D.D. and Schneider, H.J., 1977: *Time and Starta Bound Ore deposits*, Springer Verlag.  
Mookherjee, A., 2000: *Ore genesis – a Holistic Approach*, Allied Publisher.  
Sawkins, F.J., 1984: *Metal deposits in relation to a plate tectonics*. Springer Verlag.  
Stanton, R.L., 1972: *Ore Petrology*, McGraw Hill.

## **Paper III– Applied Geology and Remote Sensing**

### **UNIT I**

Processes of soil formation; types of soils; soil degradation; Environmental changes due to influence of anthropogenic activity ; Groundwater and its vertical distribution; Aquifers and the geological considerations; Rainwater harvesting; River and groundwater pollution.

### **UNIT II**

Concept of Environmental Geology; Geological Hazards: Earthquakes, Floods, Tsunamis and Cyclones, Introduction to geotechnical properties of rocks; Geological consideration for geo-engineered structures; Landslides: classification and mitigation.

### **UNIT III**

Types and acquisition of aerial photograph; Scale and resolution; Black and white, colour and infrared film; Principles of stereoscopy; Elements of aerial photo interpretation

### **UNIT IV**

Physical principles of Remote Sensing; Early history of space imaging; Earth resources Satellite characteristics and applications of imageries; Introduction to GPS; Indian Remote Sensing Satellite missions; Use of Remote Sensing in identification of landforms.

## **References:**

- Krynine, D.H. And Judd, W.R., 1998: *Principles of Engineering Geology*, CBS Edition.  
Raghunath, N.M., 1982 *Groundwater*, Wiley Eastern.  
Todd, D.K., 1980: *Groundwater Hydrology*, John Wiley.  
*Remote Sensing and Image Interpretation* T. Lillisand and R.W. Keifer Wiley Publication.  
*Remote Sensing Geology – R.P. Gupta* Springer.

## **Paper IV–Laboratory Work (Inclusive of Field Work):**

### **LAB - 1**

Study of aerial photo-pairs using pocket stereoscope delineating geomorphic features (aeolian, fluvial and glacial) and structural features (fold, faults, joints and lineaments); Introduction to GPS.

Study of important economic minerals in hand specimens.

### **LAB - 2**

Study and interpretation of Geological maps; Simple survey problems using Clinometer, Brunton and Prismatic compass; Introduction to toposheet.

### **LAB - 3**

Study of sedimentary rock types in hand specimens and thin sections: Quartz-arenite, Arkose, Glauconitic-sandstone, Oolitic limestone, Pellet limestone, Fossiliferous limestone.

Study of sedimentary rock types in hand specimens only: Conglomerate, Breccia, Stromatolitic limestone, Siltstone and Shale.

Study of sedimentary structures in hand specimens such as ripple marks, cross-bedding, graded- bedding, mud cracks, salt pseudomorphs, rain prints etc.

### **Sessional Work:**

Every student shall be required to keep and maintain up-to-date record of practical work during the session, properly signed by the teachers concerned and submit it to the Head of the Department at the time of their Practical Examination.

### **Field Work:**

Every student shall be required to attend the field training and submit to the Head of the Department, a record of field observations and specimens collected, properly labelled and arranged; and a *viva-voce* examination based on the fieldwork shall also be conducted at the time of the Practical Examination. The marks assigned to the fieldwork shall be on the basis of the field records and collections, and performance in the field.

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राजनीति शास्त्र के त्वरि. वि०

**Proposed Syllabi**  
**of**  
**POLITICAL SCIENCE**  
**for**  
**B. A.**

**Paper I: Principles of Political Science**

**Learning Objectives**

The paper seeks to:

- Introduce students to the basic concepts of Political Science
- Acquaint students to the Core themes of the subject

- I Political Science: Definition, Nature, Scope, Methods, Approaches: Traditional and Modern, Evolution of the Discipline of Political Science
- II Origin, Nature and Functions of State: Indian and Western Perspectives
- III Sovereignty, Law and Democracy
- IV Liberty, Equality, Justice and Rights

**Recommended Readings:**

Gilchrist: Principles of Political Science

Eddy Ashirvatham : Political Theory

R.G. Gettell: Political Science

Andrew Heywood: Politics

D.D. Raphael, Problems of Political Philosophy

प्रो० अम्बादत्त पंत, गुप्ता, जैन : राजनीति शास्त्र के आधार

प्रो० श्रीप्रकाश मणि त्रिपाठी : राजनीति विज्ञान के आधारभूत सिद्धान्त

**Paper II: Indian Government and Politics**

**Learning Objectives**

The paper seeks to:

- Introduce students to major landmarks in the constitutional development in India.
- Make students appreciate the essential features of Indian constitutional system.

- I Constitutional Development: Govt. of India Act 1858, Indian Council Act 1861, Indian Council Act 1892, Morley –Minto Reforms 1909, Govt. of India Act, 1919, Govt. of India Act, 1935, Indian Independence Act, 1947.
- II Indian Constitution: Its sources, Basic features, Preamble.  
Fundamental Rights and duties, Directive Principles of State Policy
- III The Union Government: President, Parliament, Prime Minister, Judiciary, Centre-State Relations, Panchayati Raj.
- IV Political Parties: National and Regional Parties: The Election Commission and Electoral Reforms.

**Recommended Readings:**

1. G. Austin, *The Indian Constitution: Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
2. D.D. Basu, *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 1994.
3. U. Baxi, *The Indian Supreme Court and Politics* Delhi, Eastern Book Company, 1980.
4. P. Brass, *Politics of India Since Independence*, Hyderabad, Orient Longman, 1990.
5. A Chana, *Federalism in India : A Study of Union State Relations*, London, George Allen & Unwin, 1965.
6. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Indian Government and Politics*, New Delhi: Sage Publications, 2008.
7. S.K. Chaube, *Constituent Assembly of India : Spring Board of Revolution*, New Delhi, Peoples Publishing House, 1973,
8. J. Das Gupta, *Language Conflict and National Development*, Berkeley, University of California Press, 1970.
9. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Local Governance in India*, New Delhi: Sage Publications, 2018.
10. B.L. Fadia, *State Politics in India*, 2 vols, New Delhi, Radiant Publishers, 1984.

**Paper I: Political Thought: Indian and Western**

**Learning Objectives**

The paper seeks to:

- Familiarise students to process and structure of political thought
- Make students understand the major ideas of important Indian and Western political thinkers

- I Adiparva of Mahabharata, Manu, Kautilya
- II Aurobindo, Gandhi, Ambedkar, Deen Dayal Upadhyaya
- III Plato, Aristotle, Aquinas, Machiavelli
- IV Contractualists: Locks, Scientific Socialism: Marx

**Recommended Readings:**

1. A.T. Embree (ed.), Sources of Indian, Tradition : from the Beginning to 1800, India Penguin Books, 1991.
2. U.N. Ghoshal, A history of Indian Political Ideas, London, Oxford University Press, 1959.
3. B.B.Majumdar, History of Indian Social and Political Ideas from Raja Ram Mohan Roy to Dayananda, 1967.
4. Shomkar Ghose, Modern Indian Political Thought-Allied 1984.
5. Damodaram, India Thought : A Critical Survey, London, Asia Publishing House, 1967.
6. D.M. Brown, The White umbrella : Indian Political Thought from Manu to Gandhi, Berkeley, University of California Press, 1953.
7. D.G. Dalton, India's Idea of Freedom : Political Thought of Swami Vivekananda, Aurobindo Ghose, Mahatma Gandhi and Rabindra Nath Tagore, Delhi, Academic Press, 1982.
8. R. Iyer, The moral and Political Thought of Mahatma Gandhi, Delhi, Oxford University Press, 1973
9. K.N. Kadam (ed.), Dr. B.R. Ambedkar, New Delhi, Sage, 1992.
10. R.P. Kangle, Arthashastra of Kautilya, Delhi, Motilal Bnarasidass, 1935.
11. V.R. Mehta, Foundation of Indian Political Thought, New Delhi, Manohar, 1992.
12. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Modern Indian Political Thought*, New Delhi: Sage Publications, 2009.
13. M.J. Kanetkar, Tilak and Gandhi : A Comparative Study, Nagpur, Author, 1935.
14. R.P. Kangle, Arthashastra of Kautilya, Delhi, Motilal Banarasidass, 1935.

**Paper II: Comparative Politics**

**Learning Objectives**

The paper seeks to make students:

- Understand the background features of Comparative Politics
- Develop the capacity among students to compare political systems

- I Constitution: Definition, Classification, Constitutionalism
- II Forms of Government, Presidential and Parliamentary, Unitary and Federal, Organs of Government: Executive, Legislature, Judiciary
- III Electoral System: Theories of Representation, Proportional and Functional Representation, Political Parties, Public Opinion, Pressure Groups
- IV Elites, Political Culture, Political Socialization Political participation

**Recommended Readings:**

1. F.A. Ogg, and H.Zink, -Modern Foreign Governments.
2. W. Ivor Jennings,-The law and the Constitution
3. Heman Finer-Governments of Greater European Powers
4. A.C. Kapur,-Select Constitutions
5. H.J. Laski-Parliamentary Government in England
6. Herman Finer-Theory and Practice of Modern Government
7. D.W. Brogan,-An Introduction to American Politics
8. William C. Harvard.-The Government and Politics of the United States
9. M.E. Dimock, and G.O. Dimock-American government in Action
10. H.J. Laski.-American Presidency



**Paper I: Public Administration**

**Learning Objectives**

The paper seeks to:

- Introduce students to the basic themes of Public Administration.
- Make students understand the structure and functioning of key components of an administrative system

- I Meaning, Scope and Significance of Public Administration, Public and Private Administration
- II Theories and Principles of Public Administration
- III Administrative Behaviour, Personnel Administration
- IV Financial Administration

**Recommended Readings:**

1. Maheshwari and Awasthi, Public Administration
2. Mohit Bhattacharya, Public Administration
3. W.F. Willoughby, Principles of Public Administration
4. Peter Self, Administrative Theories and Politics
5. Dimock and Dimock, Public Administration
6. Pfiffner & Prasthus, Public Administration
7. Rumki Basu, Public Administration
8. डॉ० चन्द्र प्रकाश भास्करी, लोक प्रशासन (सिद्धान्त तथा व्यवहार)
9. Dr. C. P. Barthwal, *Understanding Local Self-Government*

**Paper II: Political Concepts and Ideologies**

**Learning Objectives**

The paper seeks to make students:

- Understand the basic concepts of Political Science
- Appreciate the major traditional and contemporary ideological traditions in Political Science

- I Power, Influence, Authority, Legitimacy
- II Political Development, Modernisation, Post-Modernisation
- III Capitalism, Socialism, Individualism, Liberalism, Idealism, Multiculturalism
- IV Social Justice, Secularism, Politics of Environment, Human Rights, Feminism

**Recommended Readings:**

C.E.M. Joad : Introduction to Modern Political Theory

Alan R. Ball: Modern Politics and Government

Leon P. Baradat : Political Ideologies

J.C. Johari Modern Political Theory

प्रो० अम्बादत्त पंत : आधुनिक राजनीतिक सिद्धान्त प्रवेशिका

प्रो० श्रीप्रकाश मणि त्रिपाठी : प्रमुख राजनीतिक संकल्पनाएँ एवं विचारधाराएँ

## B. A. – III Year

### Paper – III: International Politics

#### Learning Objectives

The paper seeks to:

1. Introduce students to the key Concepts and Issues in International Politics
  2. Make students understand the Structure and Working of International Politics.
- 
- I. Meaning, Nature and Scope of International Politics; Theories and Approaches: Indian and Western
  - II. The Modern State System; Power and its Elements; National Interest, Balance of Power; Collective Security; Role of Ideology, Foreign Policy and its Determinants
  - III. Arms Control and Disarmament, Cold War and Post-Cold World, Non-alignment, Problems of the Third World
  - IV. Global Organization: The U.N.; Regional Organizations: The European Union; SAARC; ASEAN, BRICS

#### Books Recommended:

- Peter Calvocoressj: World Politics since 1945
- T. N. Kaul : Diplomacy in War and Peace
- Bimal Prasad : India's Foreign Policy.
- V. P. Dutt: Indian's Foreign Policy science Independence
- Harsh V. Pant: India's Foreign Policy in a Unipolar World
- Prof. S.P. M.Tripathi :India and ASEAN-10
- दीनानाथ वर्मा, अन्तर्राष्ट्रीय संबंध
- प्रो० पुश्पेशपन्त : अन्तर्राष्ट्रीय संबंध
- प्रो० श्री प्रकाशमणि त्रिपाठी: अन्तर्राष्ट्रीय संगठन
- एम०एस० राजन, गुटनिरपेक्षता

B.A. 1<sup>st</sup>

Paper I

## Sources of Ancient Indian History

प्राचीन भारतीय इतिहास के स्रोत

## Unit I

- Vedas (वेद)
- Brahmanas ( ब्राह्मणग्रन्थ)
- Upanishadas (उपनिषद्)
- Puranas and Pauranic Vansavalis (पुराण और पुराणवर्णित वंशावलियों)
- Epics: The *Ramayana* and *Mahabharata* (महाकाव्य *रामायण* एवं *महाभारत*)

## Unit II

- Sutra Literature (सूत्र साहित्य)
- Smritis (स्मृति)
- Buddhist Literature in Pali and Sanskrit (पाली और संस्कृत में बौद्ध साहित्य)
- Jain Literature in Prakrit and Sanskrit (प्राकृत और संस्कृत में जैन साहित्य)

## Unit III

- Kalidasa – *Raghuvamsha*, *Meghadutam*, *Ritusambhara* (कालिदास—*रघुवंश*, *मेघदूतम्*, *ऋतुसंहार*)
- Banabhatta – *Harshacharitam* (बाणभट्ट, *हर्षचरितम्*)
- Folk Literature – Vishnu Sharma's – *Panchatantra*, Hall's *Gathasaptasati* (लोक साहित्य—विष्णुशर्मा कृत *पंचतन्त्र*, हाल की *गाथासप्तशती*)
- Chandrabardai – *Prithviraj Raso*
- Kalhana – *Rajtarangini* (कल्हण—*राजतरंगिणी*)
- Sangam Literature
- Foreign Travellers' accounts – Megasthenes, Idrisi, Fa-Hien, Hiuen Tsang (विदेशी यात्रीवृत्तान्त—मेगस्थनीज, तारानाथ, फाह्यान, ह्वेनसांग)

## Unit IV

- Inscriptions and Epigraphy as sources of Ancient Indian History. (Thirteenth Rock Edict of Ashoka)
- Numismatics as source of Ancient Indian History. (Punch marked coins and salient features of Gupta gold coins)
- Monuments as source of Ancient Indian History. (Sanchi Stupa, Dasavtar Temple)
- Paintings as source of Ancient Indian History. (Rock paintings, Ajaanta paintings)
- Traditions as source of Ancient Indian History.

B.A. I<sup>st</sup>

Paper II

Political History of Ancient India upto – 319 AD

प्राचीन भारत का राजनीतिक इतिहास (319 ईसवी तक)

Unit I

- Ancient Vansavalis
- Sixteen Mahajanpadas
- Republics
- Rise of Magadha : Haryank, Shishunag and Nanda dynasty

Unit II

- Chandragupta Maurya
- Bindusara
- Ashoka
- Successors of Ashoka

Unit III

- Shunga dynasty : Pushyamitra Shunga and Successors
- Kanva dynasty
- Satvahana dynasty

Unit IV

- Kushana dynasty
- Vima Cadfisis
- Kuzul Cadfisis
- Kaniska
- Huviska and Vashiska

B.A. 2<sup>nd</sup>

Paper III

**Political History of Ancient India**

प्राचीन भारत का राजनीतिक इतिहास (320 ई.----ई. तक)

Unit I

- History of Gupta Dynasty
- Chandra Gupta I
- Samudra Gupta
- Ram Gupta
- Chandra Gupta II
- Kumar Gupta
- Skanda Gupta
- Later Guptas

Unit II

- Maukharis
- Pushyabhotis

Unit III

- Pala dynasty
- Pratihara
- Rashtrakuta
- Chahmana

Unit IV

- Rai dynasty of Sindh
- Brahman dynasty of Sindh
- Chach Chandar, Dahir, Jai Singh
- Chohi dynasty
- Chalukyas
- Pandyas
- Hoysala dynasty
- Pallava dynasty

B.A. 2<sup>nd</sup>

Paper IV

Elements of Archaeology

Unit I

- Meaning and definition of Archaeology.
- History of development of Archaeology in India.
- Archaeology and its relation with other subjects : Anthropology, Chemistry, Physics, Botany and Geology.
- Salient features of Stone age cultures of India (Paleolithic, Mesolithic and Neolithic)

Unit II

- Methods of Archaeological Exploration.
- Traditional Methods.
- Scientific method.
- Archaeological Excavation : Types of Excavations : Vertical and Horizontal.
- Technique of Excavation : Stratigraphy.
- Method of Recording.

Unit III

- Salient features of Pottery :  
Harappan  
Ocred Colour Pottery (O.C.P.)  
Painted Grey Ware (P.G.W.)  
Northern Black Polished Ware (N.B.P.)

Unit IV

- Chronology and Dating Methods:
- Indian System of dating
  - Relative dating
  - Absolute dating

B.A. 3<sup>rd</sup>  
Paper V

**Socio-Economic and Religious History of Ancient India**  
प्राचीन भारत का सामाजिक-आर्थिक एवं धार्मिक इतिहास

Unit I

- *Farna System*
- *Caste/Jati System*
- *Ashram*
- *Sanskrit*
- *Parushartha*
- Marriage

Unit II

- Ancient Indian Education System
- Position of Women
- Feudalism.

Unit III

- Ownership of land, Agrarian system, Irrigation
- Taxation.
- Monetary System.
- Guild Organization.

Unit IV

- Sanatan Dharma.
- Indus religion.
- Vedic religion.
- Life and Teachings of Buddha
- Life and Teachings of Mahavir, Shaiva, Vaishnava and Shakta Cults



B.A. 3<sup>rd</sup>

Paper VI

Ancient Indian

Art and Architecture

Unit I

- Art and Architecture of Indus Valley Civilization
- Mauryan Art (Cave, Palace and Pillars)
- Art of Bharhut, Sanchi and Amaravati

Unit II

- Mathura School of Art
- Gandhara School of Art
- Gupta Sculptural Art
- Ajanta Paintings

Unit III

Shikhar Architecture with special reference to:

- Sanchi
- Bhaja
- Karle

Unit IV

Architectural features of the following:

- Gupta Temples
- Khajuraho Temples – Kandariya Mahadeva
- Orissa Temples – Lignaraja Temple and Konark Sun Temple
- Rashtrakuta Temples – Kailash Temple of Ellora
- Pallava Temples – Rock cut *Rathas*

**B.A. 3<sup>rd</sup>**  
**Paper VII**  
**Ancient Indian**  
**Polity and Administration**  
प्राचीन भारतीय राजनीति एवं प्रशासन

**Unit I**

- Sources of Ancient Indian Polity
- Origin of State
- Coronation ceremony in the later Vedic period, its constitutional significance.

**Unit II**

- *Sabha* and *Samiti*
- *Vidatha*
- *Paurava Janapada*

**Unit III**

- Origin of Kingship
- Duties and functions of King
- Seven Elements of the state and their relations
- Relation between King and Ministers

**Unit IV**

- Ministry
- Introduction
- Qualifications
- Functions
- Relation between King and Ministers
- Ancient Indian Judicial System

**Proposed Syllabi**  
**of**  
**POLITICAL SCIENCE**  
**for**  
**B. A.**

**Paper I: Principles of Political Science**

**Learning Objectives**

The paper seeks to:

- Introduce students to the basic concepts of Political Science
- Acquaint students to the Core themes of the subject

I Political Science: Definition, Nature, Scope, Methods, Approaches: Traditional and Modern, Evolution of the Discipline of Political Science

II Origin, Nature and Functions of State: Indian and Western Perspectives

III Sovereignty, Law and Democracy

IV Liberty, Equality, Justice and Rights

**Recommended Readings:**

Gilchrist: Principles of Political Science

Eddy Ashirvatham : Political Theory

R.G. Gettell: Political Science

Andrew Heywood: Politics

D.D. Raphael, Problems of Political Philosophy

प्रो० अम्बादत्त पंत, गुप्ता, जैन : राजनीति शास्त्र के आधार

प्रो० श्रीप्रकाश मणि त्रिपाठी : राजनीति विज्ञान के आधारभूत सिद्धान्त

**Paper II: Indian Government and Politics**

**Learning Objectives**

The paper seeks to:

- Introduce students to major landmarks in the constitutional development in India.
- Make students appreciate the essential features of Indian constitutional system.

- I Constitutional Development: Govt. of India Act 1858, Indian Council Act 1861, Indian Council Act 1892, Morley –Minto Reforms 1909, Govt. of India Act, 1919, Govt. of India Act, 1935, Indian Independence Act, 1947.
- II Indian Constitution: Its sources, Basic features, Preamble.  
Fundamental Rights and duties, Directive Principles of State Policy
- III The Union Government: President, Parliament, Prime Minister, Judiciary, Centre-State Relations, Panchayati Raj.
- IV Political Parties: National and Regional Parties: The Election Commission and Electoral Reforms.

**Recommended Readings:**

1. G. Austin, *The Indian Constitution: Corner Stone of a Nation*, Oxford, Oxford University Press, 1966.
2. D.D. Basu, *An Introduction to the Constitution of India*, New Delhi, Prentice Hall, 1994.
3. U. Baxi, *The Indian Supreme Court and Politics* Delhi, Eastern Book Company, 1980.
4. P. Brass, *Politics of India Since Independence*, Hyderabad, Orient Longman, 1990.
5. A Chana, *Federalism in India : A Study of Union State Relations*, London, George Allen & Unwin, 1965.
6. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Indian Government and Politics*, New Delhi: Sage Publications, 2008.
7. S.K. Chaube, *Constituent Assembly of India : Spring Board of Revolution*, New Delhi, Peoples Publishing House, 1973,
8. J. Das Gupta, *Language Conflict and National Development*, Berkeley, University of California Press, 1970.
9. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Local Governance in India*, New Delhi: Sage Publications, 2018.
10. B.L. Fadia, *State Politics in India*, 2 vols, New Delhi, Radiant Publishers, 1984.

**Paper I: Political Thought: Indian and Western**

**Learning Objectives**

The paper seeks to:

- Familiarise students to process and structure of political thought
- Make students understand the major ideas of important Indian and Western political thinkers

- I Adiparva of Mahabharata, Manu, Kautilya
- II Aurobindo, Gandhi, Ambedkar, Deen Dayal Upadhyaya
- III Plato, Aristotle, Aquinas, Machiavelli
- IV Contractualists: Locks, Scientific Socialism: Marx

**Recommended Readings:**

1. A.T. Embree (ed.), Sources of Indian, Tradition : from the Beginning to 1800, India Penguin Books, 1991.
2. U.N. Ghoshal, A history of Indian Political Ideas, London, Oxford University Press, 1959.
3. B.B.Majumdar, History of Indian Social and Political Ideas from Raja Ram Mohan Roy to Dayananda, 1967.
4. Shomkar Ghose, Modern Indian Political Thought-Allied 1984.
5. Damodaram, India Thought : A Critical Survey, London, Asia Publishing House, 1967.
6. D.M. Brown, The White umbrella : Indian Political Thought from Manu to Gandhi, Berkeley, University of California Press, 1953.
7. D.G. Dalton, India's Idea of Freedom : Political Thought of Swami Vivekananda, Aurobindo Ghose, Mahatma Gandhi and Rabindra Nath Tagore, Delhi, Academic Press, 1982.
8. R. Iyer, The moral and Political Thought of Mahatma Gandhi, Delhi, Oxford University Press, 1973
9. K.N. Kadam (ed.), Dr. B.R. Ambedkar, New Delhi, Sage, 1992.
10. R.P. Kangle, Arthashastra of Kautilya, Delhi, Motilal Bnarsidass, 1935.
11. V.R. Mehta, Foundation of Indian Political Thought, New Delhi, Manohar, 1992.
12. Bidyut Chakrabarty and Rajendra Kumar Pandey, *Modern Indian Political Thought*, New Delhi: Sage Publications, 2009.
13. M.J. Kanetkar, Tilak and Gandhi : A Comparative Study, Nagpur, Author, 1935.
14. R.P. Kangle, Arthashastra of Kautilya, Delhi, Motilal Banarasidass, 1935.

Paper II: Comparative Politics

**Learning Objectives**

The paper seeks to make students:

- Understand the background features of Comparative Politics
- Develop the capacity among students to compare political systems

- I Constitution: Definition, Classification, Constitutionalism
- II Forms of Government, Presidential and Parliamentary, Unitary and Federal, Organs of Government: Executive, Legislature, Judiciary
- III Electoral System: Theories of Representation, Proportional and Functional Representation, Political Parties, Public Opinion, Pressure Groups
- IV Elites, Political Culture, Political Socialization Political participation

**Recommended Readings:**

1. F.A. Ogg, and H.Zink, -Modern Foreign Governments.
2. W. Ivor Jennings,-The law and the Constitution
3. Herman Finer-Governments of Greater European Powers
4. A.C. Kapur,-Select Constitutions
5. H.J. Laski-Parliamentary Government in England
6. Herman Finer-Theory and Practice of Modern Government
7. D.W. Brogan,-An Introduction to American Politics
8. William C. Harvard.-The Government and Politics of the United States
9. M.E. Dimock, and G.O. Dimock-American government in Action
10. H.J. Laski.-American Presidency

**Paper I: Public Administration**

**Learning Objectives**

The paper seeks to:

- Introduce students to the basic themes of Public Administration.
- Make students understand the structure and functioning of key components of an administrative system

- I Meaning, Scope and Significance of Public Administration, Public and Private Administration
- II Theories and Principles of Public Administration
- III Administrative Behaviour, Personnel Administration
- IV Financial Administration

**Recommended Readings:**

1. Maheshwari and Awasthi, Public Administration
2. Mohit Bhattacharya, Public Administration
3. W.F. Willoughby, Principles of Public Administration
4. Peter Self, Administrative Theories and Politics
5. Dimock and Dimock, Public Administration
6. Pfiffner & Prasthus, Public Administration
7. Rumki Basu, Public Administration
8. डॉ० चन्द्र प्रकाश भाम्बरी, लोक प्रशासन (सिद्धान्त तथा व्यवहार)
9. Dr. C. P. Barthwal, *Understanding Local Self-Government*



**Paper II: Political Concepts and Ideologies**

**Learning Objectives**

The paper seeks to make students:

- Understand the basic concepts of Political Science
- Appreciate the major traditional and contemporary ideological traditions in Political Science

I Power, Influence, Authority, Legitimacy

II Political Development, Modernisation, Post-Modernisation

III Capitalism, Socialism, Individualism, Liberalism, Idealism, Multiculturalism

IV Social Justice, Secularism, Politics of Environment, Human Rights, Feminism

**Recommended Readings:**

C.E.M. Joad : Introduction to Modern Political Theory

Alan R. Ball: Modern Politics and Government

Leon P. Baradat : Political Ideologies

J.C. Johari Modern Political Theory

प्रो० अम्बादत्त पंत : आधुनिक राजनीतिक सिद्धान्त प्रवेशिका

प्रो० श्रीप्रकाश मणि त्रिपाठी : प्रमुख राजनीतिक संकल्पनाएँ एवं विचारधाराएँ

**Paper – III: International Politics**

**Learning Objectives**

The paper seeks to:

1. Introduce students to the key Concepts and Issues in International Politics
2. Make students understand the Structure and Working of International Politics.

I. Meaning, Nature and Scope of International Politics; Theories and Approaches: Indian and Western

II. The Modern State System; Power and its Elements; National Interest, Balance of Power; Collective Security; Role of Ideology, Foreign Policy and its Determinants

III. Arms Control and Disarmament, Cold War and Post-Cold World, Non-alignment, Problems of the Third World

IV. Global Organization: The U.N.; Regional Organizations: The European Union; SAARC; ASEAN, BRICS

**Books Recommended:**

- Peter Calvocoressi: World Politics since 1945
- T. N. Kaul : Diplomacy in War and Peace
- Bimal Prasad : India's Foreign Policy.
- V. P. Dutt: Indian's Foreign Policy since Independence
- Harsh V. Pant: India's Foreign Policy in a Unipolar World
- Prof. S.P. M. Tripathi : India and ASEAN-10
- दीनानाथ वर्मा, अन्तर्राष्ट्रीय संबंध
- प्रो० पुष्पेशचन्द्र : अन्तर्राष्ट्रीय संबंध
- प्रो० श्री प्रकाशमणि त्रिपाठी: अन्तर्राष्ट्रीय संगठन
- एम०एस० राजन्, गुटनिरपेक्षता

(24)

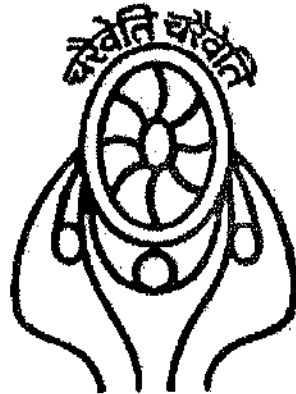
कैशिकत बरली प्रीति

*State -level Uniform Syllabus*

*Bachelor of Arts (B.A.)*

*(Regular)*

**Subject : Economics**



रुहेलखंड विश्वविद्यालय, बरेली

**MAHATMA JYOTIBA PHULE ROHILKHAND UNIVERSITY,  
BAREILLY, UP-243006**

*State –level Uniform Syllabus for Graduation*

*Bachelor of Arts (B.A.)*

*(Regular)*

**Subject : Economics**

*Plan of Syllabus\**

<i>Class</i>	<i>Paper</i>	<i>Title of Paper</i>
B.A. (Part-I)	I	Micro Economic Analysis
B.A. (Part-I)	II	Indian Economic Problems & Policies
B.A. (Part-II)	I	Macro Economic Analysis
B.A. (Part-II)	II	Fiscal Economics & International Trade
B.A. (Part-III)	I	Statistical Methods & Computer Applications in Economics
B.A. (Part-III)	II	Evolution of Economic Thought
B.A. (Part-III)	III	Students can opt any <b>one</b> of the following options:
	III (A)	Economics of Development & Growth
	III (B)	Environmental Economics & Sustainable Development.

*\*The proposed syllabus is primarily for the annual examination system. However, it can easily be converted for semester system by minor modifications.*

**Pattern of Evaluation**

- 80% marks of the aggregate of each written paper shall be for the University level examination.
- 20% of the aggregate shall be earmarked for the continuous internal assessment of students based on internal test/ assignment/ presentation/ case study/ similar type of other activity.
- B.A. (Part-III) Paper-III students will opt for one paper from the options available.

**BA 1st Year**  
**Paper 1**  
**MICRO ECONOMIC ANALYSIS**

**Course Objectives:** The purpose of this course is to expose the students to the basic concepts of micro economics. This course is designed to expose the students to the basic principles of microeconomic theory and the contents will illustrate how microeconomic concepts can be applied to analyze real-life situations. The basic objectives are to understand:

1. Evolution , definition and nature of economics;
2. Behavior of households, firms and government;
3. Supply and demand, elasticity, costs and revenues;
4. Explain how the prices and quantities of land, labor, and capital are determined;
5. Market structures and price output decisions;
6. Discuss the characteristics of the four market models: perfect competition, monopolistic competition, oligopoly, and pure monopoly;
7. Graph average cost, marginal cost, and profit maximizing price and quantity for the four market models;
8. Discuss the types of market failures and how they lead to government intervention
9. Explain how the political market place impacts economic decision making, regulation, and entrust laws.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit I (A)**

Evolution and definition of Economics, Nature & Scope of Economics, Methods of Economic Analysis – Inductive & Deductive Logic , Role of Indian Ethos , Vedas in Economic Analysis , Kautilya's Arthashastra

**Unit I (B)**

Basic Concepts: Utility Demand, Supply, Commodity and their types, Value and Price, Utility: Cardinal and Ordinal Utility Approaches to Demand. Demand and supply schedule and demand/supply curve; market versus individual demand/supply; shifts in the demand/supply curve, taxes and the costs of taxation; consumer surplus; producer surplus and the efficiency of the markets, Concept of Equilibrium.

**Unit II (A)**

The consumption decision - budget constraint, consumption and income/price changes, demand for goods and price changes; description of preferences (representing preferences with indifference curves); properties of indifference curves; consumer's optimum choice; income and substitution effects; Consumer equilibrium (Hicks & Slutsky) Price, Income and Substitution effects.

**Unit II (B)**

Elasticity of Demand, Price, Income and Cross elasticity, Consumer Surplus and its measurement

### Unit III(A)

Production function – total, average & Marginal product, Law of variable proportions (modern approach)– isoquants –Isocost lines – optimal input combination – producer's equilibrium.expansion path – elasticity of factor substitution - laws of returns to scale – economies and diseconomies of scale , Production function – properties.

### Unit III (B)

Cost functions - cost concepts - explicit and implicit costs, economic and accounting costs, sunk cost, opportunity cost, real cost, social cost- traditional, theory of costs - short run and long run analysis of costs, modern theory of cost – short run and long run- L-shaped and saucer-shaped cost curves.

### Unit IV(A)

Market , Type of Markets, Perfectly Competitive Price System, A Graphical Model of General Equilibrium with Two Goods, Comparative Statics Analysis, Barriers to Entry. Profit Maximization and Output Choice, Monopoly and resource Allocation, Monopoly, Short-Run Decisions: Pricing and Output, Basics of Monopolistic Competition and Oligopoly

### Unit IV (B)

Theory of Distribution - Marginal Productivity theory, wages, rent and profit.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Find out the examples of perfect markets around you and discuss the elements of these markets in reference to the characteristics of perfect market.
2. Discuss the role of Kautilya in the development of Economics.
3. Explain the role of scarcity, specialization, opportunity cost and cost - benefit analysis in economic decision-making.
4. Identify the determinants of supply and demand; demonstrate the impact of shifts in both market supply and demand curves on equilibrium price and output.
5. Explain the role of scarcity, specialization, opportunity cost and cost - benefit analysis in economic decision-making.
6. What do you mean by equilibrium and discuss the importance of concept in reference of markets

### Recommended Books:

1. Koutsoyiannis. (1979). Modern Microeconomics. Palgrave McMillan.
2. Dominick Salvatore. Micro Economics Theory and Application. 4th Ed. New Delhi: Oxford University Press.
3. Ray, N.C. (1975), An Introduction to Microeconomics, Macmillan Company of India Ltd., Delhi
4. Samuelson, P.A. and W.D. Nordhaus (1998), Economics, Tata Mc Grow Hill, New Delhi
5. Stonier, A.W. and D.C. Hague (1972), A Textbook of Economic Theory, EIBS & Longman Group, London.
6. Satya, R.Chakraborty – Micro Economics, Allied Publishers, New Delhi
7. R.G.Lipsey, An Introduction to Positive Economics Economy, A Condensed Course
8. Watson and Getz. (1996). Price Theory and its uses. New Delhi: AITBS Publisher.
9. Robert Y. Awh. Micro Economic Theory and Applications. John Wiley & Sons Inc.

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**BA 1st Year  
Paper II**

**INDIAN ECONOMIC PROBLEMS & POLICIES**

**Course Objectives:** The purpose of this course is to expose the students to the basic knowledge about Indian economy and its nature. The paper aims at initiating among the students discussion on some of the key issues of Indian economy. It also aims at making the students understand the macroeconomic challenges and policy management in India with special reference to Uttar Pradesh. This course is designed to make the students understand about the:-

1. Features and structural changes of Indian economy and compare with the growth pattern and challenges of other economies.
2. Nature of Indian economy the quantitative data on various economic aspects and policies in India
3. Theoretical knowledge in the actual working of Indian economy
4. Process of Economic development in Agricultural sector in India;
5. Industrial development and its problems and Condition of small scale industry in India
6. Recent Programmes launched by Government and its future implication
7. Condition and characteristics of economy of Uttar Pradesh.
8. Discuss the objectives of Stand Up schemes.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit II (A)**

**NATURE AND DEVELOPMENT OF INDIAN ECONOMY :** Nature and structure of Indian Economy, Structure of national income in India, Natural and human resources in India, Human Development : concept and indicators.

**Unit I (B)**

Demographic features in India – Poverty, unemployment, literacy etc, Growth & composition of Indian population, Sectoral development of Indian Economy.

**Unit II(A)**

**AGRICULTURAL DEVELOPMENT:** Basic features of Agriculture in India, Production & Productivity pattern of Agriculture, Green Revolution, Need for second Green Revolution.

**Unit II (B)**

Agriculture finance in India – Types, sources, Institutional and non Institutional, capital formation and investment in Agriculture, Agricultural Marketing and pricing policy, Regulated Markets and Warehouses.

**Unit III(A)**

**INDUSTRIAL SECTOR:** Development of Industrial Policy, issues related to industrial sector, structural pattern of industries, Growth of industries in India.



### Unit III (B)

Industrial finance, Industrial development in the Era of LPG, Special Economic Zones, Export Promotion Zones.

### Unit IV(A)

**ECONOMY OF UTTAR PRADESH: ISSUES FOR DEVELOPMENT:** Basic features of economy of U.P, characteristics and issues for development, Demographic features, Agricultural Development in Uttar Pradesh, Pattern of Industrial Development of UP. Small scale and cottage industries in UP. Uttar Pradesh State Industrial Development Corporation, Infrastructural development in UP.

### Unit IV (B)

Recent Developments in Indian Economy: Make in India & Start up India, Mudra Yojna, Health Insurance Schemes and National Nutrition Mission, Farm sector initiatives

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Assignment will be given on the basis of data analysis of different economic sectors like agriculture, education, industry demographic features etc.
2. Write a note on 9th five year plan.
3. Discuss the position of India in Human Development Index and critically analyze it.
4. What was the advantage of Green revolution in context of the development of Indian Economy?
5. Discuss the development of economy of Uttar Pradesh and what are the main characteristics of economy of UP.
6. What are the causes for regional development disparities?

### Recommended Books:

1. Shankar Acharya and Rakesh Mohan, editors, India's Economy: Performances and Challenges: Development and Participation, Oxford University Press
2. Rakesh Mohan, 2010, —India's Financial Sector and Monetary Policy Reforms,
3. Shankar Acharya and Rakesh Mohan, editors, India's Economy: Performances and and Participation, Oxford University Press
4. Pulapre Balakrishnan, Ramesh Golait and Pankaj Kumar, 2008, —Agricultural Growth in India Since 1991, RBI DEAP Study no. 27. 4.
5. B.N. Goldar and S.C. Agarwal, 2005, —Trade Liberalisation and Price-Cost Margin in Indian Industries, The Developing Economics
6. P. Goldberg, A. Khandelwal, N. Pavcnik and P. Topalova, 2009, —Trade Liberalisation and New Imported Inputs, American Economic Review, Papers and Proceedings
7. Kunal Sen, 2010, —Trade, Foreign Direct Investment and Industrial Transformation in India, in Premachandra Athukorala, editor, The Rise of Asia
8. Ghatak R, S. and Ingersent, K. (1984), Agriculture and Economic Development, Harvester Challenges: Development Press
9. Deshpande, R.S., Performance of Indian Agriculture through Plan Periods
10. Malik, Jayanta Kumar (1997), Growth of Agriculture in Independent India: 50 Years and After, RBI Occasional Papers, Vol. 18, Nos. 2 & 3, Special Issue (June & Sept.), pp. 145-172
11. Acharya, S. S. and Agarwal N. L. (1999), 3rd edition, Agricultural Marketing in India, Oxford and IBH Pub. Co. Pvt. Ltd., New Delhi.

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**BA 2nd Year**  
**Paper I**  
**MACRO ECONOMIC ANALYSIS**

**Course Objective:** This course exposes the students to the theory and functioning of income, employment and monetary sector of the economy. The objectives of the study of Macro Economic Analysis are:

1. To study how national economy as a whole functions, national aggregates such as income and employment and their inter-relationship;
2. The meaning of unemployment and inflation data and how that data is collected and computed;
3. The concept and components of the National Income Accounts, especially GDP and per capita income;
4. The explanation of the business cycle and its phases;
5. To manipulate the basic Aggregate Supply and Aggregate Demand model of the macro economy;
6. How monetary policy operates, its tools, and its advantages and drawbacks
7. To examine various economic behavior and policies that affect investment, consumption, monetary stock etc.;
8. To help in solving the central problem of full employment of resources in the economy.
9. To explain how economy's gross output is related to rate of interest, prices and other economic variables.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit-I(A)**

**EMPLOYMENT & INCOME:** Classical theory of employment, assumptions, Say's law of market, limitations, Keynesian employment theory, under full employment equilibrium, multiplier effect.

**Unit I (B)**

Concepts and measurement of national income, gross and net national product, Social accounting, circular flow of income.

**Unit II(A)**

**INVESTMENT FUNCTION & CYCLICAL FLUCTUATIONS:** Marginal efficiency of capital, autonomous and induced investment- its determinants, investment and income, accelerator theory of investment.

**Unit II (B)**

Business cycles - monetary factors in cyclical fluctuations, -Hicksian theory of trade cycle, multiplier-accelerator interaction.

### Unit III(A)

MONETARY THEORY & BANKING: Concept and functions of money, quantity theory of money, Fisher and Cambridge approach, Keynesian theory of money and prices, demand function for money, integration of monetary and real sectors, IS-LM model.

### Unit III (B)

Commercial banking and credit creation, factors affecting credit creation, functions of central bank, instruments for credit control, quantitative and qualitative credit control, monetary policy, money market and capital market

### Unit-IV(A)

FOREIGN EXCHANGE & INFLATION: Demand and supply of foreign exchange, exchange parity, purchasing power parity theory, fluctuations in the rate of exchange, exchange control.

### Unit IV(B)

Inflation - definition and types, causes of inflation: demand pull and cost push inflation, stages and effects of inflation, inflation and unemployment - Philips curve, management of inflation.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Define and measure national income and rates of unemployment and inflation;
2. Identify the phases of the business cycle and the problems caused by cyclical fluctuations in the market economy;
3. Define money and the money supply.
4. Describe the process of money creation by the banking system and the role of the central bank;
5. Construct the aggregate demand and aggregate supply model of the macro economy and use it to illustrate macroeconomic problems and potential monetary and fiscal policy solutions.
6. Differentiate between commercial and central banking system.

### Recommended Books:

1. Sikdav, Shoumyen, Principles of Macro-Economics, Oxford University, Press, India.
2. Stiglitz J. E. and Carl E. Walsh (2002) Principles of Macroeconomics, W.W. Norton & Company, New York. 6. Paul Samuelson and Nordhaus: (2005) "Economics" (18th Ed.) Tata Hill Publishing Company, New Dehli.
3. Mankiw N. Gregory: (2007) "Principles of Economics", Thomson, Indian Reprint. 8. Lipsey R.G. and K.A. Chrystal (2007) "Economics", Oxford University Press. Oxford
4. Case, Karl E & Ray C. Fair, Principles of Economics, Pearson Education, India.
5. Mankiw, Gregory, Principles of Macro Economics.
6. Ahuja, H.L. Macro Economics Analysis S. Chand & Co., New Delhi.
7. Lipsey R.G. and K.A. Chrystal (1999) "Principles of Economics", 9th Ed., Oxford University Press.
8. Ackley, G (1978), "Macroeconomics: Theory and Policy", Macmillan, New York. 3. Branson, W. A. (1989), "Macroeconomic Theory and Policy", 3rd Ed., Harper & Row, New York.
9. Shapiro, E (1996), "Macroeconomic Analysis" Galgotia Publication, New Delhi.

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**BA 2<sup>nd</sup> Year**  
**Paper II**  
**FISCAL ECONOMICS & INTERNATIONAL TRADE**

**Course Objectives:** Public finance or fiscal economics deals with the fisc of the country. It is related to decision making in the public sector or finance of the governmental agencies. International economics deals with the economic relations – among nations - both trade and financial. A good understanding of international economics is necessary for student of Economics and those who wish to work in these areas or governmental organizations. This will help students in decision making and in higher studies. The basic aim of this course is to introduce students to the application of the techniques, methods and principles of Economics to decision making in public finance.

The students are expected to learn how the principles of economics can be applied to sound decision making in public finance. The purpose of this course is to expose the students to the basic concepts of Public Finance. This course is designed to expose the students to the basic ideas about government's income and expenditure and its management. Also the students are expected to acquire skill that will help them to take rational decisions in issues related international economics. The basic objectives are to understand:

1. Methods and principles of Economics to decision making in public finance.
2. Concept of Fiscal Economics and its nature;
3. Tax system in India and its issues;
4. The sources of finances and allocation of these finances;
5. The nature and scope of International Economics.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit I(A)**

Meaning, nature, scope and subject matter of Public Finance – Public and Private Finance – Fiscal Functions–Allocation, distribution and stabilization– Principles of Maximum Social Advantage: Dalton, Musgrave.

**Unit I(B)**

Public Goods: Pure and Impure Public Goods, Private Goods, Mixed Goods and Merit Goods, Market failure and role of government

**Unit II(A)**

Public Expenditure – Public Expenditure and Private Expenditure – causes for the growth of Public Expenditure, Classification – Principles, Effects and Trends of Public Expenditure in India since 1951

**Unit II (B)**

Sources of Public Revenue, Tax Revenue and Non-Tax Revenue, Deficit Financing, Direct and Indirect Taxes, Income Tax, Current Issues of India's Tax System, GST (Goods & Services Tax)

### **Unit III(A)**

Public Debt – Meaning and classification – sources and causes for borrowing, effects – methods of debt redemption.

### **Unit III (B)**

Budget – meaning – type and importance – effects of surplus and deficit budget of the Economy. Fiscal Federalism in India – Centre – State financial relationship in India.

### **Unit IV(A)**

Nature and scope of international economics- internal and international trade - Inter industry trade and intra-industry trade ; Terms of trade –types, and factors affecting terms of trade – community indifference curve - Classical theory -Theory of absolute cost advantage, Theory of Comparative cost advantage, Opportunity Cost Theory.

### **Unit IV (B)**

Gains from Trade, static and dynamic gains from trade, Balance of Trade and balance of payments, free trade and protection, WTO.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Explain the mechanics and institutions of international trade and their impact on the macro economy.
2. Do you consider that corruption in the political environment has its origin in a crisis of moral values or their reasons are purely economic?
3. Does public investment contribute to sustainable economic development?
4. Which type of budgeting system is most appropriate for public administration?
5. "Free trade is good for any economy". Critically analyze the statement.
6. Examine the causes for the growth of public expenditure in India.

### **Recommended Books:**

1. Musgrave, R.A. and P.B. Musgrave, Public Finance in Theory and Practice, Mc-Graw Hill, 1989
2. Mahesh Purohit , "Value Added Tax: Experience of India and Other Countries", Gayatri Publications, 2007
3. Kaushik Basu, and A. Maertens (ed.), The Oxford Companion to Economics in India, Oxford University Press,2007
4. M.M Sury, Government Budgeting in India, Commonwealth Publishers, 1990.
5. Dominic Salvatore, (Recent Edition), International Economics: Trade and Finance, John Wiley and Sons, Limited.
6. Paul Krugman and Maurice Obstfeld (Recent Edition), International Economics: Theory and Policy, Pearson Education, Delhi.
7. Kindleberger C.P International Trade, R.D Irwin, Homewood
8. Francis Chirunilam, International Economics, Mc Graw Hill, Education
9. Rajkumar, Internal Economics, Excel Books, NewDelhi

**B.A. Part –III**  
**Paper I**

**STATISTICAL METHODS & COMPUTER APPLICATIONS IN ECONOMICS**

**Course Objectives:** This course is to introduce students of economics the use of statistical methods in economics both as a tool for analysis as well as tool for empirical validation and quantification. Thus statistical tools and computer applications are important to the study of economics both to analyze data as well as for the results to be demonstrated in quantitative terms. From this, students will be able:

1. To develop a high level of expertise in the application of statistics;
2. To develop a sound foundation in statistical tools & computer application;
3. The development of analytical skills and learning useful statistical concepts
4. To perform graphical analysis of data and sketch curves defined by simple
5. To compute various measurements of central tendency, dispersion, skewness and kurtosis.
6. To compute the correlation coefficient from ungrouped bivariate data and interpret them.
7. To analyze data pertaining to attributes and to interpret results.
8. To analyze data pertaining to Time Series and to interpret the results

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit I(A)**

Nature, scope & importance of Statistics, Methods of Data Collection, Classification, Tabulation, Graphic & Diagrammatic Representation of Data, Frequency Distribution;

**Unit I(B)**

Statistical System in India, Central Statistical Organization, National Sample Survey Organization : Significance & Functions

**Unit II(A)**

Measures of Central Tendencies: Arithmetic Mean, Median, Mode, Geometric Mean & Harmonic Mean

**Unit II (B)**

Measures of Dispersion: Range, Mean Deviation & Standard Deviation, Coefficient of Variation: Skewness & Kurtosis.

**Unit III(A)**

Relationship between two variables: Rank Correlation & Correlation Coefficient, Index Numbers: Introduction, scope and importance, Fisher's Ideal Index Numbers, Time Series: concept & components.

### Unit III (B)

Probability: concept, scope & importance, Estimation of Population parameters from sample data: Unbiased estimators for Population Mean & Variance

### Unit IV(A)

Vital Statistics: Meaning and Uses- Fertility Rates: Crude Birth Rate, General Fertility Rate, Specific Fertility Rate, Gross Reproduction Rate and Net Reproduction Rate - Mortality Rates: Crude Death Rate, Specific Death Rate, Standardized Death Rate, Infant Mortality Rate and Maternal Mortality Rate

### Unit IV (B)

Role of Computer in Economic Analysis: Importance & Basic functions of MS word, Excel and Power Point Presentation.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

The assignments will be based on the data analysis through the applications of different quantitative tools/techniques covered in syllabus.

1. Discuss about various types of averages and discuss the importance of these averages in economic analysis.
2. Why we study Index number and discuss various types of index Numbers.
3. Computer application is vital in the era information technology. Discuss.
4. MS excel is an important tool in the presentation critical data, How and why?
5. Discuss about the trends of Fertility Rates & Birth Rate in India.
6. What do you mean by Correlation analysis? What is the importance of Rank correlation

### ***Recommended Books:***

1. K. Sydsaeter and P. Hammond, Mathematics for Economic Analysis, Pearson Educational Asia, Delhi, 2002
2. Schaum's Series (2005), An Introduction to Mathematical Economics, Tata McGraw Hill, New Delhi.
3. D. C. Sancheti & V.K.Kapoor: Statistics Theory, Methods & Application Sultanchand & sons.
4. S.C.Gupta & V. K. Kapoor : Fundamental of applied statistics Sultan chand & sons New Delhi.
5. Parimal Mukhopadhyay: Mathematical Statistics" Books & allied (p) Ltd.
6. Chander,Romesh (2007), Lectures On Elementary Mathematics For Economists, New Academic Publishing Co, New Delhi.
7. S.P. Gupta (2005), Statistical Methods, S. Chand & Sons, New Delhi.

**B.A. Part - III**  
**PAPER- II**  
**EVOLUTION OF ECONOMIC THOUGHT**

**Course Objectives:**

The development of Indian and western economic thought provides a rich insight into the both economic issues and the workings of the Indian mind. It will give the student an introduction to major economic thinkers and their ideas on the economic policies. In this course we will come to know about the evolution, thoughts and development of Indian as well as western economists. This course will enable the student :

1. To understand the Indian views on natural law
2. To provide the knowledge about the mercantilism and physiocrats
3. To understand how capitalism came to an end and socialism emerged
4. To evaluate the new theories of marginal utility and distribution

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit-I(A)**

EVOLUTION OF INDIAN ECONOMIC THOUGHT: Kautilya, Naoroji, Ranade, Gandhian economic thought, economic ideas of J.K.Mehta, Amartya Sen and Pt. Deen Dayal Upadhyay.

**Unit I (B)**

Evolution of western economic ideas, Mercantilism: emergence and main principles. Physiocracy: Natural order, agriculture and net product.

**Unit-II (A)**

DEVELOPMENT OF CLASSICAL POLITICAL ECONOMY: Adam Smith- conception of growth and his criticism of Mercantilism and Physiocratic doctrines. Smith 's theory of value , division of labour.

**Unit II (B)**

David Ricardo- development of labour theory of value , theory of distribution and Ricardian views on machinery. Malthusian theory of population and glut , Malthusian glut and Keynesian stagnation

**Unit-III(A)**

NEO - MALTHUSIAN: J.B. Say and law of market , J.S. Mill and synthesis of classical ideas. Theory of money , Keynes and Say's law . Breakdown of capitalist system.

**Unit III (B)**

Historical determinism, capitalist crisis. Marshall: Analysis of utility theory and views on welfare.



#### Unit-IV(A)

- METHODS OF ECONOMIC ANALYSIS: Concept of margin , marginal utility and productivity theory. Criticism of classical theory of value and distribution. Evolution of new theory of value of distribution- Menger , Walras and Jevons.

#### Unit IV(B)

Extension of new theory –Individualism, Liberalism - Wiser, Bohm- Bowerk, Edgeworth, evolution of natural law.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Describe the viewpoint of Smith, Ricardo and Marshall on Value and Distribution.
2. Narrate the failure of Classical economics.
3. Examine the limitations of Keynesian economic system.
4. Show that Nehru is the architect of modern India.
5. Explain the significance of the study of economic thought.
6. Discuss the economic ideas of V.K.R.V. Rao & Pt. Deen Dayal Upadhyay.

#### Recommended Books:

1. Gide and Rist –(1915). History of Economic Doctrines; George G.Harrap & Co.Ltd, London.
2. Schumpeter,J. A.- (1954). History of Economic Analysis , Routledge publication Ltd, London.
3. Stigler, G. J. – (1965). Essay in the History of Economics, University of Chicago Press Publication.
4. Dobb, Maurice – (1973). Theories of Value and Distribution Since Adam Smith , Cambridge University Press, London.
5. Meek, R. L. - (1962). The Economics of Physiocracy: Essays and Translations, George Allen& Unwin publication.
6. Meek, R. L. – (1956). The Labour Theory of Value , Lawence & Wishart Publication , U.K.
7. Clair St Oswald – (1957). A Key to Ricardo , Routledge &Paul Publication , London.
8. Louise Haney - History of Economic Thought – Surjeet publication, New Delhi
9. Scrapanti E and S Zamagiri (2005) An Outline of the Economic Thought, Oxford University Press, New Delhi

**B.A. Part- III**  
**OPTIONAL PAPER-III (A)**  
**ECONOMICS OF DEVELOPMENT & GROWTH**

**Course Objectives:** Students are expected to learn all the important economic issues that government agents face. In this course a discussion will be for the basic concepts of growth and development and also the features of developing nations. The objectives of this paper are:

1. To provide the knowledge about the indicators of economic development;
2. To identify and evaluate the problems of developing countries.
3. To understand the affect of sectors like agriculture, industry and tertiary in the process of economic development.
4. To understand the theories of economic development.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit I (A)**

**ECONOMIC GROWTH & DEVELOPMENT:** Meaning and nature of economic growth and development, measurement and distinction. Characteristics of developing countries , Structural changes under development.

**Unit I (B)**

Obstacles of economic development, factor effecting economic growth, Economic growth and income distribution, PQLI, Human Development Index (HDI).

**Unit-II (A)**

**TOWARDS AN EQUITABLE WORLD ECONOMY:** Poverty –absolute and relative , measuring poverty –head count and poverty gap ,vicious cycle of poverty.

**Unit II (B)**

Human Capital, Economic development and unemployment, population and economic development, Mineral and energy.

**Unit III (A)**

**THEORIES AND APPROACHES TO ECONOMIC DEVELOPMENT:** Theories of development and growth- classical theories – Smith, Ricardo, Karl Marx, Keynesian economic theory, Lewis model of labour surplus, Rodan's Big push theory.

**Unit III (B)**

Nelson's low level equilibrium trap, balanced and unbalanced theory, Harrod – Domar model, Rostow's stages of economic growth.

#### Unit IV (A)

SECTORAL VIEW OF DEVELOPMENT & PLANNING: International trade as a engine of growth. W.T.O and developing countries, the choice of techniques, appropriate technology and employment.

#### Unit IV (B)

Infrastructure and its importance in development, significance of agriculture and industrial sector in economic development, sustainable development, Planning: concept, need, types, objectives and achievements

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Define economic growth and identify sources of economic growth.
2. Explain various policy options for alleviation of poverty in developing countries.
3. Discuss the contribution of education to Economic Development.
4. What is Economic Development? Explain the core values of Economic Development.
5. Explain Lewis model on unlimited supply of labour.

#### Recommended Books:

1. Todaro , M.P.-“ Economic Development in the Third World” , Longmann publication, - 1981.
2. Thirwal, A.P.- “ Growth and Development” , Macmillan press ltd., 1972 , Hampshire
3. Ghatak, S. – “ Development Economics ” , Routledge publication , 2003 , London.
4. Meier, G.M. —“ Leading Issues in Economic Development” , Oxford university press , - 1970, Cornell University.
5. Salvatore , D and E. Dowling – “Development Economics” , Schaum , Outline series in Economics , McGraw-Hill publication , 1977.
6. Agarwal, A.N. and S.P. Singh (Eds.) —“ Economics of Under-Development ” , Oxford university press , -1963.
7. Alkire, S. (2002), Valuing Freedom: Sen’s Capability Approach, New Delhi: Oxford university press
8. Bardhan, P. and C. Udry (eds) (2000), 1st edition, Readings in Development Economics, - The MIT Press.
9. Meier, G. and J. Rauch (2005), 8 edition, Leading Issues in Economic Development,, Oxford University Press, USA.
10. Meier, G. (2001), 'The Old Generation of Development Economics and the New', In: G. Meier and J. Stiglitz (eds), Frontiers of Development Economics, World Bank.

**B.A. Part-III**  
**OPTIONAL PAPER III (B)**  
**ENVIRONMENTAL ECONOMICS AND SUSTAINABLE DEVELOPMENT**

**Course Objectives:** The importance of environmental studies cannot be disputed. The need for sustainable development is a key to the future of mankind. Continuing problems of pollution, loss of forest, solid waste disposal, degradation of environment, issues like economic productivity and national security, global warming, the depletion of ozone layer and loss of biodiversity have made everyone aware of environmental issues. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 and world Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe to the deteriorating condition of our environment. As a sub-discipline of economics, environmental economics deals with how human society attempts to handle the following broadly defined objectives:

1. To know about the fundamental economic, ecological, and institutional 'pre-analytic' perceptions, assumptions, conceptual definitions;
2. To develop an understanding about the relationship between nature and the human economy;
3. A comprehensive look at the critical issues pertaining to impending major long-term environmental problems;
4. The course attempts to incorporate basic principles of both economics and ecology that are essential for a comprehensive understanding and critical assessment of humanities.

**Syllabus for evaluation of 80 percent marks (External Examination)**

**Unit 1(A)**

**INTRODUCTION TO BASIC CONCEPTS:** Introduction of Environmental Economics, Economy-Environment interaction, Key Environmental issues and problems, Economic way of thinking about these problems.

**Unit I (B)**

Basic concepts from Economics: Pareto optimality and market failure in the presence of externalities; property rights and other approaches.

**Unit II (A)**

**CURRENT ENVIRONMENTAL ISSUES & POLICIES:** India's Environmental Problems: Urban & Rural Environmental Problems, Types of Pollution & methods to control it, Causes & Effects of environmental degradation, International Environmental Problems.

**Unit II (B)**

Environmental Policy in India: Implementation and Evaluation of the policy, Environment Laws, People's understanding and participation in the management of common property resources, Pollution control policy

**Unit III (A)**

**ANALYTICAL FOUNDATION: ECONOMICS & ECOLOGY:** The standard economics and ecological perspective on environmental resources and the roles these resources play in the human

economy, the ecological and technological determinants of the waste assimilative capacity of the natural environment.

### **Unit III (B)**

The environment as common property resources, Causes and consequences of environmental externalities: Market failure, the notion of transaction costs and the institutional challenges for correcting (internalizing) environmental externalities.

### **Unit IV (A)**

**ENVIRONMENTAL SUSTAINABILITY & SUSTAINABLE DEVELOPMENT:** The old scarcity debate: The Malthusian and neo- Malthusian conception on limit to growth, the new scarcity debate: climate change and biodiversity.

### **Unit IV (B)**

Sustainable development in theory and practice, Population, development and environmental degradation: the case of the developing nations.

**Practice Assignments for evaluation of 20 percent of Internal assessment: Student should be given at least one assignment from every unit.**

1. Specify the meaning of ecological pyramids.
2. Specify the meaning of Chipko movement.
3. Explain the scope and significance of environmental economics.
4. Explain Rio De Janeiro Agenda 21.
5. Analyze the relationship between environment and economics.
6. Is pollution an economic problem? Discuss.

### **Books Recommended:**

1. Charles Kolstad, "Economics of the Environment: Selected Readings", W.W. Norton, 6th edition, 2012
2. Hanley N Shogren & J F Kihite : Introduction of Economics", Oxford University Press
3. Kaistad C D : Environmental Economics, Oxford University Press
4. Hayami, Y,(1997), "Development Economics, Oxford University, New York
5. Higgins, B. (1959), "Development Economics, Norton, New York
6. Fisher, A.C. (1981), Resource and Environmental Economics, Cambridge University Press, Cambridge.
7. Hanley, N., J.F. Shogern and B. White (1997), Environmental Economics in Theory and Practice, Macmillan.
8. Baumol, W.J. and W.E. Oates (1988), The Theory of Environmental Policy, (2nd Edition), Cambridge University Press, Cambridge.
9. Bromely, D.W. (Ed.) (1995), Handbook of Environmental Economics, Blackwell, London.
10. Sankar, U. (Ed.) (2001), Environmental Economics, Oxford University Press, New Delhi.
11. Tietenberg, T. (1994), Environmental Economics and Policy, Harper Collins, New York.

25 शिक्षा शास्त्र बरेली विश्वविद्यालय

# STATE-LEVEL UNIFORM SYLLABUS

FOR

## BACHELOR OF ARTS

### (EDUCATION)

### Course Structure & Syllabus



महात्मा ज्योतिबा फुले  
रुहेलखण्ड विश्वविद्यालय, बरेली

**MAHATMA JYOTIBA PHULE ROHILKHAND UNIVERSITY,  
BAREILLY, UP-243006**

August, 2018

## **PREAMBLE**

Education ignites the mind and compels it to give birth to new ideas; these ideas have deep rooted ingredients from the past heritage that dreams for the infinite bright future. Present syllabus also characteristically represents components from our on-going undergraduate programme for Education in different universities but realizes our present and visualizes our future needs too. Keeping these knowledge bases as foundation the present syllabus is identical from the following peculiarities-

**Indigenous components** -the syllabus has been characteristically designed to incorporate the rich Indian cultural heritage and has empathetically put in front the Indian ethos.

**Activity Based Assignments:** of each paper has been critically designed to engage the learner actively in the content of the paper which will make the learner assimilate the content and develop zeal to learn.

**Emphasis on Skill Development-** is also an important idea behind this course, after completing which s/he will be able to self-sustain himself or herself in his local environment and feel satisfied.

**Ready for Annual and Semester System** – this course has been so developed and designed that it is ready to be used in annual system. After few minor modifications it will be ready to be used in semester system as well.

### **Proposed Evaluation**

Evaluation of each paper is divided into two parts viz. External and Internal. The External Evaluation will be done through a theory paper of 80 marks and **internal evaluation** of 20 marks will be done on the bases of the **internal assessment** activities.

The theory question papers in all the three years will be divided into three sections:

#### **Section A:**

**Ten compulsory short answer questions** will be comprised from the entire syllabus. Each question will be answered in about 200 words. (10 questions x 4marks = 40 Marks)

#### **Section B:**

This section will have **six long answer questions** (three per part and one per unit) representing the entire syllabus. The candidate will have to **answer four** questions. Each question must be answered in about 500 words. (4 questions x 10marks = 40 Marks)

<b>COURSE STRUCTURE OF BACHELOR OF ARTS (EDUCATION)</b>							
<b>Year</b>	<b>Paper No.</b>	<b>Name of the paper</b>			<b>External Marks</b>	<b>Internal marks</b>	<b>Total marks</b>
<b>B.A. I</b>	Paper I	<b>Basics of Education</b>	Part A	<i>Conceptual Viewpoint of Education</i>	80	20	100
			Part B	<i>Structure of Education</i>			
	Paper II	<b>Development of Indian Education</b>	Part A	<i>Indian Educational Heritage</i>	80	20	100
			Part B	<i>Problems of Indian Education</i>			
<b>Total</b>					<b>160</b>	<b>40</b>	<b>200</b>
<b>B.A.II</b>	Paper I	<b>Perspectives of Education</b>	Part A	<i>Philosophical Perspectives</i>	80	20	100
			Part B	<i>Social, Political and Economic Perspectives</i>			
	Paper II	<b>Psychological Perspectives of Education</b>	Part A	<i>Understanding the Learner</i>	80	20	100
			Part B	<i>Thinking and Learning</i>			
<b>Total</b>					<b>160</b>	<b>40</b>	<b>200</b>
<b>B.A.III</b>	Paper I	<b>Emerging Trends in Education</b>	Part A	<i>Technological Trends</i>	80	20	100
			Part B	<i>Socio-Cultural Trends</i>			
	Paper II	<b>Assessment in Education</b>	Part A	<i>Concept and Techniques of Assessment</i>	80	20	100
			Part B	<i>Fundamental Statistics</i>			
	Paper III	<b>Educational Policies, Management &amp; Administration OR Literature Education</b>	Part A	<i>Educational Policies</i>	80	20	100
			Part B	<i>Educational Management and Administration</i>			
			Part A	<i>Pracheen Granthon se liye gaye Sandarbh; Shiksha Sambandhi Pustiken, Lekh, tatha Dastavej</i>			
			Part B	<i>Chayanit kahaniyan, Kavitayen aur anya Rachnayan</i>			
<b>Total</b>					<b>240</b>	<b>60</b>	<b>300</b>
<b>Grand Total</b>					<b>560</b>	<b>140</b>	<b>700</b>



**B.A. I YEAR (EDUCATION)**  
**PAPER I**  
**BASICS OF EDUCATION**  
**Course Objectives**

The learner will be able to:

1. Understand the concept, meaning, need and functions of Education.
2. Comprehend the aims of Education in reference to Present Indian society.
3. Acquaint themselves with the different agencies of Education and their roles.
4. Appraise the concepts of National Integration, International Understanding, Human Rights and Values.
5. Explain the structure of Primary, Secondary & Higher Education.
6. Explain functions of School Education.
7. Understand the functions of School Education.

**Course Content**

(External Assessment: Part A + Part B = 80 Marks)

**PART A**

**CONCEPTUAL VIEWPOINT OF EDUCATION**

**Unit 1: Education: Concept, Aims, Functions and Factors**

- Meaning, Nature, Concept (*Vidya, Shiksha and Gyan*), and Definition.
- Aims of Education: Individualistic, Social, Democratic and Vocational.
- Functions of Education: Individual and Social Development, Transmission of Cultural Heritage, Acquisition of Skills.
- Agencies of Education: Formal, Informal and Non-formal.
- The Child (Characteristics), The Teacher (Qualities and Responsibilities).

**Unit 2: Education for National & International Understanding**

- Education for National and International understanding- Meaning, Need, Obstacles and suggestions for their Improvement through Education.
- Education for Emotional, social and Cultural Adjustment.
- Education for Human Resource Development.
- Education for Productivity and Self-Reliance.

## PART: B

### STRUCTURE OF EDUCATION

#### Unit 1: Structure of Primary and Secondary Education

- Historical Overview of Primary and Secondary Education
- Elementary Education : Special Programmes and Management
- Different organizations, viz; Central Board of Secondary Education (CBSE), Kendriya Vidyalaya Sangathan (KVS), Navodaya Vidyalaya Samiti (NVS), National Institute of Open Schooling (NIOS) National Council for Educational Research and Training (NCERT).

#### Unit2: Structure of Higher Education

- Historical Overview of Higher Education.
- Categories of Universities/ University Level Institutions: Central University, State University, Deemed to be University.
- Apex Level Bodies: All India Council of Technical Education (AICTE), Indian Council of Social Science Research (ICSSR), University Grants Commission (UGC).
- **Distance Learning:** Indira Gandhi National Open University (IGNOU), State Open Universities (SOUs).

**Internal Assessment Activities: 20 marks (10+10 for each section)**

**Any one activity from each unit (Part A & Part B)**

- Develop a flow diagram showing your understanding of 'what is Education'? / 'Aims of Education' / 'Functions of Education'.
- Write reflective essays on Role of Education for nation building and transmission of cultural heritage.
- Critically analyze educational role of any one agency of education.
- Reflect upon as an essay on the Role of Education in National Integration/International Understanding.
- Identify issues/ problems related to school education and develop a status report on any one issue:  
No Quality education, Non Accessibility of education, Drop out and stagnation, Gender issues, Non uniformity of curriculum and out-dated syllabus, Cost of

education, Gap between education provided and industry required education, Lack of infrastructure, Social and Cultural barrier, Social and Cultural barrier

### Suggested readings

- Aggarwal, J.C. (2010). *Theory and Principles of Education*, New Delhi, Vikas Publishing House.
- Banerjee, A. (1994). *Philosophy and principles of education*. Calcutta, Susoban Prakashan .
- Bhatia & Bhatia (2011). *Theory and principles of Education*. New Delhi, Doaba House.
- Gupta, A. (2007). *Going to School in South Asia*, Greenwood Press.
- J.S. Brubacker,(2017).*Modern Philosophies of Education*. New Delhi, Surjeet Publication.
- Lal,R.B. and Palodh, S.(2008). *Educational Thought and Practice*. Meerut, R.Lal Book Depot.
- Pandey R.S. (1992). *Principles of Education*, Agra, Vinod Pustak Mandir.
- Schofield, H. (2011) *Philosophy of Education: An introduction*, New York. Rutledge.
- Saxena, N.R. S.and Chaturvedi ,S.(2013).*Teacher in Emerging Indian Society*. Meerut, R.lal Book Depot.
- Saxena, N.R. S.(1996).*Principles of Education*. Meerut. R. Lal Book Depot.
- Stromquist, Nelly P. (1994).*Education in Urban Areas: Cross-National Dimensions*, Praeger Publishers.
- Thakur, A. S. &Thakur,A.(n.d.)*Teacher in emerging Indian Society*. Agra, Agarwal Publication.
- अग्रवाल ,एस .के.(एन.डी.). *शिक्षा के तात्विक सिद्धांत* . मेरठ, राज पब्लिशिंग हाउस .
- लाल, आर. बी. (एन.डी) *शिक्षा के सिद्धांत* . (एन.पी.)
- पाठक , पी.डी.( एन.डी) *शिक्षा के सिद्धांत* . आगरा , विनोद पुस्तक मंदिर.
- पाण्डेय, आर.एस.( एन.डी.). *शिक्षा के मूल सिद्धांत* . आगरा , विनोद पुस्तक मंदिर.
- पाल, एस. के. एवं गुप्त, एल.एन.( एन.डी.) *शिक्षा के सिद्धांत और आधार*. इलाहाबाद, कैलाश प्रकाशन .

**B.A. I YEAR (EDUCATION)**  
**PAPER – II**  
**DEVELOPMENT OF INDIAN EDUCATION**  
**Course Objectives**

The learner will be able to:

1. Understand the basic concept of Education during different ages.
2. Analyze the trends of Education running in the different educational systems.
3. Narrate the major contributions of Indian Educational Heritage in the different field of study.
4. Discuss the views of foreign travellers about Indian cultural and educational heritage.
5. Identify the problems of Indian education at different levels of education.
6. Understand the problems of Indian education
7. Assess the root cause for the problems of Indian education
8. Appraise the role of education in resolving the problems of Indian education

**Course Content**

**PART- A**

(External Assessment: Part A + Part B = 80 Marks)

**INDIAN EDUCATIONAL HERITAGE**

**Unit 1: Indian Education through the ages**

- Critical understanding of Indian Education System of Ancient, Medieval and British.
- The Major Centers and Institutions of Indian Education through the Ages: *Nalanda* and *Taxila*.

**Unit 2 : The Acknowledgements about Indian Educational Heritage**

- **By Foreign Travellers**
  - Megasthenes (Greek) (302-298 BC)
  - Fa-Hien (China) (405-411 AD)
  - Thomas Babington Macaulay (Lord Macaulay) (1834-38 AD)
- **By Indian Contributors**
  - Aaryabhatta
  - Nagarjun
  - Kautilya

**PART: B**

## PROBLEMS OF INDIAN EDUCATION

### Unit 1: Problems of Elementary and Secondary Education

- Problems of Access and Equity.
- Problems of Multilingualism, Child's Home Language and the Language of School - Classroom, Textbooks etc.
- Mass Vs. Class Education- Problem of Gaps between Mass and Class; Gap in Standards, Financial Load on Parent, Syllabus.
- Problem of Non-Availability of Technical & Vocational Guidance at Secondary Level and NSQF.
- Problems due to Cyber World and Increasing Stress.

### Unit II : Problems of Higher Level Education

- Problems of Access and Factors affecting Access: Gender (Masculine, Feminine and Transgender) and Caste, Class, Religion, Region.
- Problem of over emphasis on Examination System in India, Information Explosion and its Validation.
- Problem related with Students - Aimlessness, Intolerance, Aggression, and Values, Unemployment and Competition without Co-operation.

**Internal Assessment Activities:** 20 marks (10+10 for each section)

Any one activity from each unit (Part A & Part B)

Presentation on the major centres and Institutions of Indian Education through the ages. (Any two Centres/ Institutions)

- Make a report on the major Contributions of Indian Educational Heritage in any one field.
- Make a report on any one foreign traveller's views about Indian cultural and educational heritage.
- Preparing a local data based report of the status of primary and elementary schools of an identified area by the learner.
- Develop a case study of five students having problems in their schools and devise a tentative solution to them.
- Document the educational background of your family members and write a brief about their achievements as per their education or without education.
- Evaluation/Analysis of school textbooks from a gender-sensitive perspective.

- Analyzing data for various states on indicators like pupil-teacher ratio, etc.
- Interview five students of your college and find out why they did not opt for a job oriented vocational course after completing their school education.

### Suggested Readings

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## **B.A. II YEAR (EDUCATION)**

### **PAPER – I**

## **PERSPECTIVES OF EDUCATION**

### **Course Objectives**

The learner will be able to:

1. Examine critically the theories and basic concepts of education drawn from various disciplines associated to education such as Philosophy, Sociology, Political Science, Economics etc. in such a way that their linkages with methods, pedagogy and practices in the classroom could be established.
2. Give a comprehensive and critical account of the various systems of Indian philosophical tradition.
3. Identify significant features of the Indian and Western philosophical traditions that have relevance for modern educational system and society.
4. Understand education as a social institution and its complex linkages with other major social institutions.
5. Understand the Role of education in Social Change.
6. Develop critical understanding of the constitutional values and education as a means of social justice.
7. Describe education as a development indicator and enhancer of other development indicators.
8. Describe the role of education for sustainable development.

### **Course Content**

#### **PART A**

(External Assessment: Part A + Part B = 80 Marks)

#### **PHILOSOPHICAL PERSPECTIVES**

##### **Unit 1: Understanding the Philosophical Perspectives**

- Meaning and concept of Philosophy and '*Darshan*'; difference between Philosophy and '*Darshan*', Its' relationship with Education.
- Major Indian Philosophical thoughts -Vedic, Upanishadic and Bhagwad Gita; Their Educational Implications.
- Jainism and Buddhism; Their Educational Significance.
- Islamic School of Thought; Its Educational Significance.

### **Unit 3 : Some Prominent Schools and its Educational Thinkers**

- Some Schools of thoughts: Idealism, Naturalism and Pragmatism; Their Educational Importance.
  - *Mahatma Gandhi*
  - *Ravindra Nath Tagore*
  - *Babasaheb Bhim Rao Ambedkar*
  - *Rousseau*
  - *John Dewey*
  - *Paulo Freire*

### **PART:B**

### **SOCIAL, POLITICAL AND ECONOMIC PERSPECTIVES**

#### **Unit 1: Socio – Political Perspectives of Education**

- Societal Contexts of Education: School as social organization, Community participation , Social Organization of Knowledge.
- Social Stratification: Forms and bases of Social Stratification: Caste, Class, and Gender.
- Social Change and Mobility: Factors affecting them and Role of Education.
- Role of Education in enabling the Learners to 'learn to live together'.
- Education as a means of Social Justice in the Indian Constitution (Preamble, Fundamental Rights and Duties, Directive Principles of State Policies).

#### **Unit 2: Economic Perspectives of Education**

- Education for Economic Development- Its Meaning and Nature.
- Education as Development of Human Resource: Education for Employability- Academic Concerns in Education.
- Privatizations, Private Initiative, and Liberalization in Education.
- Education as a Developer and Enhancer of Development Indicators, Education for Sustainable Development (ESD): Aims of education for SD, Areas of SD (United Nations Division for SD).



**Internal Assessment Activities:** 20 marks (10+10 for each section)

Any one activity from each unit (Part A & Part B)

- Visit to educational institutions governed by Indian Philosophical Thought.
- Poster Presentation on any Indian/Western philosophical school or on any Indian /Western Educational Thinker.
- Poster presentation / poetry/ song/solo skit/ role playing on issues related to gender/cast discrimination or any other social and cultural aspect.
- Library visit with reference to collection of source/reference materials related to great social thinkers.
- Analysis of newspapers with reference to inequality, discrimination and marginalization.
- Poster Presentation on the Constitutional provisions related to education.
- Creative writing on education for sustainable development.

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- Pandey, R.S. (1997). *East West Thoughts on Education.* Allahabad, Horizon Publishers.
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## **B.A. II YEAR (EDUCATION)**

### **PAPER – II**

## **PSYCHOLOGICAL PERSPECTIVES OF EDUCATION**

### **Course Objectives**

The learner will be able to:

1. Know the patterns of different aspects of human developments and relate this knowledge with Education.
2. Understand the educational aspects of heredity, environment and individual differences.
3. Understand the changing concept of intelligence and its application.
4. Develop the understanding of the concept of Personality and its measurement.
5. Comprehend some basic determinants of human behavior and cognitive functioning.
6. Understand nature and process of learning in the context of various learning theories and their implications.
7. Realize special needs of some children and know the specific educational provisions for them.

### **Course Content**

#### **PART –A**

(External Assessment: Part A + Part B = 80 Marks)

#### **UNDERSTANDING THE LEARNER**

##### **Unit 1: Growth and Development**

- Meaning and concept, difference between growth and development, factors influencing development
- Stages of Human Development – Infancy, Childhood, Adolescence; their Characteristics, Problems and Educational Provisions
- Aspects of Development – Physical, Mental, Social and Emotional
- Role of Heredity and Environment.

## **Unit 2: Characteristics of Learner and Individual Differences**

- Personality: Definitions, Meaning, Types and Assessment of Personality.
- Intelligence: Concept of Intelligence and IQ; Concept of Emotional Intelligence and EQ; Intelligence Testing.
- Special Need Learners – Slow Learners, Gifted, Creative, Learning Disabled, Mentally Retarded; Their Characteristics and Educational Provisions.
- Individual Differences: Meaning, Types, Areas and causes of individual differences.
- Significance of Knowing Individual Differences and Its Educational Implications.

## **PART –B THINKING AND LEARNING**

### **Unit 1: Determinants of Human Behaviour**

- Sensation – Meaning, Types, Characteristics and Educational Implications of Sensation.
- Perception – Meaning and Characteristics, Difference between Sensation and Perception, Factors Influencing Perception, Educational Implications of Perception.
- Concept Formation – Meaning, Characteristics and Types of Concepts; Steps of Concept Formation; Importance of Concept Formation in Education.

### **Unit 2: Learning and Motivation**

- Learning - Concept; Nature; Relation to Attention, Interest, Maturation and Memory; Laws of Learning.
- Theories of Learning – Trial and Error; Classical Conditioning; Operant Conditioning; Insight Theory.
- Thinking , Reasoning and Problem Solving: Definition , Steps, Ways to Foster them .
- Motivation – Meaning and Types of Motivation; Role of Motivation in Learning; Techniques of Motivation.

### **Internal Assessment Activities: 20 marks (10+10 for each section)**

#### **Any one activity from each unit (Part A & Part B)**

- Administer and interpret any one of the following tests:  
(1) Individual Test of Intelligence

- (2) Group Test of Intelligence
- (3) Personality Inventory
- (4) Performance Test of Intelligence
- (5) Test of Creativity
- Conduct and Interpret one of the following Experiments:
  - (1) Mental Fatigue
  - (2) Trial and Error (Maze Apparatus)
  - (3) Transfer of Learning (Mirror Drawing Apparatus)
- Submit written assignment on any two of the following :
  - (1) One verbal and one non-verbal test of intelligence
  - (2) One projective and one non-projective techniques of personality assessment
  - (3) One verbal and one non-verbal test of creativity

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## **B.A. III YEAR (EDUCATION)**

### **PAPER I**

#### **EMERGING TRENDS IN EDUCATION**

#### **Course Objectives**

The learners will be able to:

1. Conceptualize emerging technological trends in education.
2. Develop understanding about the emerging trends in education.
3. Acquaint themselves with the role of emerging technological trends in spreading education among masses.
4. Comprehend the concept of Human Rights & Peace education.
5. Recognize the importance of Human Rights & Peace education in national development.
6. Understand the concept of Environmental Education; develop awareness about the pollution; its causes and preventions.
7. Understand concept of Inclusive Education.

#### **PART A**

(External Assessment: Part A + Part B = 80 Marks)

#### **TECHNOLOGICAL TRENDS**

##### **Unit 1: Introduction to Educational Technology**

- Educational Technology: Concept, Characteristics, Need and Scope.
- Approaches of Educational Technology- Hardware , Software , Courseware
- Computer- Need and Importance, Parts and types of Computer and Its Role in Education.
- Internet, e-mail, E-learning, M-learning and their Applications in Education.

##### **Unit 2: Initiatives and Innovations**

- Tele-Conferencing- Meaning and Importance , Types , Utility in Education
- Some Initiatives in Education : *Pratham, Educomp, EDUSAT , SWAYAM .*
- E resources: e-content, e-magazines and e-journals.
- MOOCs, OER's and Online courses.



**PART B**  
**SOCIO-CULTURAL TRENDS**

**Unit 1: Inclusive Education, Human Rights & Peace Education**

- Concept and Principles of Inclusion, Its Need and Benefits.
- Inclusions in reference to Learners with Special Needs, Gender, Caste, Class, Religion, Region and Language.
- Human Rights & Peace Education : Meaning , Concept of Mission and Goals.
- Understanding Peace as a Dynamic Social Reality.
- Education for Enhancing Cohesion in Academic, Personal, Social and Cultural Matters.

**Unit 2: Environmental Education**

- Meaning, Scope and Nature of Environment. Natural and Man-made Environment.
- Natural Resources and Associated Problems- Forest Resources, Water Resources, Mineral Resources, Food Resources, Energy Resources.
- Causes and effects of Air, Water, Soil, Marine, Noise, Thermal and Nuclear Pollution.
- Climate Change- Global Warming, Acid Rain, Ozone layer depletion, Piller Melting and Natural Disasters.

**Internal Assessment Activities: 20 marks (10+10 for each section)**

**Any one activity from each unit (Part A & Part B)**

- Write an assignment on a distance education based university.
- Access any 5 OER's and prepare a report and submit.
- Prepare a report on any one initiatives in Education *Pratham*, *Educomp*, *EDUSAT* , *SWAYAM* .
- Prepare your Curriculum Vitae (CV) and submit the soft copy of it to your subject teacher.
- Prepare a report on any organizations connected with peace and intercultural harmony of your nearby area.
- Report on Awareness of cultural characteristics of the local community around school and its linkages.

- Preparation of collage magazine from newspapers, etc. to highlight issues and challenges to Human Rights & Peace education.
- Prepare a collage related to environment protection
- Visit to an Inclusive School and prepare a report.

### Suggested Readings

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- <http://mhrd.gov.in/>
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## **B.A.III YEAR (EDUCATION)**

### **PAPER-II**

### **ASSESSMENT IN EDUCATION**

#### **Course Objectives**

The learner will be able to:

1. Understand the concept of assessment and learning & their comparison with other terms.
2. Differentiate between assessment of learning and assessment for learning.
3. Explore the practical strategies for implementing assessment in the context of holistic development.
4. Apply various class-room assessment techniques for students' development.
5. Acquire knowledge of basic Statistics.
6. Develop the ability to organize relevant educational data & represent through graphs.
7. Demonstrate an understanding of the statistical analysis involved in the Educational assessment (frequency distribution & graphical presentation, correlation).
8. Critically discuss statistical analysis & apply the methods covered in the course in the field of Class-room assessment.

#### **Course Content**

##### **PART – A**

(External Assessment: Part A + Part B = 80 Marks)

#### **CONCEPT AND TECHNIQUES OF ASSESSMENT**

##### **UNIT: 1 Introduction to Assessment, Measurement & Evaluation**

- Meaning Concept & Principles: Assessment , Measurement & Evaluation
- Functions : Assessment , Measurement & Evaluation
- Types of Assessment: Formative and Summative.
- Types of testing: Norm Referenced and Criterion Referenced test.
- Scales of Measurement: Nominal, Ordinal, Interval and Ratio.

## **UNIT 2: Assessment Techniques & Procedures**

- Class-room Assessment Techniques: Student Centered, Active, Context & Content Oriented.
- Classification of Assessment Tools (Qualitative and Quantitative).
- Self-Assessment and Peer-Assessment, Feedback Strategies.
- Constructing manual Portfolios and e-Portfolios.

### **PART B**

## **FUNDAMENTAL STATISTICS**

### **UNIT 1: Introduction of Statistics**

- Concept and Nature of Statistics.
- Collection & Tabulation of Data.
- Frequency Distribution.
- Graphical Representation: Polygon, Bar Diagram, Histogram.

### **UNIT 2: Measures of Central Tendency, Variation & Correlation**

- Measure of Central Tendency : Definition, Uses, Computation
  - Mean, Median , Mode .
- Measures of Variability: Definition, Uses, Computation and Comparison
  - Range, Variance ,Mean Deviation, Quartile Deviation Standard Deviation.
- **Correlation:** Meaning, Uses and Computation of : Spearman's Rank Difference Method, Product Moment Method.

**Internal Assessment Activities: 20 marks (10+10 for each section)**

**Any one activity from each unit (Part A & Part B)**

- Develop a plan for Class-room Assessment.
- Collect feedback from class-room and develop a feedback report.
- Develop a framework of e-Portfolio.
- Use secondary data and represent in tabulation form.
- Collect some data and represent in graphs.
- Classroom implications of statistical techniques.

## Suggested Readings

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- Anastasi, A. (1976). *Psychological Testing*. New York, Macmillan Publishing Co. Inc.
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## B.A.III YEAR (EDUCATION)

### PAPER III

#### EDUCATIONAL POLICIES, MANAGEMENT AND ADMINISTRATION

##### Course Objectives:

The learner will be able to:

1. Demonstrate knowledge of the trends of educational policies in different levels.
2. Identify problematic issues of values in education policy.
3. Understand the educational goals as formulated by governments.
4. Understand the schemes for teachers & teaching.
5. Understand the assessment procedures in each level of education.
6. Comprehend the meaning, types and need for educational management
7. Develop an understanding about concept and importance of educational administration.
8. Realize the essential qualities of head of the institution and the teacher.
9. Understand the meaning, types, need and strategies of educational planning.

##### Course Content

###### PART -A

(External Assessment: Part A + Part B = 80 Marks)

###### EDUCATIONAL POLICIES

###### UNIT-1: Educational Schemes at Various Levels

- Sarva Shiksha Abhiyan (SSA)
- Right to Education
- Rashtriya Madhyamaik Shiksha Abhiyaan (RMSA)
- Rashtriya Ucchatar Shiksha Abhiyan (RUSA)
- National Mission on Education through ICT (NMEICT)

###### UNIT-2: Schemes for Teachers & Teaching

- National Awards to Teachers.
- Model School Scheme (Secondary Level)

- Pandit Madan Mohan Malviya National Mission on Teachers and Teaching (PMMMMNMTT) Scheme.
- NAD (National Academic Depository) & e-PG Pathshala

## **PART –B**

### **EDUCATIONAL MANAGEMENT AND ADMINISTRATION**

#### **Unit 1 : Educational Management**

- Meaning, Nature, Need and Scope of Educational Management.
- Role of Educational Manager.
- Types of educational management- Autocratic, Democratic, Laissez-Fair Supervision.
- Teacher and Class-Room Management.

#### **Unit 2 : Educational Administration and Planning**

- Educational Administration and Planning: Meaning, Need and Aims.
- Types and bases of Educational Administration and Planning.
- Responsibilities and Qualities of – Head of the Institution and Teacher
- Problems and Solutions of Indian Educational Administration.

**Internal Assessment Activities: 20 marks (10+10 for each section)**

**Any one activity from each unit (Part A & Part B)**

- Write an Analytical report on SWAYAM/ e-PG Pathshala Programme.
- Write an evaluation report based on NIRF.
- Write a report on schemes (any 2) implemented in the Education Sector under Ministry of Human Resource Development.
- Write an essay on “if you were the principal of your school”.
- “My teacher is my hero”, Elucidate.
- Write according to you what are the problems and solutions of Indian educational administration.
- Plan an institution of your choice, explaining type and strategies you will use.

#### **Suggested Readings**

Bhatnagar S.S. & Gupta P.K. (n.d. Educational Administration and Management (n.p.).

Khawas, E. (2006). Accountability and Quality Assurance: New Issues for Academic Inquiry. *International Handbook of Higher Education*, vol. (1) Springer Verlag, Berlin



Kudesia, U. Chandra (n.d.) *Education Administration Management* (n.p.).

Sharma, R.A. (n.d.) *Education Administration and Management*. Meerut, Loyal Book Depot.

Sukhiya, S.P. (n.d.) *Vidyalaya Prashashan Evam Sangathan*. Agra, Agarwal publication.

<http://mhrd.gov.in/school-education>

<http://mhrd.gov.in/schemes-1>

**B. A. III Year (Education)**

**Paper – VII**

**शिक्षा का साहित्य**

**(Literature of Education)**

**विषय पत्र के उद्देश्य:**

इस विषय पत्र के अध्ययन के उपरांत अधिगमकर्ता –

1. प्राचीन ग्रंथों में निहित शिक्षा के प्रमुख संदर्भों पर आलोचनात्मक दृष्टि विकसित कर सकेंगे।
2. शिक्षा सम्बन्धी प्रमुख चयनित पुस्तकों व पुस्तक अंशों की उपयोगिता का वर्तमान चुनौतियों के परिप्रेक्ष्य में मूल्यांकन कर सकेंगे।
3. प्रमुख चयनित शिक्षायी लेखों के सामाजिक संदर्भों को समझ सकेंगे।
4. प्रमुख चयनित शिक्षा सम्बन्धी कहानियों व कविताओं के शैक्षिक पक्ष पर आलोचनात्मक समझ विकसित करते हुए समाज व शिक्षा के ताने-बाने को स्पष्ट कर सकेंगे।
5. शिक्षा के क्षेत्र में लोक साहित्य की भूमिका व आवश्यकता को समझ सकेंगे।

**Course Content :**

**Part-A**

(External Assessment: Part A + Part B = 80 Marks)

प्राचीन ग्रंथों से लिए गए संदर्भ; शिक्षा संबंधी पुस्तकें, लेख तथा दस्तावेज

**Unit 1 – प्राचीन ग्रंथों से लिए गए संदर्भ:-**

- तैत्तरेयोपनिषद् (शिक्षावल्ली)
- गीता – 18 वाँ अध्याय
- पंचतंत्र (टिड्डीभी समुद्र कथा)
- चाणक्य नीतिदर्पण से चयनित अंश
- भर्तृहरि नीतिशतकम् से चयनित अंश
- 'जैन आगम कथाएँ' से चयनित अंश
- गुलिस्ताँ व बोस्ता से चयनित अंश

**Unit 2 – शिक्षा संबंधी पुस्तकें, पुस्तक अंश व शिक्षा संबंधी लेख:-**

- दिवास्वप्न (पुस्तक) - गिज्जू भाई
- रमणीय वृक्ष: 18 वीं शताब्दी में भारतीय शिक्षा (पुस्तक से चयनित अंश) – धर्मपाल
- शिक्षा में क्रान्ति (पुस्तक अंश - संस्कृति के चार अध्याय – चतुर्थ अध्याय, प्रकरण 2) – रामधारी सिंह दिनकर
- दो शैक्षिक लेख – जाकिर हुसैन

- मौलाना अबुल कलाम आज़ाद का रेडियो वार्ता/ भाषण
- बिनोवा भावे द्वारा लिखित 'शिक्षा' शीर्षक लेख

**Part-B: चयनित कहानियाँ, कविताएं और अन्य रचनाएं**

**Unit 1: कहानियाँ एवं कविताएं**

- पब्लिक स्कूल - चन्दन पाण्डेय
- मोहनदास - उदय प्रकाश
- तीन प्रश्नों के उत्तर - लियो टोल्स्टोय
- ईदगाह, मंत्र, बड़े भाईसाहब, परीक्षा - प्रेमचंद
- तालीम - अवधेश प्रीत
- चम्पा काले-काले अक्षर नहीं चिह्नती - त्रिलोचन

**Unit 3 अन्य रचनाएं व लोक साहित्य**

- अंधेर नगरी (व्यंग्य नाटक) - भारतेन्दु हरिश्चन्द्र
- मेरा बचपन, मेरे विश्वविद्यालय, माँ (आत्मकथा का अंश)- गोर्की
- घीसा व लक्ष्मा (संस्मरण) - महादेवी वर्मा
- आज नहीं पढ़ूँगा (बाल साहित्य)- कृष्ण कुमार
- उत्तर प्रदेश की लोककथाएँ, लोकगीत व लोकोक्तियाँ (शिक्षापरक चयनित अंश) - (NBT)

**नोट :अन्य विषय पत्रों की भाँति इस विषय पत्र में भी लिखित बाह्य परीक्षा होगी। प्रश्न विभिन्न साहित्य के शैक्षिक पक्षों व संदर्भों से सम्बन्धित होंगे।**

**Internal Assessment Activities: 20 marks (10+10 for each section)**

**Any one activity from each unit (Part A & Part B)**

प्राचीन ग्रंथों से लिए गए संदर्भों में से किसी एक का मंचन व अपने अनुभवों के आधार पर रिपोर्ट प्रस्तुत करना

1. शिक्षा संबंधी पुस्तकें, पुस्तक अंश व लेख में से किसी एक की समीक्षा
2. चयनित कहानियों में से किसी एक कहानी के शैक्षिक पक्ष का रेखांकन
3. चयनित कविताओं में से किसी एक कविता के शैक्षिक पक्ष का रेखांकन
4. अन्य चयनित रचनाओं व लोक साहित्य में से किसी एक की शैक्षिक दृष्टि से समीक्षा

### ***Suggested Readings:***

ईशादिनोपनिषद (2017). गोरखपुर: गीताप्रेस

छान्दोग्य उपनिषद: शांकरभाष्य (2017). गोरखपुर: गीताप्रेस

श्रीमद्भगवद्गीता (2017). गोरखपुर: गीताप्रेस

गुप्ता, गोकुलदास (सं०) (2011). श्री विष्णुशर्माप्रणीत पंचतंत्रम्. वाराणसी: चौखम्भा विद्याभवन

चौधरी, गुंजेश्वर (सं०) (2010). चाणक्यनीतिदर्पणः. वाराणसी: चौखम्भा विद्याभवन

त्रिपाठी, कृष्णामणि (2013). भर्तृहरि विरचितम् नीतिशतकम्. वाराणसी: चौखम्भा सुरभारती प्रकाशन

विमलकीर्ति (2015). थेरगाथा. नई दिल्ली: सम्यक् प्रकाशन.

विमलकीर्ति (2015). थेरीगाथा. नई दिल्ली: सम्यक् प्रकाशन.

शेख सदी (स०) (1999). गुलिस्ताँ की कहानियाँ. नई दिल्ली: राष्ट्रीय पुस्तक न्यास.

शेख सदी (स०) (2004). बोस्ताँ की कहानियाँ. नई दिल्ली: एम. एन. पब्लिशर्स एण्ड डिस्ट्रीब्यूटर.

कमलेश्वर (सं०) (2014) जैन आगम कथाएँ. वर्धा: हिंदी समय (महात्मा गाँधी हिंदी विश्वविद्यालय का अभिक्रम)

त्रिवेदी, काशीनाथ (अनु०) (2018). दिवास्वप्न: गिजुभाई बधेका. नई दिल्ली: राष्ट्रीय पुस्तक न्यास.

हिंदस्वराज (2014). नई दिल्ली: सस्ता साहित्य मण्डल

(शेष के लिए : मूल ग्रंथ व चयनित रचनाएँ)

26

बि० जी



अन्तर्गत विषय

**UNIFIED SEMESTER WISE SYLLABUS**

**U G LEVEL**

**FOR**

**STATE UNIVERSITIES AND AFFILIATED COLLEGES**

**OF**

**UTTAR PRADESH**

**IN**

**ENGLISH LITERATURE**

**PROPOSED BY**

**CSJM UNIVERSITY, KANPUR**

**FOR**

**SESSION 2019-20 ONWARDS**

**Unified Syllabus**  
**UG LEVEL**  
**For State Universities and Affiliated Colleges of Uttar Pradesh**  
**ENGLISH LITERATURE**

(Semester wise Syllabus proposed by the CSJM University for the session 2019-20 onwards)

**Objectives:**

1. To present an extensive view of the cultural and social patterns of the society in specific time and situations in which it flourished by covering all the walks of human life- rational, irrational, carnal and emotional.
2. To enable the students to have an understanding of socio-economic, rural and urban, pastoral and industrial, town and metropolitan, religious and cultural aspects of the society.
3. To make the students aware of literature written/translated in English countries including UK/USA.
4. To make the students develop a comparative vision of life based on a reason in good sense.
5. To enkindle the spirit of students against the existing evils of the society and prompt them to support the good cause in order to create a balanced society.
6. To provide the students a new zeal and a new vision of life and make them better citizens.

The entire UG English Literature programme will be of six semesters/three-years duration. There shall be two papers in the first four semesters (Semester I-IV) and three papers in the last two semesters (Semester V-VI). Each paper will be of 100 marks including 80 marks for external and 20 marks for Internal Assessment.

Internal Assessment will be based on:

- A. Project Work (Based on Self Study)-10 Marks
- B. Interactive Sessions based on Classroom teaching- (Evaluation to be done on the basis of presentation of arguments and ideas and discussions.)- 05 Marks
- C. Attendance- - 05 Marks

**SEMESTER I**

Paper First	Poetry-A	80+20=100 Marks
Paper Second	Prose-A	80+20=100 Marks

**SEMESTER II**

Paper First	Poetry-B	80+20=100 Marks
Paper Second	Prose-B	80+20=100 Marks

**SEMESTER III**

Paper First	Drama	80+20=100 Marks
Paper Second	Fiction	80+20=100 Marks

**SEMESTER IV**

Paper First	American Drama	80+20=100 Marks
Paper Second	Popular Fiction and Short Fiction	80+20=100 Marks

**SEMESTER V**

Paper First	History of English Literature	80+20=100 Marks
Paper Second	Indian writing in English	80+20=100 Marks
Paper Third	New Literatures in English	80+20=100 Marks

**SEMESTER VI**

Paper First	Literature in Films /Media Studies	80+20=100 Marks
Paper Second	Indian Literature in English Translation	80+20=100 Marks
Paper Third	Viva-Voce	100 Marks

**B.A. - I**  
**ENGLISH LITERATURE**  
**Semester I-Paper 1**  
**(POETRY-A)**

MM. 80

**Unit-I**

**Forms of poetry**

1. *The Sonnet*, 2. *The Elegy*, 3. *The Ode*, 4. *The Epic*, 5. *The Ballad*, 6. *The Lyric*, 7. *The Dramatic Monologue*, 8. *Allegory*

**Stanza forms**

1. *The Heroic Couplet*, 2. *The Blank Verse*, 3. *The Spenserian Stanza*, 4. *Terza Rima*

**Unit-II**

**William Shakespeare:** (*sonnet no. (116) Let me not to the Marriage of True Minds*)  
**John Donne:** *Valediction: Forbidding Mourning*

**Unit-III**

**John Milton:** *Paradise Lost, Book I (Lines 1-26)*  
**Alexander Pope:** *Essay on Man (lines 1-18)*

**Unit IV**

**Thomas Gray:** *Elegy Written in a Country Churchyard*  
**William Blake:** *Tyger*

- Q.N.1** Five short answer questions based on unit I (about 100 words each) 5X4= 20 Marks
- Q.N.2** Four passages for explanation with reference to the context from the poems prescribed (at least one from each unit) 4X5= 20
- Marks
- Q.N.3.** One long answer question on the poets prescribed with internal choice (about 200 words) 15
- Marks
- Q.N.4** One long answer question on the poems prescribed with internal choice (about 200 words) 15
- Marks
- Q.N.5** Critical appreciation of any one of the poems prescribed. 10 Marks

**Recommended Reading:**

- Abrams, M.H. *English Romantic Poets*. New York: OUP, 1975.  
Boulton, M. *The Anatomy of Poetry*. New Delhi: Kalyani, 1979.  
Bowra, C.M. *The Romantic Imagination*. Delhi: OUP, 1961.  
Gardner, Helen. *The Metaphysical Poets*. Delhi: Penguin Classics, 1960.  
Jack, Ian. *The Augustan Satire*. Oxford: The Clarendon Press, 1952.  
Pattison, Robert. *Tennyson and Tradition*. Harvard: Harvard University Press, 1980.  
Walker, Hugh. *English Satire and Satirists*. London: J.M.Dent and Sons Ltd., 1925.  
Walker, Hugh. *The Literature of the Victorian Era*. London: Cambridge University Press, 2011.

**B.A.I**  
**ENGLISH LITERATURE**  
**Semester 1-PAPER-II**  
**(PROSE-A)**

**MM. 80**

**Unit-I**

Types of Prose and Prose Style  
Autobiography; Biography and Memoir  
Travelogue  
Periodical Essay  
Formal Essay  
Personal Essay

**Unit-II**

<b>Francis Bacon</b>	<i>Of Studies</i>
<b>Joseph Addison</b>	<i>Sir Roger at Church</i>

**Unit-III**

<b>Charles Lamb</b>	<i>Dream Children</i>
<b>G.K.Chesterton</b>	<i>On Running After One's Hat</i>

**Unit-IV**

<b>R.L.Stevenson</b>	<i>Walking Tours</i>
<b>A.G.Gardiner</b>	<i>Fellow Traveller</i>

**Q.N.1** Five short answer questions based on unit I (About 100 words each) 5X4=20 Marks

**Q.N.2** Four passages for explanation with reference to the context from the Essays prescribed (at least one from each unit.(II to IV). 4X5= 20 Marks

**Q.N.3.** One long answer question on the essayists from unit II & III 15 Marks

**Q.N.4** One long answer questions on the essayists from unit IV & V 15 Marks

**Q.N.5** Critical appreciation of any one the essays prescribed. 10 Marks

**Suggested Readings:**

- Boulton, M. *Anatomy of Prose*. New Delhi: Kalyani, 1982.  
Chambers, E. *The Development of English Prose*. London: OUP, 1957.  
Murry, J.M. *The Problems of Style*. London: OUP, 1922.  
Read, Herbert. *English Prose Style*. New York: Pantheon, 1981.  
Walker, Hugh. *English Essays and Essayists*. London: J.M.Dent and Sons Ltd., 1928.  
Williams, W.E. *A Book of English Essays*. Harmondsworth: Penguin Books, 1948.



**B.A.- I**  
**ENGLISH LITERATURE**  
**Semester II-Paper 1**  
**(POETRY-B)**

**MM. 80**

**Unit-I (Literary Terms) -Structure, Tone, Theme, Rhythm, Rhyme Schemes, Kinds of Metre, Stressed and Unstressed Syllables, Figures of Speech, Irony, Inversion, Negative Capability, Juxtaposition.**

**Unit II**

**William Wordsworth:**                    *The World is Too Much with Us*  
**W.B. Yeats**                                    *Lake Isle of Innisfree*

**Unit III**

**John Keats:**                                *Ode on a Grecian Urn*  
**P B Shelley:**                               *Ode to the West Wind*

**Unit IV:**

**Robert Browning:**                    *My Last Dutes*  
**Alfred Lord Tennyson:**               *Break Break Break*  
**Matthew Arnold:**                    *Dover Beach*

**Q.N.1** Ten short answer questions based on unit I (about 50 words each)                    10X2= 20  
Marks

**Q.N.2** Four passages for explanation with reference to the context from the                    .  
poems prescribed (at least one from each unit)                    4X5= 20  
Marks

**Q.N.3.** One long answer question on the poets prescribed with internal choice (about 200 words)                    15  
Marks

**Q.N.4** One long answer question on the poems prescribed with internal choice (about 200 words)                    15  
Marks

**Q.N.5** Critical appreciation of any one of the poems prescribed.                    10 Marks

**Suggested Readings:**

Abrams, M.H. & Harpham, G.G. A Glossary of Literary Terms. Delhi: Cengage Learning, 2015.

Boulton, M. The Anatomy of Poetry. New Delhi: Kalyani, 1979.

Chandler, James.ed. The Cambridge History of English Romantic Literature. Cambridge:  
Cambridge University Press, 2009.

Prasad, B. A Background to the Study of English Literature. New Delhi: Trinity Press, 2014.

B.A.- I  
ENGLISH LITERATURE  
Semester II-Paper II  
(PROSE-B)

MM. 80

**Unit-I. Literary Terms:**

Theme, point of view, sentence pattern, imagery, tone or mood, Analogy, Anecdote, Antithesis, Aphorism, Diction, Inversion, Humour and Pathos.

**Unit-II-**

Robert Lynd  
J.B.Priestley

*A Disappointed Man*  
*On Doing Nothing*

**Unit-III**

Aldous Huxley:  
Virginia Woolf

*Benaras*  
*Professions For Women*

**Unit-IV:**

A P J Abdul Kalam:

“Patriotism Beyond Politics and Religion” (From *Our Ignited Minds*)

Amartya Sen :

“Tagore and His India” ( From *The Argumentative Indian*)

**Q.N.1** Ten short answer questions based on unit I (About 60 words each) 10X2=20 Marks

**Q.N.2** Four passages for explanation with reference to the context from the Essays prescribed ( From Unit II to Unit IV) 4X5= 20 Marks

**Q.N.3.** One long answer question on the essays prescribed from unit II to Unit IV 15 Marks

**Q.N.4** One long answer questions on the essayists prescribed from Unit III & IV 15 Marks

**Q.N.5** Critical appreciation of any one the essays prescribed. 10 Marks

**Suggested Readings:**

Baldick, Chris. *Oxford Dictionary of Literary Terms*. Oxford: OUP, 2015.

Boulton, M. *The Anatomy of Prose*. New Delhi: Kalyani, 1982.

Williams, W.E. *A Book of English Essays*. Harmondsworth: Penguin Books, 1948.

**B.A.PART II  
ENGLISH LITERATURE  
SEMESTER THREE-PAPER-I  
DRAMA (British)**

MM. 80

**Unit-I**

*Tragedy and types*  
*Comedy and types*  
*Tragi-comedy*  
*Expressionist Drama*  
*Drama of Ideas*  
*Poetic Drama*  
*Closet Drama*  
*The Problem Play*  
*Theatre of the Absurd*

**Unit-II**

**William Shakespeare:** *Othello*

**Unit-III**

**Oliver Goldsmith :** *She Stoops to Conquer*

**Unit-IV**

**G B Shaw:** *Arms and the Man*

**Q.N.1** Five short answer questions based on Unit I (about 100 words each) 5X4=20 Marks

**Q.N.2** Four passages for explanation with reference to the context from the plays prescribed (from unit II and III) 4X5= 20 Marks

**Q.N.3&4** Two long answer questions on the Plays and Playwrights. (unit II and unit III) 2X15=30 Marks

**Q.N.5** One long answer question on the play and the Playwright (unit IV)

10 Marks

**Suggested Readings:**

Boulton, M. *The Anatomy of Drama*. New Delhi, Kalyani, 1980.

Golden, W.C. *A Brief History of English Drama from the Earliest to the Latest Times*. London: Forgotten Books, 2018.

Nicoll, Allardyce. *A History of English Drama*. Cambridge: Cambridge University Press, 2009.

**B.A.PART II  
ENGLISH LITERATURE  
SEMESTER THREE-PAPER-II  
(FICTION)**

**Unit-I. Literary Terms:** Plot, Characterization, Narrative Technique and Structure, Elements of Novel, Elements of Short Story, Picaresque Novel, Historical Novel, Gothic Novel Epistolary Novel, Regional Novel, Detective Novel, Science Fiction, Meta-fiction, Domestic Novel Utopia, Dystopia, Campus Fiction, Space Fiction, 'Chic lit', Junk Fiction, Short Story.

**Unit-II**

**Jane Austen:** *Pride and Prejudice*

**Unit-III**

**Charles Dickens:** *A Tale of Two Cities*

**Unit-IV**

**Thomas Hardy:** *Far from the Madding Crowd*

**Q.N.1** Five short answer questions based on Unit I (about 100 words each) 5X4=20  
Marks

**Q.Nos.2,3&4** Three long answer questions out of four on the novels prescribed (at least one from each unit II to IV) 3X15=45 Marks

**Q.N.5** One long answer question based on the novelists prescribed. 1X 15 Marks=15

**Suggested Readings:**

- Forster, E.M. *Aspects of the Novel*. London: Penguin, 2005.  
Toliver & Calderwood. *Perspectives on Fiction*. New York: OUP, 1970.  
Wellek, R. and Warren A. *A Theory of Literature*. London: Penguin Books, 1982.  
Wynne-Davies, Marion, ed. *The Bloomsbury Guide to English Literature*. New York: Prentice Hall, 1990.

**B.A.PART II  
ENGLISH LITERATURE  
SEMESTER FOUR-PAPER-I  
DRAMA-(American)**

**MM. 80**

**Unit-I. Literary Terms**

Authorial Intrusion, Cacophony, Circumlocution, Conflict, Diction, Epilogue, Epithet, Euphemism, Euphony, Flashback, Foil, Foreshadowing, Hubris, Hyperbaton, Malapropism, Motif, Nemesis, Periphrasis, Portmanteau, Prologue, epilogue, setting, Spoonerism, Stage Direction, Syntax, Theme, Understatement, Verisimilitude.

**Unit-II- Tennessee Williams - *A Streetcar Named Desire***

**Unit-III -Edward Albee-*The Zoo Story***

**Unit-IV Arthur Miller -*The Price***

**Q.N.1** Five short answer questions based on Unit I (about 100 words each) 5X4=20 Marks

**Q.N.2** Four passages for explanation with reference to the context from the plays prescribed (from unit II and III) 4X5= 20 Marks

**Q.N.3&4** Two long answer questions on the Plays and Playwrights. (unit II and unit III) 2X15=30 Marks

**Q.N.5** One long answer question on the play and the Playwright (unit IV)

10 Marks

**Suggested Readings:**

Bogard, Travis and Oliver, Williams, I. (eds.). *Modern Drama: Essays in Criticism*. New York: OUP, 1965.

Brooks, Van Wyck. *The Writer in America*. New York: E.P.Dutton and Co. Inc., 1953.

Cohn, Ruby. *Currents in Contemporary Drama*. Bloomington: Indiana Univ. Press, 1969.

Esslin, Martin. *The Theatre of the Absurd*. Harmondsworth: Penguin Books, 1979.

Kernan, A.B. (Ed.). *The Modern American Theatre*. New Jersey: Prentice Hall, 1967.

Kitchin, Laurence. *Drama in Sixties*. London: Faber and Faber, 1966.

**B.A. PART II  
ENGLISH LITERATURE  
SEMESTER FOUR-PAPER-II**

**Popular Fiction in Contemporary India**

MM. 80

**Unit-1 :** Sudha Murthy: *Dollar Bahu*

**Unit-II** Aravind Adiga: *The White Tiger*  
*Or*

Sanjay Chitranshi: *Dalit, Dynasty and She*

**Unit-III .** Bharati Mukherjee : *Miss New India*

**Unit-IV:** Harinder Sikka : *Calling Sehmat*

**Q.N.1** Ten short answer questions based on the entire course and Nature and Scope of Popular Fiction in Contemporary India. (about 60 words each) 10X2=20 Marks

**Q.Nos.2,3, 4 &5-**Four long answer questions on the novels prescribed (at least one from each unit I to IV) 4X15=60 Marks

**Suggested Readings:**

Felicity, Hughes. '*Children's Literature: Theory and Practice*'. New York: OUP, 1988.

Leslie, Fiedler. '*Towards a Definition of Popular Literature*', in *Super Culture: American Popular Culture and Europe*, ed. C.W.E. Bigsby. Ohio: Bowling Green University Press, 1975

Sumathi, Ramaswamy. '*Introduction*', in *Beyond Appearances?: Visual Practices and Ideologies in Modern India*. Sage: Delhi, 2003.

**B.A.PART - III**  
**ENGLISH LITERATURE**  
**SEMESTER FIVE-Paper-I**  
**(History of English Literature)**

MM. 80

**Unit-I :**

**From Renaissance to Seventeenth Century:** *Renaissance and Reformation; Miracle and Morality Play; University Wits; Elizabethan poetry; Metaphysical Poetry; Neo-classicism*

**Unit-II:**

**Eighteenth Century and the Romantic Age:** *Growth of the Novel; Precursors of Romanticism; Romanticism and the French Revolution; Growth of Romantic Literature (Prose, Poetry, Drama and Novel)*

**Unit-III:**

**Nineteenth Century:** *Characteristics of Victorian Age; Growth of Victorian Literature (Prose, Poetry, Drama and Novel); Pre-Raphaelite Poetry; Naughty Nineties*

**Unit-IV :**

**The Twentieth and the Twenty-first centuries:** *Trends in twentieth century literature with special reference to Georgian poetry, Imagism and Symbolism; Twentieth Century Novel- Psychological Novel, Stream of Consciousness Novel; Twentieth Century Drama; Problem Play; Drama of Ideas; Theatre of the Absurd; Expressionism; Epic Theatre; Poetic Drama; Growth of Post-colonial literature: Feminism, Post modernism etc.*

**Q.N.1** Ten short answer questions based on the entire course  
(about 60 words each)

10X2=20 Marks

**Q.Nos.2,3,4&5.** Four long answer questions out of six from unit I to IV  
(at least one from each unit)

4X15=60 Marks

**Suggested Readings:**

Albert, Edward. *History of English Literature*. London: Oxford University Press, 2015.

Cuddon, J.A. *Dictionary of Literary Terms and Literary Theory*. London: Penguin Books, 1999.

Drabble, Margaret. (ed.). *The Oxford Companion to English Literature*. Oxford: Oxford University Press, 1996.

Harmon & Holman. (eds.). *A Handbook to English Literature*. Upper Saddle River, NJ: Prentice Hall, 1996.

Wynne-Davies, Marion. *The Bloomsbury Guide to English Literature*. New York: Prentice Hall, 1990.

**B.A.PART - III  
ENGLISH LITERATURE  
SEMESTER FIVE-Paper-II**

**MM. 80**

**INDIAN WRITING IN ENGLISH**

**Unit-I: Prose**

*Mahatma Gandhi: Hind Swaraj*, Chapters VIII -The Condition of India, XIV-How Can India Become Free, XVII-Passive Resistance, XVIII-Education

**Unit-II: Poetry**

**Toru Dutt**

*Lakshman*

**Nissim Ezekiel :**

*A Poem of Dedication*

**Jayanta Mahapatra:**

*Hunger*

**Keki N Daruwala:**

*Mother*

**Unit-III: Drama**

**Mahesh Dattani :**

*Seven Steps Around the Fire*

**Unit-IV: Fiction**

**Mulk Raj Anand:**

*The Untouchable*

**Q.N.1** Five short answer questions based on the entire course (about 100 words each)

5X4=20 Marks

**Q.N.2** Four passages for explanation with reference to the context  
(at least one from each unit I to III)

4X5= 20 Marks

**Q.N.3** Four long answer questions, one from each unit (I to IV) with internal choice  
(about 150 words each)

4X10= 40 Marks

**Suggested Readings:**

Kaushik, A.S. (ed.). *Indian Drama in English: Some Perspectives*. New Delhi: Atlantic Publishers and Distributors Pvt. Ltd., 2013.

Mahapatra, Jayanta & Sharma, Yuyutsu (ed.). *Ten: The New Indian Poets*. New Delhi: Nirala Publications, 1993.

Mehrotra, Arvind Krishna (ed.). *A History of Indian Literature in English*. New York: Columbia University Press, 2003. Naik, M.K. *Studies in Indian English Literature*. New Delhi: Sterling Publishers, 1987.

Reddy, T. Vasudeva. *A Critical Survey of Indo-English Poetry* New Delhi: Authors Press, 2016.



**B.A. III  
ENGLISH LITERATURE  
SEMESTER FIVE :PAPER III  
NEW LITERATURES IN ENGLISH**

MM. 80

**UNIT I: Prose**

**Eliane Showalter:** *A Literature of Their Own: Towards Feminist Poetics*

**UNIT II : Poetry**

**Pablo Neruda:** *If You Forget Me*

**Margaret Atwood:** *Spellings*

**Alice Walker:** *Remember*

**Maya Angelou:** *Woman Work*

**Sujata Bhatt:** *Voice of the Unwanted Girl*

**Unit III: Drama(One Act Play)**

**Harold Pinter:** *Silence*

**Unit IV : Fiction**

**Nadine Gordimer:** *A Guest of Honour*

Q.N.1 Five short answer questions based on the entire course  
(about 100 words each)

5X4=20 Marks

Q.N.2 Four passages for explanation with reference to the context (at least one from each unit I to III)

4X5= 20 Marks

Q.N.3 Four long answer questions, at least one from each unit I to IV about 150 words each

4X10=40 Marks

**Suggested Readings:**

Ashcroft, Bill, Gareth Griffiths, and Helen Tiffin. *The Empire Writes Back: Theory and Practice in Post-colonial Literatures*. New York: Routledge, 1989.

Baucaom, Ian. *Out of Place: Englishness, Empire, and the Locations of Identity*. Princeton: Princeton University Press, 1999.

Boehmer, Elleke. *Empire Writing: An Anthology of Colonial Literature, 1870-1918*. Oxford: Oxford University Press, 1998.

Chinweizu. *Decolonising the African Mind*. Lagos: Pero, 1987.

Graff, Gerald. *Professing Literature: An Institutional History*. Chicago: U of Chicago P, 1987.

NgugT wa Thiong'o. *Homecoming: Essays on African and Caribbean Literature, Culture and Politics*. London: Heinemann Educational Books, 1972.

Onwuchekwa Jemie, and Ihechukwu Madubuike. *Towards the Decolonization of African Literature*. Washington: Howard UP, 1983.

Rowland, Smith W. *Postcolonizing the Commonwealth: Studies in Literature and Culture*. Ontario: Laurier University Press, 2000.

**B.A. III**  
**ENGLISH LITERATURE**  
**SEMESTER SIX :PAPER I**  
**Literature in Films/Media Studies MM: 80**

**Unit I:** James Monaco, 'The language of film: signs and syntax', in *How To Read a Film: The World of Movies, Media & Multimedia* (New York: OUP, 2009) chap. 3, pp. 170– 249.

**Unit II:** William Shakespeare, *The Comedy of Errors*, and its adaptation *Anoor* (1982 film;dir Guljar)

**Unit III:** Khushwant Singh *Train To Pakistan* and its adaptation *Train to Pakistan* 1998 film Directed by: Pamela Rooks.

**Unit IV:** R N Tagore, *Kabuliwala* and its adaptation 1961 Hindi film *Kabuliwala*, directed by Hemen Gupta

Q.N.1 Ten short answer questions based on the entire course (about 100 words each) 10X4=40 Marks

Q.N.2 ,3,4&5 .Four long answer questions, at least one from each unit I to IV about 250 words each 4X10=40 Marks

**Suggested Readings:**

B. Mcfarlens, *Novel to Film: An Introduction to the Theory of Adaptation*. Clarendon University Press, 1996.

Cartmell, Deborah & Whelehan, Imelda. *The Cambridge Companion to Literature on Screen*. Cambridge: Cambridge University Press, 2007.

Hutcheon, Linda. *A Theory of Adaptation*. New York: Routledge, 2006.

Hutcheon, Linda. 'On the Art of Adaptation', *Daedalus*, New York: Mc Graw Hill, 2001.

J.G. Boyum, *Double Exposure*. Calcutta: Seagull, 1989.

John M. Desmond & Peter Hawkes, *Adaptation: Studying Film and Literature*. New York: McGraw-Hill, 2005.

Thomas, Leitch, 'Adaptation Studies at Crossroads', *Adaptation*, Cambridge: Cambridge University Press, 2007.

Trivedi, Poonam. 'Filmi Shakespeare', *Litfilm Quarterly*, vol. 35, issue 2, 2007. 22 22 .

**B.A. III**  
**ENGLISH LITERATURE**  
**SEMESTER SIX :PAPER II**  
**Indian Literature in English Translation**

**M.M.: 80**

**Unit I: A.** Introducing Translation: a brief history and significance of translation in a multi linguistic and multicultural society like India.

**Unit- II.** Rabindranath Tagore *The Home and the World* tr. Surendranath Tagore

**Unit- III.** Jayshankar Prasad-Aanshu- (*The Garden of Lonliness*)Tr by Charles S J White , Delhi, Motilal Banarasidas, 2006.

**Unit- IV.** Amrita Pritam, *Pinjar: The Skeleton and Other Stories*, tr. Khushwant Singh (New Delhi: Tara Press, 2009)

Q.N.1 Ten short answer questions based on the entire course (about 100 words each)

10X4=40 Marks

Q.N.2 ,3,4&5 .Four long answer questions, at least one from each unit I to IV about 150 words each

4X10=40 Marks

**Suggested Readings:**

- Baker, Mona, *In Other Words: A Coursebook on Translation*, New York: Routledge, 2001.
- Catford, I.C. *A Linguistic Theory of Translation*. London: OUP, 1965.
- Gargesh, Ravinder & Goswami, Krishna Kumar. *Translation and Interpreting: Reader and Workbook*. New Delhi: Orient Longman, 2007.
- Lakshmi, H. *Problems of Translation*. Hyderabad: Booklings Corporation, 1993.
- Newmark, Peter. *A Textbook of Translation*. London: Prentice Hall, 1988.
- Nida, E.A. and C.R. Taber. *The Theory and Practice of Translation*. Leiden: E.J. Brill, 1974.
- Toury, Gideon. *Translation Across Cultures*. New Delhi : Bahri Publications Private Limited, 1984.

**B.A. III  
ENGLISH LITERATURE  
SEMESTER SIX :PAPER III**

**Viva-Voce**

**100 Marks**

(27)

बी.एस.जी. (यू.पी. विभाग)

सिलेबस

**UNIFIED SYLLABUS (U.P.)**



**B.Sc. Geology**

### B.Sc. Syllabus for Geology

There shall be three theory papers and a practical examination in each year. The course structure scheme is as below.

#### I-Year Geology

Subject	Paper and Code	Name of the paper	Internal Assessment	Theory Marks	Total Marks
GEOLOGY	Paper -I	Physical Geology	7	26	33
	Paper-II	Structural Geology and Tectonics	7	26	33
	Paper -III	Mineralogy, Crystallography and Optical mineralogy	7	27	34
	Practical -I	Related to papers I, II and III			50
<b>Total</b>					150

#### II-Year Geology

Subject	Paper and Code	Name of the paper	Internal Assessment	Theory Marks	Total Marks
GEOLOGY	Paper -IV	Petrology and Geochemistry	7	26	33
	Paper-V	Palaeontology and Stratigraphy	7	26	33
	Paper -VI	Economic Geology and Indian Mineral Distribution	7	27	34
	Practical -II	Related to papers IV, V and VI			50
<b>Total</b>					150

#### III-Year Geology

Subject	Paper and Code	Name of the paper	Internal Assessment	Theory Marks	Total Marks
GEOLOGY	Paper -VII	Engineering Geology and Hydrogeology	7	26	33
	Paper-VIII	Remote Sensing & GIS	7	26	33
	Paper -IX	Environmental Geology	7	27	34
	Practical -III	Related to papers VII, VIII and IX			50
	Geological field Tour/ Training program	7 to 10 days			50
<b>Total</b>					200

**Note:** There should be three sessional examinations for **Internal Assessment** in each paper. Each student should appear at least in two sessional examinations in each paper for Internal Assessment.

## B. Sc. First Year

### Paper – I: Physical Geology

MM: 26

**Learning Objectives:** To understand how the earth was formed and modified through time. To have knowledge how different landscapes were formed, agent and driving forces due to which it keep changes. To understand interior of the earth, volcanoes and earthquake.

**Unit-I:** Introduction to geology and its scope, Earth and solar system: origin, size, shape, mass, density and its atmosphere. A brief account of various theories regarding the origin and age of the earth; Brief idea of interior of earth and its composition.

**Unit-II:** Epigene/exogenic processes: degradation and aggradation. Hypogene/endogenic processes; Diastrophism and volcanism, Extraterrestrial processes. Earthquakes: nature of seismic waves, their intensity and magnitude scale; Origin of Earthquake.

**Unit-III:** Geological work of wind, glacier, river, underground water and ocean.

**Unit-IV:** Basic principles of Geomorphology, geomorphological cycles, weathering and erosion; Geomorphic mapping- tools and techniques.

#### Books Recommended:

1. Allen, P., 1997. Earth Surface Processes. Blackwell
2. Arthur Holmes, 1992. Principles of Physical Geology. Chapman and Hall, London.
3. Bloom, A.L., 1998. Geomorphology: A systematic Analysis of Late Cenozoic Landforms (3rd Edition). Pearson Education, Inc.
4. Miller, 1949. An Introduction to Physical Geology. East West Press Ltd.
5. Spencer, E.V., 1962. Basic concepts of Physical Geology. Oxford & IBH.
6. Kale, V.S. and Gupta, A., 2001. Introduction to Geomorphology. Orient Longman Ltd.
7. Mahapatra, G.B., 1994. A text book of Physical geology. CBS Publishers.
8. Summerfield, M.A., 2000. Geomorphology and Global tectonic. Springer Verlag.
9. WD Thornbury, 2002. Principles of Geomorphology. CBS Publ. New Delhi.

### Paper – II: Structural Geology and Tectonics

MM: 26

**Learning Objectives:** To understand the geological structures such as orientation preserved through different rock formation and post formation deformation.

**Unit-I:** Introduction to Structural Geology; contours, topographic and geological maps; Elementary idea of bed, dip and strike; Outcrop, effects of various structures on outcrop. Clinometer/Brunton compass and its use. Unconformity, types of Unconformity and criteria for their recognition in the field.

**Unit-II:** Rheological properties of rocks. Folds, Terminology and Classification of fold, Mechanism of folds, Recognition of folds.

**Unit-III:** Faults, nomenclature and classification of faults, Mechanism for faulting. Thrust and related structures, Window, Klippe, Nappe. Joint and type of joints, Elementary idea about planar and linear structures.

**Unit-IV:** Elementary idea of continental drift, sea-floor spreading and mid-oceanic ridges. Plate Tectonics: the concept, plate margins, orogeny, deep sea trenches, island arcs and volcanic arcs.

**Books Recommended:**

1. Badgley, P.C., 1965: Structure and Tectonics. Harper and Row.
2. Billings, M.P., 1972. Structural Geology. Prentice Hall.
3. Davis, G.R., 1984. Structural Geology of Rocks and Region. John Wiley
4. Davis, G.R., 1984: Structural Geology of Rocks and Region. John Wiley.
5. Hills, E.S., 1963. Elements of Structural Geology. Farrold and Sons, London.
6. Hobbs, B.E., Means, W.D. and Williams, P.F., 1976: An Outline of Structural Geology, John Wiley.
7. Keary, P. and Vine, F.J., 1997. Global Tectonics. Blackwell and crustal evolution. Butterworth-Heinemann.
8. Moores, E and Twiss. R.J., 1995. Tectonics. Freeman.
9. Patwardhan, A. M., 1999. The Dynamic Earth System. Prentice Hall.
10. Ramsay, J.G., 1967: Folding and Fracturing of Rocks. McGraw. Hill.
11. Singh, R. P., 1995. Structural Geology, A Practical Approach. Ganga Kaveri Publ., Varanasi.
12. Valdia, K.S., 1988. Dynamic Himalaya. Universities Press, Hyderabad.

**Paper – III: Mineralogy, Crystallography and Optical mineralogy**

**MM: 27**

**Learning Objectives:** To understand mineral properties, uses, importance and occurrences of different minerals.

**Unit-I:** Introduction to Mineralogy, Definition and characters of mineral; Common physical properties of minerals; Chemical composition and diagnostic physical properties of minerals such as: Quartz, Orthoclase, Microcline, Hypersthene, Hornblende, Garnet, Muscovite, Biotite, Chlorite, Olivine, Epidote, Calcite.

**Unit-II:** Description of common minerals of following groups- Olivine, Garnet, Silica, Feldspar, Feldspathoid, Mica, Amphibole and Pyroxene.

**Unit-III:** Crystals and their characters: Crystal form, face, edge, solid angle; Interfacial angle and their measurements; Crystallographic axes and angles. Crystal parameters, Weiss and Miller system of notations; Symmetry elements and description of normal class of Isometric, Tetragonal, Hexagonal, Trigonal, Orthorhombic, Monoclinic and Triclinic systems.

**Unit-IV:** Polarizing microscope, its parts and functioning; Ordinary and polarized lights; Common optical properties observed under ordinary, polarized lights and crossed nicols. Optical properties of some common rock forming minerals (Quartz, Orthoclase, Microcline, Olivine, Augite, Hornblende, Muscovite, Biotite, Garnet, Calcite).

**Books Recommended:**

1. Berry and Mason, 1961. Mineralogy. W.H. Freeman & Co.
2. Berry, L.G., Mason, B. and Dietrich, R.V., 1982. Mineralogy. CBS Publ.
3. Dana, E.S. and Ford, W.E., 2002. A textbook of Mineralogy (Reprints).



4. Hutchinson, C.S., 1974: Laboratory Handbook of Petrographic Techniques. John Wiley.
5. Kerr, B.F., 1995. Optical Mineralogy 5th Ed. Mc Graw Hill, New York.
6. Klein, C. and Hurlbut, Jr., C.S., 1993: Mineralogy. John Wiley.
7. Nesse, D.W., 1986. Optical Mineralogy. McGraw Hill.
8. Phillips, Wm, R. and Griffen, D.T., 1986: Optical Mineralogy, CBS Edition.
9. Putnis, Andrew, 1992: Introduction to Mineral Sciences. Cambridge University Press.
10. Read, H.H., 1968. Rutley's Element of Mineralogy (Rev. Ed.). Thomas Murby and Co.
11. Spear, F.S. 1993: Mineralogical Phase Equilibria and Pressure – Temperature – Time Paths. Mineralogical Society of America Publ.

### **Practical-I**

**MM: 50**

Problems on dip, strike and thickness of bed, Contour maps and completion of outcrops, geological maps and section including geological history use of Brunton and Clinometers compass, Study of Geological maps, Study of structural modal. Study of Minerals in hand specimens, Study of minerals and texture in thin section under the petrological microscope, Study of Crystal Modals.

## **B. Sc. Second Year**

### **Paper – IV: Petrology and Geochemistry**

**MM: 26**

**Learning Objectives:** To understand the different rock types formed, its texture, structure and classifications and also to give knowledge it mineral composition, geochemical composition and their occurrences in India.

- Unit-I:** Magma: definition, composition, types and origin; Forms of igneous rocks; textures of igneous rocks. Reaction principle; Differentiation and Assimilation; Crystallization of unicomponent and bicomponent (mix-crystals); Bowen's reaction series. Mineralogical and chemical classification of igneous rocks. Detailed petrographic description of Granite, Granodiorite, Rhyolite, Syenite, Phonolite, Diorite, Gabbro.
- Unit-II:** Processes of formation of sedimentary rocks; Classification, textures and structures of sedimentary rocks; Petrographic details of important siliciclastic and carbonate rocks such as -conglomerate, breccia, sandstone, greywacke, shale, limestones.
- Unit-III:** Process and products of metamorphism; Type of metamorphism. Factors, zones and grade of metamorphism; Textures, structures and classification of metamorphic rocks. Petrographic details of some important metamorphic rocks such as - slate, schists, gneiss, quartzite, marble.
- Unit-IV:** Introduction to geochemistry, Cosmic abundance of elements; Composition of the planets and meteorites; Geochemical evolution of the earth and geochemical cycles; Gold Schmidt's geochemical classification of elements. Elements of geochemical thermodynamics; Isomorphism and polymorphism; Isotope geochemistry.

### **Books Recommended:**

1. Allen, J.R.L., 1985: Principles of Physical Sedimentation George Allen & Unwin.
2. Best, M.G., 1986: Igneous Petrology. CBS Publ.

3. Bose, M.K., 1997: *Igneous Petrology* World Press.
4. Harvey Blatt, Robert Tracy, Brent Owens : *Petrology (Igneous Sedimentary, Metamorphic)*, W. H. Freeman Publication; 3rd edition 2005
5. Hoefs, J., 1980. *Stable Isotope Geochemistry*. Springer-Verlag.
6. Krauskopf, K.B., 1967. *Introduction to Geochemistry*. McGraw Hill.
7. Mason, Brian and Moore, C.B., 1991: *Principles of Geochemistry*, Wiley Eastern
8. Miall, A.D., 2000: *Principles of Sedimentary Basin Analysis* Springer-Verlag.
9. Pettijohn, F.J., Potter, P.E. and Siever, R., 1990: *Sand and Sangstone* Springer-Verlag.
10. Philijpotts, A. 1992: *Igneous and Metamorphic Petrology*. Prentice Hall.
11. Prothero, D.R. and Schwab. F., 1996: *Sedimentary Geology* Freeman.
12. SupriyaSengupta: *Introduction to Sedimentology*, Routledge Publication
13. Turner, F.J., 1980: *Metamorphic Petrology*. McGraw Hill. New York.

### **Paper – V: Palaeontology and Stratigraphy**

**MM: 26**

**Learning Objectives:** To understand the origin and evolution of life through time. To have knowledge how lithostratigraphic succession have formed, in Indian shield.

**Unit-I:** Palaeontology: definition, Fossils: definition, Mode of fossilisation and preservation of fossils. Significance of fossils. Brief concept of nomenclature of species, Index Fossils.

**Unit-II:** Morphology, geological history, classification and evolutionary trend of Gastropoda, Cephalopoda, Bivalvia, Brachiopoda, Trilobita, and Echinoidea. Fossil records of Gondwana Super group.

**Unit-III:** Definition, Principle of stratigraphy; Geological Time Scale and stratigraphic classification; Physiographic division of India. Correlation of Lithostratigraphy, Biostratigraphy and Time Stratigraphic Unit.

**Unit-IV:** Study of Dharwar, Cuddapha, Vindhyan, Delhi, Gondwana supergroup and Siwalik group. Bundelkhand granitoid complex.

#### **Books Recommended:**

1. Boggs, Sam Jr., 1995: *Principles of Sedimentology and Stratigraphy*, Prentice Hall.
2. Clarkson, E.N.K., 1998: *Invertebrate Palaeontology and Evolution IV Ed.* Blackwell.
3. Doyle, P. and Bennett, M.R. 1996: *Unlocking the Stratigraphic Record*, John Wiley.
4. Jain, P.C. & Anantharaman, M.S., 1983. *Paleontology: Evolution & Animal Distribution*. Vishal Publ.
5. Kumar Ravindra: *Fundamentals of Historical Geology and Stratigraphy of India*, New Age Publication.
6. Moore, R.C., Lalicker, C.G. and Fischer, A.G., 1952: *Invertebrate Fossils*, McGraw-Hill Book Company.
7. Prothero, D.R., 1998: *Bringing Fossils to life –An Introduction to Palaeobiology*, McGraw Hill.
8. Shrock, R.R. & Twenhoffel, W.H., 1952. *Principles of Invertebrate Paleontology*. CBS Publ.
9. Smith, A.B., 1994: *Systematics and the Fossils Record-Documenting Evolutionary Patterns*, Blackwell.

**Paper –VI: Economic Geology and Indian Mineral Distribution**

**MM: 27**

**Learning Objectives:** To understand important economic minerals, their distributions, and occurrences in India. To understanding the important coal and petroleum distribution in India and their uses for social development.

**Unit-I:** Concept of ore and ore deposits, ore minerals and gangue minerals; Tenor of ores; Metallic and non-metallic ore minerals; Strategic, Critical and essential minerals.

**Unit-II:** Processes of formation of ore deposits; Magmatic, contact metasomatic, hydrothermal, sedimentation.

**Unit-III:** Study of important metallic (Cu, Pb, Zn Mn, Fe, Au, Al) and non-metallic (industrial) minerals (gypsum, magnesite, mica) in India.

**Unit-IV:** Introduction to coal and petroleum and distribution in India.

**Books Recommended:**

1. Barnes, H.L., 1979: *Geochemistry of Hydrothermal Ore Deposits*. John Wiley.
2. Brown, C. and Dey, A.K. 1955. *Indian Mineral Wealth*. Oxford Univ.
3. Craig, J.M. & Vaughan, D.J., 1981: *Ore Petrography and Mineralogy*. John Wiley.
4. Deb, S., 1980. *Industrial minerals and Rocks of India*. Allied Publishers Pvt. Ltd.
5. Evans, A.M., 1993: *Ore Geology and Industrial Minerals* Blackwell.
6. Gokhale, K.V.G.K. and Rao, T.C., 1983. *Ore Deposits of India*. East West Press Pvt. Ltd.
7. Guilbert, J.M. and Park, Jr. C.F., 1986: *The Geology of Ore Deposits* Freeman.
8. Jense, M.L. and Bateman A.M., 1981. *Economic Mineral Deposits*. John Wiley and Sons.
9. Krishnnaswamy, S., 1979. *India's Minerals Resources*. Oxford and IBH Publ.
10. Mookherjee, A., 2000: *Ore genesis – a Holistic Approach*, Allied Publisher.
11. Sawkins, F.J., 1984: *Metal deposits in relation to plate tectonics*. Springer Verlag.
12. Sharma, N.L. and Ram, K.V.S., 1972. *Introduction to India's Economic Minerals*, Dhanbad.
13. Stanton, R.L., 1972: *Ore Petrology*, McGraw Hill.
14. Umeshwar Prasad, 2003. *Economic Geology*. CBS Publishers and distributors.

**Practical –II**

**MM: 50**

Identification of Fossils, Study of the morphology of representative invertebrate fossils, study of some Gondwana plant fossils, study of important stratigraphic rock types, Study of Rocks in hand specimens, Petrography of important rocks, Distribution of Important economic minerals on map.

## B.Sc. Third Year

### Paper – VII: Engineering Geology and Hydrogeology

MM: 26

**Learning Objectives:** To understand the properties and strength of different rock types for various uses. To aware of construction of Dam, Tunnel, Bridges and understand the mitigation for landslides. The understand nature of underground water, conservation of surface and sub-surface water.

**Unit-I:** Engineering geology and its importance to planning for projects. Various engineering properties of rock i.e., specific gravity, porosity, absorption value, compression strength, tensile strength, shear strength, modulus of elasticity and modulus of compression etc. Soil and Soil groups of India.

**Unit-II:** Dam, Types and their geological and environmental considerations; Geological problem of reservoirs. Tunnels: geology, structure, seepage problem and role of water table. Landslides: classification, causes and preventative measures.

**Unit-III:** Definition of hydrogeology, Hydrogeological cycle; Hydrological parameters - Precipitation, evaporation, transpiration and infiltration. Origin of groundwater; Vertical distribution of groundwater; Types of aquifers; Water bearing properties of rocks - Porosity and Permeability; specific yield, specific retention.

**Unit-IV:** Darcy's law. Rainwater harvesting and artificial recharge of groundwater. Ground water exploration and Groundwater provinces of India. Seawater intrusion in coastal area, Basic concepts about quality of groundwater and groundwater pollution.

#### Books Recommended:

1. Davies, S.N. & De Wiest, R.J.M., 1966: Hydrology, John. Wiley.
2. Dobrin, M.B., 1976: Introduction To Geophysical Prospecting McGraw Hill.
3. Fetter, C.W., 1990: Applied Hydrogeology, Merrill Publishing.
4. Karanth, K. R., 1989. Hydrogeology. Tata McGraw Hill Publ.
5. Krynine, D.H and Judd, W.R., 1998: Principles of Engineering Geology, CBS Edition.
6. Parbin Singh: Engineering and General Geology S.K. Kataria & Sons.
7. Raghunath, H. M., 1990. Groundwater. Wiley Eastern Ltd.
8. Sharma, P.V., 1986: Geophysical Methods In Geology Elsevier.
9. Subramaniam, V., 2000. Water-Kingston Publ. London.
10. Todd, D.K., 1980: Groundwater Hydrology, John. Wiley.

### Paper – VIII: Remote Sensing & GIS

MM: 26

**Learning Objectives:** To understand the techniques to explore natural resources, weather forecasting, communications, live telecasts etc. with accurate and quick response to society.

**Unit-I:** Elementary idea about photogeology: electro-magnetic spectrum, types & geometry of aerial photographs; factors affecting aerial photography; types of camera, film and filters; factors affecting scale.

**Unit-II:** Fundamentals of remote sensing; remote sensing systems; remote sensing sensors; signatures of rocks, minerals and soils. Application of remote sensing in geoscience and geomorphological studies.

**Unit-III:** Types of Indian and Foreign Remote Sensing Satellites. Elements of image interpretation. Identification of sedimentary, igneous and metamorphic rocks and various aeolian, glacial, fluvial and marine landforms.

**Unit-IV:** Introduction to Geographic Information System (GIS); components of GIS; product generation in GIS; tools for map analysis; integration of GIS with remote sensing. Concepts of GPS and its applications in earth system sciences.

**Books Recommended:**

1. Bhatta, B., 2008. Remote Sensing and GIS. Oxford, New Delhi.
2. Drury, S.A., 1987: Image Interpretation in Geology. Allen and Unwin.
3. Gupta, R.P., 1990. Remote Sensing Geology. Springer Verlag.
4. Lilleasand, T.M. and Kiffer, R.W., 1987. Remote Sensing and Image Interpretation. John Wiley.
5. Miller, V.C., 1961: Photogeology. McGraw Hill.
6. Paine, D.P., 1981: Aerial photography and Image Interpretation for Resource Management. John Wiley.
7. Pandey, S.N., 1987. Principles and Application of Photogeology. Wiley Eastern, New Delhi.
8. Rampal K.K. 1999. Hand book of aerial photography and interpretation. Concept publication.
9. Ray, R.G., 1969: Aerial Photographs in Geologic Interpretations. USGS Prof. Paper 373.
10. Sabbins, F.F., 1985. Remote Sensing – Principles and Applications. Freeman.
11. Siegal, B.S. and Gillespie, A.R., 1980. Remote Sensing in Geology. John Wiley.

**Paper – VIII Environmental Geology**

**MM: 27**

**Learning Objectives:** To understand the natural calamities, awareness and their corrective measures, disaster management such as earthquakes, floods, cyclones, tsunamis, drought, pollutions etc.

**Unit-I:** Earth and its spheres: atmosphere, hydrosphere, lithosphere, biosphere and Man; Earth Material.

**Unit-II:** Energy budget: Solar radiation; Global environments: coastal, riverine, desertic, tropical, cold, polar; Concept of global warming and climate change.

**Unit-III:** Geological hazards: Earthquakes, volcanism, landslides, avalanches, floods, droughts; Hazard mitigation.

**Unit IV:** Resource Management: Energy resources (Conventional and non-conventional), watershed management, landuse planning, management of water resources, land reclamation.

**Books Recommended:**

1. Bell, F.G., 1999: Geological Hazards Routledge, London.
2. Bird, Eric, 2000. Coastal Geomorphology: An Introduction. John Wiley & Sons, Ltd. Singapore.
3. Bryant, E., 1985: Natural Hazards, Cambridge University Press.
4. Chorley, R. J., 1984. Geomorphology. Methuen.

5. Keller, E. A., 2000. Environmental Geology. Shales E. Merrill Publishing Co., Columbus, Ohio.
6. Liu, B.C., 1981. Earthquake Risk and Damage, Westview.
7. Montgomery, C., 1984. Environmental Geology. John Wiley and Sons, London.
8. Patwardhan, A.M., 1999: The Dynamic Earth System, Prentice Hall.
9. Selby, M.J., 1996. Earths Changing Surface. Oxford University Press UK.
10. Smith, K., 1992: Environmental Hazards Routledge, London.
11. Subramaniam, V., 2001: Textbook in Environmental Science, Narosa International.
12. Thornbury W. D., 1997. Principles of Geomorphology Wiley Eastern Ltd., New Delhi.
13. Valdiya, K. S., 1987. Environmental Geology - Indian Context. Tata McGraw Hill New Delhi.
14. Verma, V.K., 1986. Geomorphology Earth surface processes and form. McGraw Hill.

### **Practical -III**

**MM: 50**

Geological history and comments on Engineering problem, Study of hydrological maps. Drainage analysis, Geomorphological models, study of seismic zones and flood prone areas in India, Photogeology, geological interpretation of photographs and satellite imageries. Identification of economic minerals, megascopic and microscopic identification of ore minerals, measurement of vertical and true thickness of coal seams. Field visit to a local area to documents environmental assets – river/ forest/ grassland/ hill/ Mountain; Visit to a local polluted site-Urban / Rural / Industrial / Agricultural areas.

### **Field Training Program**

**MM: 50**

A Field Training Program to understand geological and structural mapping. Every student shall be required to attend the field training program and submit to the Tour Incharge a record of field observation and specimens collected, properly labeled and arranged. The marks assigned to the field work shall be on the basis of these records and collection of samples and the performance in the field.

29

सामान्यतः

समाचारों की कक्षा ।  
अथवा समाचार कक्षा

# COMMON MINIMUM CURRICULUM

*at*

*(UG Level)*

*for*

**[UTTAR PRADESH STATE UNIVERSITIES]**

**Subject - SOCIAL WORK**

*(Updated after presentation in M.J.P. Rohilkhand University, Bareilly)*

**Prepared by:**

**Department of Social Work**

**Mahatma Gandhi Kashi Vidyapith,**

**VARANASI – 221002**

## Structure of the Papers

CLASS	NAME OF THE PAPERS	MAX. MARKS	REMARKS
B.A. I	First Paper- <b>Introduction to Social Work</b>	80	Model of question paper for examination will be decided by concerned universities
	Second Paper- <b>Human Growth and Development</b>	80	—do—
	<i>Extension Activities</i>	40	Field work in urban and rural communities
B.A. II	First Paper- <b>Fields of Social Work</b>	80	Model of question paper for examination will be decided by concerned universities
	Second Paper- <b>Contemporary Social Problems</b>	80	—do—
	<i>Extension Activities</i>	40	Class and Home Assignments, Presentations, Debates, Essay Writing Competitions, Baseline Surveys, NGO'S visit, Viva-voce and Attendance
B.A.III	First Paper- <b>Social Policy and Development</b>	80	Model of question paper for examination will be decided by concerned universities
	Second Paper- <b>Social Justice and Human Rights</b>	80	—do—
	Third Paper- <b>Social Action and Movements</b>	80	—do—
	<i>Extension Activities</i>	60	Home/class assignment, presentation, debates, essay writing competition, NGO'S visit, viva-voce and Attendance
	<b>Total Marks</b>	<b>700</b>	



## **B.A. – I**

### **First Paper Introduction to Social Work**

#### **Course Objectives:**

- 1- To develop the understanding of social work profession and its scope.
- 2- To acquire knowledge of the historical development of social work.
- 3- To acquire knowledge of the basic concepts about methods of social work.

#### **Unit- I**

**Social Work:** Meaning, definition, objectives and scope, Social Work as a profession. Historical development of social work in India, America, and England. Status of Social Work as a profession in India.

#### **Unit- II**

**Social Case Work:** Meaning, definition, objectives and principles, 4P's. Role of case worker. **Social Group Work:** meaning, definition, objectives, principles and skills in working with different types of formed groups.

#### **Unit- III**

**Community Organization:** Meaning, definition, objectives and principles and models. Role of social worker in organizing the community.

**Social Welfare Administration:** meaning, definition, objectives and principles. Administration of a social work organization.

#### **Unit- IV**

**Social Work Research:** Meaning, definition, objectives, types and steps.

**Social Action:** meaning, definition, objectives, principles and techniques. Social action as a quest for just society. Role of social workers as activists.

***Suggested Readings:***

- 1- Ahmad, M. R. (1969): *Samaj Karya: Darshan Evam Pranaliyan*, Lucknow: British Book Depot.
- 2- Chowdhry, D. Paul (1983): *Introduction to Social Work*, New Delhi: Atma Ram & Sons.
- 3- Friedlander, W. A. (1958): *Concept and Methods of Social Work*, Eaglewood: Prentice Hall.
- 4- Khinduka, S. K. (1962): *Social Work in India*, Jaipur: Sarvodaya Sahitya Samaj
- 5- Misra, P. D. (2003): *Samaj Karya: Itihas, Darshan Evam Pranaliyan*, Lucknow: New Royal Book Co.
- 6- Misra, P. D. (2004): *Social Work Profession in India*, Lucknow: New Royal Book Co.
- 7- Singh, Surendra and R. B. S. Verma (2002): *Bharat Mein Samaj Karya Ka Kshetra*, Lucknow: New Royal Book Co.
- 8- Soodan, Kripal (1983): *Samaj Karya Darshan, Etihhas Evam Pranaliyan*, Lucknow: Nav Jyoti Scientific Publications.
- 9- Soodan, Kripal (1988): *Samaj Karya: Siddhanta Evam Abhyas*, Lucknow: Nav Jyoti Scientific Publications.
- 10- इनाम शास्त्री, ए.एस (2006)रू *व्यावसायिक समाज कार्य*, गुलशी पब्लिकेशन, वाराणसी।
- 12- पाण्डेय, मणिभूषण (2010)रू *समाजकार्य-दर्शन, सिद्धान्त एवं अभ्यास*, लोक सेवा पब्लिकेशन्स, वाराणसी।
- 13- पाठक, आर.सी. (2002)रू *समाजकार्य-दर्शन, इतिहास, क्षेत्र एवं प्रणालियों*, विजय प्रकाशन मंदिर, वाराणसी।
- 14- शास्त्री राजाराम (2010)रू *समाजकार्य*, उ०प्र० हिन्दी ग्रन्थ अकादमी, लखनऊ।

**B.A. – I**

**Second Paper**

**Human Growth and Development**

**Course Objectives:**

- 1- Understand the basic concepts and processes in psychology for social work practice.
- 2- Develop understanding about the developmental characteristics and needs of individual at various stages of life span.
- 3- Develop skills and knowledge of applying psychological information in assessing the psycho-social problems of different age groups.

**Unit-I**

**Concept of growth, maturity and development.** Principles and characteristics of development. Role of heredity and environment in human development.

**Theories of Development:** Sigmund Freud's Psycho-Sexual theory, Erik Erickson's psycho-social theory and Jean Piaget's Cognitive Developmental Theory.

**Basic Human Needs:** concept and types.

**Unit-II**

**Behaviour:** Concept, characteristics and types. Learning: definition, characteristics and types. Attitude: formation, change and measurement. Social institutions of socialization.

**Personality:** Meaning, characteristics and determinants.

**Unit-III**

**Different Stages of Human Development- I \***

Prenatal Development. Infancy. Early Childhood. Middle and Late Childhood

**Unit-IV**

**Different stages of Human Development- II \***

Adolescence. Early Adulthood. Middle Adulthood. Late Adulthood or Old Age.

\*Note- Each developmental stage has to be covered in terms of time span, major developmental task, needs, developmental characteristics, stressful situations and role of social worker.

***Suggested Readings:***

- 1- Baron, R.A. and D. Byrne (1998): *Social Psychology*, New Delhi: Prentice Hall.
- 2- Hurlock, E.B. (1992): *Child Growth and Development*, New Delhi: Tata McGraw Hill.
- 3- Hurlock, E.B. (1992): *Personality Development*, New Delhi: McGraw Hill.
- 4- Hurlock, E.A. (1994): *Developmental Psychology- Lifespan Approach*, New Delhi: Tata McGraw Hill.
- 5- Hall, C.S., G. Lindsay and J. B. Campbell (1998): *Theories of Personality*, New York: John Willey & Sons, Inc.
- 6- Hilgard, Ernest R. and Rital Atkinson (1979): *Introduction to Psychology*, New York: Harcourt Brace Jovanovich Inc.
- 7- Kuppaswamy, B. (1980): *An Introduction to Social Psychology*, Mumbai: Media Promoters and Pub. Pvt. Ltd.
- 8- Morgan, C.T., R. A. King, J. R. Welsz and J. Schopler (2003): *Introduction to Psychology* (7th Edition), New Delhi: Tata McGraw Hill Publication Company Limited.
- 9- Robinson, L. (1995): *Psychology for Social Workers*, London: Routledge.
- 10- Sudbery, J. W. (2018): *Human Growth and Development: An Introduction for Social Workers*, S.l.: Routledge.
- 11- वर्मा, भावना एवं संदीप गिरि (2017): *मानव विकास : व्यवहार एवं व्यक्तित्व*, वाराणसी: भारती प्रकाशन।
- 12- सिंह, अरुण कुमार (2006) *उच्चतर मनोविज्ञान*, दिल्ली : मोतीलाल बनारसी दास चतुर्वेदी पब्लिकेशन ।

**B.A. – II**  
**First Paper**  
**FIELDS OF SOCIAL WORK**

**Course Objectives:**

- 1- To introduce the concept of various emerging fields of social work.
- 2- To impart knowledge of the role of social work in emerging fields.
- 3- To Learn the Issues and Connections with social work practice

**Unit-I**

**Children in Difficult Circumstances:** Definition of child, working children, disabled children, street children, trafficked children and children living with HIV/AIDS.

**Youth Development:** Nature and scope, problems of youth in India, causes of youth unrest. National Youth Policy.

**Women Empowerment:** Concept and dimensions, factors affecting status of women in India, demographic profile related to education, health, employment and political participation.

**Unit-II**

**Senior Citizens:** Psycho-physical and social problems of aged persons, constitutional provisions for the aged. Role of social worker.

**Public Health:** concept and indicators of health, Concept of WASH (Water and Sanitation Hygiene) and MHH (Menstrual Health and Hygiene).

**Unit-III**

**Gender Justice:** Concept, root causes and manifestations. Forms of gender based violence. Role of social workers towards changing gender social norms and forming gender equitable society.

**Ecology and Environment:** Concept and challenges. Sustaining the environment.

**Disaster:** Concept and types. Disaster management. Role of NDRF.

**Unit-IV**

**Substance Abuse:** Problem of alcohol and drug dependence, role of social worker in deaddiction.

**Homeless:** Incidence and problem of homeless. Social work and homeless.

**Unorganized Labour:** Meaning, problems, working conditions, constitutional provisions.

**School Social Work:** Concept and needs, social work intervention for special needs children and slow learner children.

***Suggested Readings:***

- 1- Ahuja, Ram (2004): *Samajik Samasyayein*, New Delhi: Rawat Publications.
- 2- Chaudhary, Anil Kumar (2017): *Samkalin Samaj Karya Chetra* (Eds.), Varanasi: Pilgrims Publishing.
- 3- Gupta, M. L and D. D. Sharma (2013): *Bhartiya Samajik Samasyayein*, Agra: Sahitya Bhavan Publication.
- 4- Kumar, Amit (2006): *Paryavaran Adhyayan*, New Delhi: Vishwa Bharti Pub..
- 5- Kushwaha, Madhu (2014): *Gender and Education*, Varanasi: Gangasaran and Sons.
- 6- Park, K. (2009): *Preventive and Social Medicine*, Jabalpur: Banarasidas Bhanot Publishers
- 7- Sachdeva, D. R. (2003): *Bharat Mein Samaj Kalyan Prashasan*, Allahabad: Kitab Mahal.
- 8- Singh, Virendra Yadav (2010): *Bhartiya Musalman Dasha Evam Disha*, New Delhi: Radha Publications.
- 9- Tripathi, D. S. (2005): *Paryawaran Adhyayan*, New Delhi: Motilal Banarasidas.

**B.A. -II**  
**Second Paper**  
**Contemporary Social Problems**

**Course Objectives:**

- 1- To understand the concept of social problem.
- 2- To orient learner about contemporary social problems.
- 3- To understand the structural problems of society.
- 4- To learn intervention strategic resolving Social Action.

**Unit – I**

**Social Problem:** Concept and characteristics. **Major social problems of India:** Casteism, communalism, terrorism, organized crime and corruption. Emerging issues: hate crimes, mob lynching and road rage.

**Unit – II**

**Child Maltreatment:** Child abuse and neglect, sexual abuse of children, child welfare services, day care, adoption, foster care.

**Spousal Abuse:** Dynamics of spousal abuse, cycle of domestic violence, children's reaction to spousal abuse, counselling battered women, counselling abusive partner.

**Elder Abuse:** Types and incidence of elder abuse, identification of elder abuse.

**Unit – III**

**Maternal and Child Health:** Maternal deaths, child mortality and sex-selective termination of pregnancy. Issues related to reproductive health of adolescents and adults.

**Life Style Diseases:** Diabetes, hypertension, insomnia and heart diseases. HIV/AIDS and Cancer.

**Pornography:** Problem and implications, cybercrime and its implications. Positive and negative impacts of social media.

**Unit – IV**

**Problems of Schedule Castes, Schedule Tribes, Other Backward Classes; Religious-Cultural and Linguistic Minorities and Sexual Minorities (LGBTQ).** Affirmative actions taken by state for eradication of their problems.

***Suggested Readings:***

1. Ahuja, Ram (1993) : *Indian Social System*, Jaipur: Vedam Book House.
2. Bakshi, P. M.( 1999) : *The Constitution of India*, Delhi: Universal Law Publishing Co. Pvt. Ltd
3. Beteille, A. (1981) : *The Backward Classes and the New Social Order*, New Delhi: Oxford University Press.
4. Fichter, Joseph H. (1973) : *Sociology*, London: The University of Chicago Press
5. Hutton, J. H. (1983) : *Caste in India*, Bombay: Oxford University Press.
6. Horton, Paul B. and L. Chester Hunt (1964) : *Sociology*, McGraw-Hill Book Company.
7. Iyer, V.R.K. (1980) : *Some Half Hidden Aspects of Indian Social Justice*, Lucknow: Eastern Book Company.
8. Kapadia, K. M. (1966) : *Marriage and Family in India*, Bombay: Oxford University Press.
9. Prabhu, P. H. (1963) : *Hindu Social Organization*, Bombay: Popular Prakashan.
10. Saraf, D. N. (1984) : *Social Policy* (Eds.), Law and Protection of Weaker Sections of Society, Lucknow: Eastern Book.
11. आहूजा, राम, (2000) : *सामाजिक समस्याये*, रावल प्रकाशन, जयपुर एवं नई दिल्ली।
12. पाठक, आर.सी. (2008) : *सामाजिक समस्याये*, विजय प्रकाशन मन्दिर, वाराणसी।
13. मदन, जी.आर., (2000) : *भारतीय सामाजिक समस्याये*, विवेक प्रकाशन, नई दिल्ली।



**B.A. III**  
**First Paper**  
**Social Policy and Development**

**Course Objectives:**

- 1- To empowering the idea and analyse of social policy and its programme.
- 2- To know the arena of Indian social planning.
- 3- To introduce the concept of social security and their measure.

**Unit-I**

**Social Policy:** Concept, definition, targets, functions, fields and objectives. Principles and needs of social policy. Formulation of social policy.

**Unit-II**

**Operative Status of Social Policy in India:** Directive Principles of State. National Policy for the empowerment of women, National Policy for the aging. New Population Policy. National Policy for disabled. Reservation in civil services.

**Unit-III**

**Social Planning and Social Security:** concept, needs, objectives. Process of social planning, NITI Ayog, National Development Council, Five Year Plans in India. **Social Security:** meaning, types. Legal provisions for social security - EPF Act, 1952; ESI Act, 1948; MB Act, 1961.

**Unit-IV**

**Social Development:** concept, meaning and scope of development. Inclusive development, human development, sustainable human development. Development as Human Rights.

*Suggested Readings:*

- 1- Bakers, Gary (1993) : *Human Development Revisited* , Chicago University Press.
- 2- Chakravarthy, Sukhamoy (1997): *Development Planning : The Indian Experience*, Oxford University Press.
- 3- Das, K. Debendra (1994): *Structural Adjustment is the Indian Economy* (ed.), Deep and Deep Publications, New Delhi.
- 4- Dutt, Rudra (ed.) (2002) : *Second Generation Economic Reforms in India*, (ed.) Deep and Deep Publishers, New Delhi.
- 5- Dreze, Jean and Amartya Sen (1996) : *Indian Development: Selected Regional Perspectives*, Oxford University Press.
- 6- Dutt and Sundaram (1995) : *Indian Economy*, Sultan Chand and Company Ltd.
- 7- Gore, M.S. (1985) : *Social Aspects of Development*, Rawat Publications, Jaipur.
- 8- Haq, Mahbub ul (1976): *Poverty Curtain*, Oxford University Press.
- 9- Haq, Mahbub ul (1998) : *Reflections on Human Development*, Oxford University Press.
- 10- Kulkarni, P.D. and M.C. Nanavatte (1997) : *Social Issues in Development*, Opal Publishing House.
- 11- Reddy, Y.Venugopal (1979) : *Multi Level Planning in India*, Vikas Publications, New Delhi.
- 12- Srivastava, S.P. (1998) : *The Development Debate: Critical Perspectives* (ed.) Rawat Publications, Jaipur
- 13- Todaro, M.P. (1997) : *Economic Development in the Third World*, Hyderabad, Orient Longman.

## **B.A. III**

### **Second Paper**

#### **SOCIAL JUSTICE AND HUMAN RIGHTS**

##### **Course Objectives:**

- 1- To develop understanding to students the concept of social justice and human rights.
- 2- To empowered the students for analysis of violation of basic parameters of human rights.

##### **Unit-I**

**Social Justice:** Concept and meaning, philosophy and approaches of social justice.

**Types -** Social, economic and political.

**Indian System of Social Justice -** executive, legislature and judiciary.

##### **Unit-II**

**Role of media and civil society for ensuring social justice Efforts for social justice** by Rammohan Roy, Ramabai, Jotirao Phule, Savitribai Phule, M.K.Gandhi and Dr. B.R. Ambedkar.

##### **Unit-III**

**Human Rights-** Concept, need and scope. Universal Deceleration of Human Rights; International status of human rights.

##### **Unit-IV**

**Indian Constitution and Human Rights.** National and Uttar Pradesh Human Rights Commission: structure and functions. Status of human rights in India.

***Suggested Readings:***

1. Chaudhary, Anil Kumar (2017): *Samkalin Samaj Karya Chetra* (eds.), Varanasi: Pilgrims Publishing.
2. Chakravarti, Uma (1998) : *Rewriting History: The Life and Times of Pandita Ramabai*, New Delhi: Kali for Women.
3. Gupta, Nimisha and B.D. Pandey (2017): *Samaj Karya Evam Samajik Nyaya*, New Delhi: Alternotes Press
4. Guha, Ramchandra (2012): *Makers of Modern India*, New Delhi: Viking, Punguin Group.
5. Iyer, V.R. Krishna (1987): *Social Justice: Sunset or Dawn*, Eastern Book Co.
6. Kapoor, S.K. (2013): *Manav Adhikar*, Allahabad: Central Law Agency.
7. Keer, Dhananjay (2016): *Dr. Babasaheb Ambedkar Jeevan - Charit*, Popular Prakashan.
8. Mishra, Mahendra K. (2012): *Bharat Mein Manvadhikar*, ARS Publishers and Distributor.
9. Prabhu, R. K. and U. R. Rao (1999): *Mahatma Gandhi Ke Vichar*, New Delhi: National Book Trust.
10. Rawls, John (1999): *A Theory of Justice*, Harvard University Press.
- 11. Sharma, Subhash (2014): *Bharat Mein Manvadhikar*, India: National Book Trust.

**B.A. III**  
**Third Paper**  
**Social Action and Social Movement**

**Course Objective:**

- 1- To know the understanding of social action and related roles of social workers.
- 2- To discuss the various social action movements in India.
- 3- To explore the causes and results of social reform movements.

**Unit - I**

**Social Action:** Meaning, objectives, features, types, principles, strategies, techniques of social action, Steps of social action, approaches. Role of social worker as social activist.

**Unit - II**

**Social Action in India:** Satyagraha, The Rowlatt Act Satyagraha, The Salt Satyagraha, The Nagpur Flag Satyagraha, The Borsad (Kheda district, Gujarat) Satyagraha, The Vaikom Satyagraha, Chetna March in Panchmahal and Sabrakantha districts of Gujarat, Mahila Mukti Morcha – Dalli Rajhara, Narmada Bachao Andholan.

**Unit - III**

**Social Reform movement in 19th and 20th Century :** Christian Missionary, Brahmo Samaj, Arya Samaj, Theosophical Society, Ramakrishna Mission and Prarthana Sabha, **Historical review of early experiments in rural development** with reference to Sriniketan, Gurgaon, Bhudan, Gram Dan and Nilokheri project.

**Unit -IV**

**Famous Movement:** Swadeshi movement 1905, Non-cooperation Movement (Asahayog Andolan), Save silent valley movement 1973, Chipko movement 1973, Apikko Andolan, Namantar Andolan 1978, Jungle bachao Andolan 1980, Narmada Bachao Andolan 1985, Anti-Corruption Movement 2011, Nirbhaya Movement 2012.

### *Suggested Readings:*

1. Ahmad, M. R. (1969): *Samaj Karya: Darshan Evam Pranaliyan*, British Book Depot, Lucknow.
2. Britto, Gabriel A. A. (1984): "Some Principles of Social Action" in H.Y. Siddiqui (Ed.) *Social Work and Social Action*, Harnam Publications, Delhi.
3. Chowdhry, D. Paul (1983): *Introduction to Social Work*, Atma Ram & Sons, New Delhi.
4. Das Gupta, Sugata (1987): "Social Action" in *Encyclopaedia of Social Work in India*, Vol. 3, Publications Division, GoI, Delhi.
5. Desai, Armaity S. (1984): "Social Action and the Social Work" in H.Y. Siddiqui (Ed.) *Social Work and Social Action*, Harnam Publications, Delhi.
6. Friedlander, W. A. (1958): *Concept and Methods of Social Work*, Eaglewood Prentice Hall
7. Freire, Paulo (1972): *Pedagogy of the Oppressed*, Penquin, Middlesex.
8. Khinduka, S.K. and Bernad J. Coughlin (1975): "A Conceptualisation of Social Action", *Social Service Review*, 49 No. 1, March.
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10. Paul, Joseph E. (1971): "Social Action for a Different Decade", *Social Service Reivew*, 45, No. 1, March.
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(28)

कमल शाह

महाराष्ट्र राज्यीय शिक्षण बोर्ड  
मुंबई

**PATTERNS OF PAPER WITH ASSESSMENT CLASSWISE  
B.A. FIRST YEAR (SOCIOLOGY)**

S. N.	Name of the paper	Pattern of the question paper		Marks of theory	Marks of Assessment	Maximum marks ( theory+ Assessment)	Duration of examination	Remarks
		NUMBER OF QUESTIONS	MARKS					
1	FUNDAMENTAL CONCEPTS OF SOCIOLOGY समाजशास्त्र की मूल अवधारणाएं	10 Short answer	4 Marks for each	80	Home assignment of 20 marks for each paper will be given ,which would be related with course content.	100	3:00 HRS	Short answer should be written within 200 words while long answers will be ranged up to 500 words.
		4 Long answer	10 Marks for each					
2	Indian Society भारतीय समाज	10 Short answer	4 Marks for each	80		100	3:00 HRS	
		4 Long answer	10 Marks for each					

**B.A. SECOND YEAR (Sociology)**

s. n.	Name of the paper	Pattern of the question paper		Marks of theory	Assessment (marks)	Maximum marks ( theory+ Assessment)	Duration of examination	Remarks
1	FUNDAMENTAL BASES AND PROCESSES OF SOCIETY समाज के मूल आधार एवं प्रक्रियाएँ	Number of Questions	Marks	80	Project work on various topics related with skill development would be allotted for each paper. <b>OR</b>	100	3:00 HRS	Short answer should be written within 200 words while long answers will be ranged up to 500 words.
		10 Short answer	4 Marks for each					
2	CONTEMPORARY INDIAN SOCIETY : ISSUES AND PROBLEMS समकालीन भारतीय समाज : मुद्दे एवं समस्याएँ	10 Short answer	4 Marks for each	80	Seminars and Group discussions will be organized in order to boost academic skills in the students. Each paper will contain 20 marks.	100	3:00 HRS	
		4 Long answer	10 Marks for each					

## PATTERNS OF PAPER WITH ASSESSMENT CLASSWISE

### B.A. THIRD YEAR (Sociology)

S.N.	Name of the paper	Pattern of the question paper		Marks	Duration of examination	Remarks
1	EXONENTS OF SOCIOLOGICAL THOUGHT समाजशास्त्रीय विचारों के प्रतिपादक	<b>NUMBER OF QUESTIONS</b>	<b>MARKS</b>	80		Short answer should be written within 200 words while long answers will be ranged up to 500 words.
		10 Short answer	4 Marks for each			
		4 Long answer	10 Marks for each			
2	SOCIAL RESEARCH METHODS सामाजिक अनुसंधान पद्धतियाँ	10 Short answer	4 Marks for each	80	3:00 HRS	
		4 Long answer	10 Marks for each			
3	INDIAN SOCIAL THINKERS भारतीय सामाजिक विचारक	10 Short answer	4 Marks for each	80		
		4 Long answer	10 Marks for each			
4	VIVA –VOCE मौखिकी	Viva-Voce exam of 60 marks.				
5	Total Marks	80+80+80+60=300				



**B.A. First Year (बी०ए० प्रथम वर्ष)**  
**First Paper (प्रथम प्रश्नपत्र)**  
**Fundamental Concepts of Sociology (समाजशास्त्र की मूल अवधारणायें)**

**Objectives :**

Main objective of this paper is to create a sound base of Sociology among the students. For this purpose elementary key concepts are included in this course. It has also been tried to inculcate different environmental issues.

**उद्देश्य :**

इस प्रश्नपत्र का मुख्य उद्देश्य छात्रों में समाजशास्त्र का एक अच्छा आधार बनाना है। इसके लिए पाठ्यक्रम में मूल अवधारणाओं को सम्मिलित किया गया है। विभिन्न पर्यावरणीय मुद्दों को भी यहाँ समझाने का प्रयास किया गया है।

**Unit - I (इकाई प्रथम)**

The Emergence of Sociology : Transition from Social Philosophy to Sociology, Enlightenment : The New Socio-Economic and Political forces : The French and Industrial Revolution. Sociology : Meaning, Subject matter, Scope and Nature. Relation of Sociology with other Social Sciences : Social Anthropology, Economics, Psychology and Political Science.

समाजशास्त्र का प्रादुर्भाव : सामाजिक दर्शन से समाजशास्त्र की ओर संक्रमण, ज्ञानोदय : नई सामाजिक, आर्थिक एवं राजनैतिक शक्तियाँ : फ्रांस की क्रान्ति तथा औद्योगिक क्रान्ति। समाजशास्त्र : अर्थ, विषय वस्तु, विषय क्षेत्र एवं प्रकृति। समाजशास्त्र का अन्य सामाजिक विज्ञानों के साथ सम्बन्ध : सामाजिक मानवशास्त्र, अर्थशास्त्र, मनोविज्ञान तथा राजनीतिशास्त्र।

**Unit - II (इकाई द्वितीय)**

Fundamental Concepts : Society - Human Society, Animal Society, Culture & Civilization, Community, Institution, Association, Organization, Social Structure, Social System, Status and Role, Folkways, Mores, Customs, Values and Norms.

मूल अवधारणाएँ : समाज - मानव समाज, पशु समाज, संस्कृति और सभ्यता, समुदाय, संस्था, समिति, संगठन, सामाजिक संरचना, सामाजिक व्यवस्था, प्रस्थिति एवं भूमिका, जनरीति, लोकाचार, प्रथा, मूल्य तथा मानदण्ड।

### Unit - III (इकाई तृतीय)

Social Processes : Meaning, Definition and Types, Associative Processes : Co-operation Accommodation, Assimilation and Integration, Dis-associative Processes : Conflict and Competition

सामाजिक प्रक्रियाएँ : अर्थ, परिभाषा एवं प्रकार, सहयोगी सामाजिक प्रक्रिया : सहयोग, व्यवस्थापन, सात्मीकरण एवं एकीकरण। असहयोगी सामाजिक प्रक्रिया : संघर्ष तथा प्रतिस्पर्धा।

### Unit - IV (इकाई चतुर्थ )

Ecology and Environment : Physical, Social and Cultural Environment, Environmental Pollution : Global Warming and Green House Effects, Environmental Movements in India – Chipko, Narmada Bachao and Anti-Mining Movement.

पारिस्थितिकी एवं पर्यावरण : भौतिक, सामाजिक तथा सांस्कृतिक पर्यावरण, पर्यावरण प्रदूषण : भूमण्डलीय उष्णता एवं हरितगृह प्रभाव, भारत में पर्यावरणीय आन्दोलन— चिपको, नर्मदा बचाओ एवं खनन विरोधी आन्दोलन।

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- Johnson, Harry M. 1995, Sociology : A Systematic Introduction, Allied Publishers, New Delhi.
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**B.A. First Year (बी०ए० प्रथम वर्ष)**  
**Second Paper (द्वितीय प्रश्नपत्र)**  
**Indian Society (भारतीय समाज)**

**Objectives :**

To study basic features of Indian Society and Indian Social System. The inherent problems of vulnerable groups are also included in this course.

**उद्देश्य :**

भारतीय समाज और सामाजिक व्यवस्थाओं की मूलभूत विशेषताओं का अध्ययन करना प्रस्तुत पाठ्यक्रम का मुख्य उद्देश्य है। इसमें कमजोर समूहों की अन्तर्निहित समस्याओं के अध्ययन को भी सम्मिलित किया गया है।

**Unit - I (इकाई प्रथम)**

Main Bases of Indian Social System : Dharma, Karma and Re-birth, Purusharth, Varna-Ashram System and Sanskar.

भारतीय समाज व्यवस्था के मूल आधार : धर्म, कर्म एवं पुनर्जन्म, पुरुषार्थ, वर्णाश्रम व्यवस्था एवं संस्कार।

**Unit - II (इकाई द्वितीय)**

Hindu Marriage : Meaning, Definition, Aims, Forms, Types, Problems and Change. Muslims and Christian Marriage. Kinship system in India and Jajmani System.

हिन्दू विवाह : अर्थ, परिभाषा, उद्देश्य, स्वरूप, प्रकार, समस्याएँ एवं परिवर्तन। मुस्लिम एवं ईसाई विवाह। भारत में नातेदारी व्यवस्था एवं जजमानी व्यवस्था।

**Unit - III (इकाई तृतीय)**

Characteristics of Rural and Urban life, Urbanization, and Urbanism, Caste System in India : Meaning , Definition, Characteristics, Theories of Origin : Traditional, Racial and Occupational, Changing Patterns in Caste System and Causes of its Disorganization

ग्रामीण एवं नगरीय जीवन की विशेषताएँ, नगरीकरण एवं नगरवाद। भारत में जाति व्यवस्था : अर्थ, परिभाषा, विशेषताएँ, उत्पत्ति के सिद्धान्त : परम्परागत, प्रजातीय एवं व्यावसायिक। जाति व्यवस्था में परिवर्तन के प्रतिमान एवं विघटन के कारण।



## Unit - IV (इकाई चतुर्थ)

Status of Women, Problems relating to women and constitutional provisions for its eradication. The problems regarding other backward Castes, Scheduled castes and scheduled tribes and constitutional provisions to remove their problems.

महिलाओं की प्रस्थिति, महिला सम्बन्धी समस्याएँ एवं उनके निराकरण हेतु संवैधानिक प्रावधान। अन्य पिछड़ी जाति, अनुसूचित जाति एवं अनुसूचित जनजाति की समस्याएँ एवं इनके निराकरण के संवैधानिक प्रावधान।

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**B.A. Second Year (बी०ए० द्वितीय वर्ष)**  
**First Paper (प्रथम प्रश्नपत्र)**  
**Fundamental Bases and Processes of Society (समाज के मूल आधार एवं प्रक्रियाएँ)**

**Objectives :**

To study fundamental social bases and processes which are most essential to operate the society. Also the purpose is to make clear understanding of theories like the theory of stratification, socialization and social change.

**उद्देश्य :**

मूल सामाजिक आधारों और प्रक्रियाओं का अध्ययन करना जो कि समाज के संचालन के लिए अत्यधिक आवश्यक है। सामाजिक स्तरीकरण, समाजीकरण तथा सामाजिक परिवर्तन के सिद्धान्तों की स्पष्ट समझ विकसित करना भी इस पाठ्यक्रम का उद्देश्य है।

**Unit - I (इकाई प्रथम)**

Meaning of Stratification, Characteristics of social Stratifications, Social Stratification and Social Differentiation, Principal forms of Social Stratification – Slavery, Estates, Castes System and Class System, Theories of Stratification : Conflict Theory, Functional Theory.

सामाजिक स्तरीकरण का अर्थ, सामाजिक स्तरीकरण की विशेषताएँ, सामाजिक स्तरीकरण तथा सामाजिक विभेदीकरण, सामाजिक स्तरीकरण के प्रमुख स्वरूप, दास प्रथा, जागीर, जाति व्यवस्था तथा वर्ग-व्यवस्था, स्तरीकरण के सिद्धान्त : संघर्ष का सिद्धान्त, प्रकार्यवादी सिद्धान्त।

**Unit - II (इकाई द्वितीय)**

Socialization – Meaning, Stages of Socialization, Agencies of Socialization, Theories of Socialization – Mead, Freud and Cooley. Social Group- Primary Group, Secondary Group and Quasi Group

समाजीकरण- अर्थ, समाजीकरण के सोपान, समाजीकरण के अभिकरण, समाजीकरण के सिद्धान्त- मीड, फ्रायड तथा कूले। सामाजिक समूह – प्राथमिक, द्वितीयक एवं अर्द्ध समूह

**Unit – III (इकाई तृतीय)**

Social Change- Meaning, Characteristics and Factors of Social Change, Some Related Concepts : Evolution, Progress and Development, Theories of Social Change : Evolutionary, Cyclical, Economic (Marxian) Theory and Cultural Lag.

सामाजिक परिवर्तन— अर्थ, विशेषताएँ तथा सामाजिक परिवर्तन के कारक, कुछ सम्बन्धित अवधारणाएँ : उद्विकास, प्रगति तथा विकास, सामाजिक परिवर्तन के सिद्धान्त : उद्विकासीय, चक्रीय, आर्थिक (मार्क्सवादी) सिद्धान्त तथा सांस्कृतिक विलम्बना।

#### **Unit - IV (इकाई चतुर्थी)**

**Social Control- Meaning and Kinds of Social Control, Functions of Social Control, Means of Social Control : Institutional Means and non Institutional Means. Social Control and Socialization, Social Control and Deviance.**

सामाजिक नियन्त्रण— अर्थ एवं प्रकार, सामाजिक नियन्त्रण के प्रकार्य, सामाजिक नियन्त्रण के साधन : संस्थागत साधन तथा गैर संस्थागत साधन। सामाजिक नियन्त्रण एवं समाजीकरण, सामाजिक नियन्त्रण एवं विचलन।

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**B.A. Second Year (बी०ए० द्वितीय वर्ष)**  
**Second Paper (द्वितीय प्रश्नपत्र)**  
**Contemporary Indian Society : Issues and Problems**  
(समकालीन भारतीय समाज : मुद्दे एवं समस्याएँ)

**Objectives :**

This paper aims to draw attention towards contemporary issues and problems of Indian society. The awareness of students regarding Indian social problems assumes great significance without which they would not be able to understand the society thoroughly.

**उद्देश्य :**

इस पाठ्यक्रम का उद्देश्य भारतीय समाज के समकालीन मुद्दों एवं समस्याओं की ओर छात्रों का ध्यान आकर्षित करना है। छात्रों में भारत की सामाजिक समस्याओं की जानकारी अत्यधिक प्रासंगिक है क्योंकि इसके बिना वे भारतीय समाज को गहनता से नहीं समझ पायेंगे।

**Unit - I (इकाई प्रथम)**

Structure Related : Poverty, Population explosion, Illiteracy, Corruption, Inequality, Gender discrimination, Terrorism, Communalism, Unemployment, Regionalism, Casteism, Alcoholism, Violence against women.

संरचना सम्बन्धी : निर्धनता, जनसंख्या विस्फोट, निरक्षरता, भ्रष्टाचार, असमानता, लैंगिक विभेद, आतंकवाद, सम्प्रदायवाद, बेरोजगारी, क्षेत्रवाद, जातिवाद, मादक द्रव्य व्यसन, महिलाओं के विरुद्ध हिंसा।

**Unit - II (इकाई द्वितीय)**

Family related : Traditional Problems : Dowry, Child Marriage, Child Labor, Untouchability. Marriage related problems : Divorce, Live in relationship, Adultery. Violence related problems : Domestic Violence, Violence Against Children and Old people.

परिवार सम्बन्धी : परम्परागत समस्याएँ : दहेज, बाल-विवाह, बालश्रम, अस्पृश्यता। विवाह सम्बन्धी समस्याएँ, विवाह-विच्छेद, लिव-इन-रिलेशनशिप, व्यभिचार। हिंसा सम्बन्धी समस्याएँ : घरेलू हिंसा, बच्चों एवं वृद्धों के विरुद्ध हिंसा।

**Unit - III (इकाई तृतीय)**

Development related : Development induced displacement, Ecological degradation, consumerism, crisis of values, Lack of infrastructure.



विकास सम्बन्धी : विकास जनित विस्थापन, पारिस्थितिकी अपकर्ष, उपभोक्तावाद, मूल्यों का संकट, आधारभूत सुविधाओं का अभाव।

#### Unit - IV (इकाई चतुर्थी)

Disorganization Related : Crime, Emerging Trends in Crime, Juvenile Delinquency, White collar crime, Cyber crime, Suicide, Black money and Youth unrest.

विघटन सम्बन्धी : अपराध, अपराध सम्बन्धी नए आयाम, बाल अपराध, श्वेतवसन अपराध, साइबर अपराध, आत्महत्या, काला धन तथा युवा असन्तोष।

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**B.A. Third Year (बी०ए० तृतीय वर्ष)**  
**First Paper (प्रथम प्रश्नपत्र)**  
**Exponents of Sociological Thought (समाजशास्त्रीय विचारों के प्रतिपादक)**

**Objectives :**

The purpose of this paper is to introduce the exponents of Sociology who gave their precious thoughts to establish and flourish the discipline Sociology. Study of the contributions given by them will make the learners well versed in Sociology.

**उद्देश्य :**

इस पाठ्यक्रम का मुख्य उद्देश्य समाजशास्त्र के उन प्रतिपादकों का परिचय कराना है जिन्होंने समाजशास्त्र विषय को स्थापित तथा विकसित करने हेतु बहुमूल्य विचार प्रस्तुत किये। इनके द्वारा दिये गये योगदानों का अध्ययन शिक्षार्थियों में समाजशास्त्र की अच्छी समझ विकसित करेगा।

**Unit - I (इकाई प्रथम)**

August Comte : Positivism, Law of three stages and Hierarchy of Sciences. Karl Marx : Dialectical Materialisms, Class Struggle and Theory of Surplus Value.

ऑगस्ट काम्टे : प्रत्यक्षवाद, तीन स्तरों का नियम तथा विज्ञानों का संस्तरण। कार्ल मार्क्स : द्वन्द्वात्मक भौतिकवाद, वर्ग संघर्ष तथा अतिरिक्त मूल्य का सिद्धान्त।

**Unit - II (इकाई द्वितीय)**

Herbert Spencer : Law of Evolution, Organic Concept of Society. Durkheim : Social fact, Social Solidarity, Division of Labor and Theory of Suicide.

हरबर्ट स्पेन्सर : उद्विकास का नियम, समाज की सावयवी अवधारणा। दुर्खीम : सामाजिक तथ्य, सामाजिक एकता, श्रम विभाजन तथा आत्महत्या का सिद्धान्त।

**Unit - III (इकाई तृतीय)**

Max Weber : Social Action, Sociology of Religion, Bureaucracy and Ideal Type. Pareto : Logical and non-logical action and circulation of Elite.

मैक्स वेबर : सामाजिक क्रिया, धर्म का समाजशास्त्र, नौकरशाही तथा आदर्श प्रारूप। पेरेटो : तार्किक एवं अतार्किक क्रिया तथा अभिजात वर्ग का परिभ्रमण।

## Unit - IV (इकाई चतुर्थ)

Pitrim A. Sorokin : Socio-Cultural Mobility, Personality and Society, Social Group.  
Talcott Parsons : Social action and Social system.

पिटरिम ए सोरोकिन : सामाजिक-सांस्कृतिक गतिशीलता, व्यक्तित्व और समाज, सामाजिक समूह।  
टॉलकट पारसन्स : सामाजिक क्रिया एवं सामाजिक व्यवस्था।

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**B.A. Third Year (बी०ए० तृतीय वर्ष)**  
**Second Paper (द्वितीय प्रश्नपत्र)**  
**Social Research Methods (सामाजिक अनुसंधान पद्धतियाँ)**

**Objectives :**

This Course aims to provide an understanding of scientific methods and techniques used to study social phenomena. It has been tried to make aware regarding problems of objectivity in social research, hypothesis, research design and measures of central tendency etc.

**उद्देश्य :**

इस प्रश्नपत्र का उद्देश्य सामाजिक घटनाओं का अध्ययन करने के लिए उपयोग की जाने वाली वैज्ञानिक विधियों तथा तकनीकियों से सम्बन्धित समझ प्रदान करना है। सामाजिक शोध में निष्पक्षता की समस्याओं, परिकल्पना, अनुसंधान अभिकल्प तथा केन्द्रीय प्रवृत्ति की माप इत्यादि के बारे में जागरूकता प्रदान करने का प्रयास किया गया है।

**Unit - I (इकाई प्रथम)**

Social Research : Meaning, Scope and importance. Types of Research : Basic, Applied and Action Research. Steps of Social Research, Main Scientific Methods of Social Research, Logic in Social Science.

सामाजिक अनुसंधान : अर्थ, विषय क्षेत्र एवं महत्व। अनुसंधान के प्रकार : मौलिक, व्यवहारिक एवं क्रियात्मक अनुसंधान। सामाजिक अनुसंधान के चरण, सामाजिक शोध की प्रमुख वैज्ञानिक पद्धतियाँ, समाज विज्ञान में तर्क।

**Unit - II (इकाई द्वितीय)**

Problems of Objectivity in Social Research. Hypothesis : Meaning, Types, Characteristics and importance. Research Design : Exploratory, Descriptive, Diagnostic and Experimental. Quantitative Method : Social Survey. Qualitative Methods : Observation, Case Study Method and Content analysis.

सामाजिक शोध में वस्तुनिष्ठता की समस्या। उपकल्पना : अर्थ, प्रकार, विशेषताएँ एवं महत्व। अनुसंधान अभिकल्प : अन्वेषणात्मक, वर्णनात्मक, निदानात्मक एवं प्रयोगात्मक। परिमाणात्मक पद्धति : सामाजिक सर्वेक्षण। गुणात्मक पद्धतियाँ : अवलोकन, वैयक्तिक अध्ययन पद्धति एवं अन्तर्वस्तु विश्लेषण।

### Unit - III (इकाई तृतीय)

Sources of Data Collection : Primary and Secondary Sources. Tools and Techniques of Data Collection : Questionnaire, Schedule, interview and sampling techniques, Graphical and diagrammatic presentation of Data.

तथ्य संकलन के स्रोत : प्राथमिक एवं द्वितीयक स्रोत। तथ्य संकलन के उपकरण एवं प्रविधियाँ : प्रश्नावली, अनुसूची, साक्षात्कार एवं निदर्शन प्रविधि। आँकड़ों का बिन्दु रेखीय एवं चित्रमय प्रदर्शन।

### Unit - IV (इकाई चतुर्थ)

Classification and Tabulation of Data. Importance of Statistics in Social Research. Measures of central tendency : Mean, Median and Mode, report writing.

आँकड़ों का वर्गीकरण एवं सारणीयन। सामाजिक शोध में सांख्यिकी का महत्व। केन्द्रीय प्रवृत्ति के माप : माध्य, माध्यिका एवं बहुलक। प्रतिवेदन लेखन।

References :

- Ackoff, R.L. ,1955, The Design of Social Research, University of Chicago Press, U.S.A.
- Goode and Hatt, 1952, Methods in Social Research, McGraw, Hill US.
- Young, P.V., 1975, Scientific Social survey and Research, Prentice Hall of India, Pvt. Ltd., New Delhi.
- मुखर्जी, आर०एन०, 2018, सामाजिक शोध एवं सांख्यिकी, विवेक प्रकाशन, दिल्ली।
- त्रिपाठी, रमाशंकर, 2005, सामाजिक शोध एवं सांख्यिकीय तार्किकता, विजय प्रकाशन मन्दिर, वाराणसी।
- सिंह, एस०डी०, 2009, वैज्ञानिक सामाजिक अनुसंधान एवं सर्वेक्षण के मूलतत्त्व, सपना अशोक प्रकाशन, रामनगर, वाराणसी।
- सिंह, ब्रजेश कुमार एवं सिंह सन्तोष कुमार, 2013, सामाजिक अनुसंधान पद्धतियाँ, साहित्य भवन पब्लिकेशन्स, आगरा।
- पाण्डेय, रवि प्रकाश एवं गौरीशंकर, 2004, सामाजिक अनुसंधान एवं सर्वेक्षण, शेखर प्रकाशन, इलाहाबाद।

**B.A. Third Year (बी०ए० तृतीय वर्ष)**  
**Third Paper (तृतीय प्रश्नपत्र)**  
**Indian Social Thinkers (भारतीय सामाजिक विचारक)**

**Objectives :**

It has been planned to educate the students regarding Indian Social Thought. There are number of esteemed scholars who contributed a lot to establish sociology in India. Major aim of the present course is to give knowledge relating to contributions given by such distinguished Indian Sociologists.

**उद्देश्य :**

इस विषयवस्तु में भारतीय सामाजिक विचारों के बारे में छात्रों को शिक्षित करने की योजना बनाई गयी है। ऐसे अनेक प्रतिष्ठित विद्वान् हैं, जिन्होंने भारत में समाजशास्त्र को स्थापित करने में अपना योगदान दिया है। प्रस्तुत पाठ्यक्रम का उद्देश्य इन्हीं ख्यातिलब्ध भारतीय समाजशास्त्रियों द्वारा दिये गये योगदान से सम्बन्धित ज्ञान प्रदान करना है।

**Unit - I (इकाई प्रथम)**

Indian Renaissance : Raja Ram Mohan Rai : Social Thought, Brahma Samaj. Swami Dayanand Saraswati and Vivekanand : Social thought. Mohan Das Karamchand Gandhi : Non-Violence, Satyagraha and Sarvodaya. Dr. Bhim Rao Ambedkar : Subaltern Perspective.

भारतीय पुनर्जागरण : राजाराम मोहन राय : सामाजिक विचार, ब्रह्म समाज। स्वामी दयानन्द सरस्वती एवं विवेकानन्द : सामाजिक विचार। मोहन दास करमचन्द गांधी : अहिंसा, सत्याग्रह और सर्वोदय। डॉ० भीमराव अम्बेडकर : दलितवादी परिप्रेक्ष्य।

**Unit - II (इकाई द्वितीय)**

G.S. Ghurye : Caste, Rural-Urban Community. Louis Dumont : Homo Hierarchicus. Irawati Karve : Kinship Organization in India.

जी०एस० घुर्ये : जाति, ग्रामीण-नगरीय समुदाय। लुईस ड्यूमा : होमो हाइरार्किकस। इरावती कर्वे : भारत में नातेदारी संगठन।

**Unit - III (इकाई तृतीय)**

M.N. Srinivas : Sanskritization, Secularization, Dominant Caste.  
S.C. Dubey : Indian Village, Tradition, Modernization and Development.  
Sri Arvind : Nationalism & Concept of Superman.  
Mahatma Jyotiba Phule : Social Thought, Savitri Bai Phule: Educational Contribution

एम०एन० श्रीनिवास : संस्कृतीकरण, लौकिकीकरण, प्रभु जाति ।  
एस०सी० दूबे : भारतीय गाँव, परम्परा, आधुनिकीकरण और विकास ।  
श्री अरविन्दो : राष्ट्रवाद और अतिमानव का सिद्धान्त ।  
महात्मा ज्योतिबा फूले: सामाजिक विचार, सावित्री बाई फूले : शैक्षिक अवदान

#### Unit - IV (इकाई चतुर्थी)

Radhakamal Mukharjee : Social Structure of Values, Urban Social Problems.

Andre Beteille : Social Stratification, Peasant Society and Folk Culture.

Yogendra Singh : Modernization of Indian Tradition.

Pt. Deen Dayal Upadhyay: Social Thought.

राधाकमल मुखर्जी : मूल्यों की सामाजिक संरचना, नगरीय सामाजिक समस्याएँ ।

आन्द्रे बेतई : सामाजिक स्तरीकरण, कृषक समाज और लोक संस्कृति ।

योगेन्द्र सिंह : भारतीय परम्पराओं का आधुनिकीकरण ।

पं०दीन दयाल उपाध्याय : सामाजिक चिन्तन ।

#### References :

- Dubey, S.C. 1995, India's Changing Village, London Routledge, 1958
- Dubey, S.C., Indian Village, London Routledge
- Dubey, S.C., Society in India, New Delhi, National Book Trust.
- Dumont, Louis, 1980, Homo Hierarchicus, University of Chicago Press, Chicago.
- Ghurye, G.S., 1945, Culture and Society, Popular Prakashan, Bombay.
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- Karve, Irawati, 1953, Kinship Organization in India,
- Karve, Irawati, 1961, Hindu Society and Interpretation, Deccan College Pune.
- Pandey, Ravi Prakash, 2009, Bhartiya Samajik Vichar, Shekhar Prakashan, Varanasi.
- Singh, Yogendra, 1973, Modernization of Indian Tradition, New Delhi, Thomson Press.
- Srinivas, M.N., 1963, Social Change in Modern India, Berkley University of California University Press, California.
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वाणिज्य

महात्मा गांधी

काशी विद्यापीठ  
वाराणसी

A

# COMMON MINIMUM CURRICULUM

OF

**BACHELOR OF COMMERCE (B.COM.)**

Three-Year Full Time Programme



Prepared by

**DEPARTMENT OF COMMERCE**  
**MAHATMA GANDHI KASHI VIDYAPITH**  
**VARANASI**



## **COURSE STRUCTURE FOR B.COM.**

The students of the B.Com. Course shall be examined in the following subjects in accordance with the syllabi prescribed hereunder:

### **B.Com. Part – I**

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Business Management	100	--	100
2.	Financial Accounting	100	--	100
3.	Business Regulatory Framework	100	--	100
4.	Business Economics	100	--	100
5.	Business Statistics	100	--	100
6. (A)	Introduction to Computer Applications	80	20	100
	OR			
(B)	Business Mathematics	100		100
	OR			
Optional (C)	Business English /General English	100		100
	OR			
(D)	Principles and Practices of Insurance	100		100
	<b>Total Marks</b>			<b>600</b>

## B.Com. Part –II

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Corporate Accounting	100	--	100
2.	Marketing	100	--	100
3.	Cost Accounting	100	--	100
4.	Company Law	100	--	100
5.	Auditing	100	--	100
6. (A)	Business Graphics & Multimedia Management	80	20	100
	OR			
(B)	Business Communication	100		100
	OR			
(C)	Essential of e- Commerce	100		100
	OR			
(D)	Human Resource Management	100		100
	Optional			
	<b>Total Marks</b>			<b>600</b>

## B.Com. Part –III

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Income Tax	100	--	100
2.	Business Finance	100	--	100
3.	Economic Environment	100	--	100
4.	Entrepreneurship & Small Business	100	--	100
5.	Goods & Services Tax (GST)	100	--	100
6. (A)	Information Technology	80	20	100
	OR			
(B)	Money & Financial System	100		100
	OR			
Optional (C)	Advertising & Sales Management	100		100
	OR			
(D)	Industrial Relation	100		100
	Viva-Voce	50	--	50
	Total Marks			650
	<b>Grand Total</b>			<b>1850</b>

# **DETAILED CURRICULUM**

## BACHELOR OF COMMERCE (B.COM.)

### B.Com. Part – I

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Business Management	100	--	100
2.	Financial Accounting	100	--	100
3.	Business Regulatory Framework	100	--	100
4.	Business Economics	100	--	100
5.	Business Statistics	100	--	100
6. (A)	Introduction to Computer Applications	80	20	100
	OR			
(B)	Business Mathematics	100		100
	OR			
(C)	Business English /General English	100		100
	OR			
(D)	Principles and Practices of Insurance	100		100
	Total Marks			600

## B. COM. - I

**Paper- 1****BUSINESS MANAGEMENT**

**Objective:** This course familiarizes the students with the basics and principles of management.

- Unit I** Introduction: Concept, Nature, Process and Significance of Management; Managerial roles (Mintzberg); An overview of functional areas of Management; Development of management thought; Classical and Neo-classical System; Contingency approach. Planning: Concept, Process, Importance and types.
- Unit II** Decision-Making: Concept, Process, Importance; Management by Objectives, Organizing: Concept, Nature, Process and Significance; Authority and Responsibility relationships: Centralization and Decentralization; Departmentation; Organizational Structure- Forms and Contingency factors. Corporate Planning; Environment Analysis and Diagnosis; Strategy Formulation.
- Unit III** Controlling- Importance, Concept and Process, Effective Control System. Techniques of Control; Motivation and Leading people at work: Motivation- Concept, Importance, Theories- Maslow, Herzberg, McGregor and Ouchi, Financial and Non Financial Incentives, Leadership- Concept and Leadership styles, Likert's Four system of Leadership
- Unit IV** Direction: Concept and Techniques, Coordination as an essence of Management, Communication- Nature, Process, Networks and Barriers, Effective Communication. Management of change: Concept, Nature and Process of Planned Change, Resistance to change, Emerging Horizons of Management in a changing environment.

**Suggested Readings:**

1. Gupta, C.B. (2014). *Business Organisation*, Mayur Publication,
2. Singh, B.P., Chhabra, T.N., (2014). *An Introduction to Business Organisation & Management*, Kitab Mahal
3. Agarwal K.K., *Business Organisation and Management*
4. Sherlekar, S.A. and Sherlekar, V.S, (2000). *Modern Business Organization & Management Systems Approach Mumbai*, Himalaya Publishing House,
5. Bhusan Y. K., (1980). *Business Organization*, Sultan Chand & Sons,
6. Jagdish Prakash, (1997) *Business Organistaton and Management*, Kitab Mahal
7. Jolshi, G.L., *Vyavasayik Sanghathan Avam Prabandha*
8. Prasad, Jagdish, *Vyavasayik Sanghathan Avam Prabandha*
9. Shukla, Sudhir, *Vyavasayik Sanghathan Avam Prabandha*
10. Shukla, Sudhir, *Management Concept & Principles*

**Paper- 2****FINANCIAL ACCOUNTING**

**Objective:** This course exposes the students to the basic concepts of accounting knowledge to develop financial accounting as applicable to various business institutions.

- Unit I** Nature and scope of Accounting Generally accepted Accounting Principles: Concepts and conventions, Indian and International Accounting Standards. Accounting Mechanics: Double Entry System, Preparation of Journal, Ledger and Trial Balance, Concept of Income and its Measurement. Preparation of Final Statement.
- Unit II** Royalty Accounts-Definition, Characteristics, Accounting records for Royalty in the books of Landlord and Lessee both, Recoupment of Shortworking in different conditions, sub-lease, Preparation of Short Working Reserve Accounts, Nazarana.  
Hire Purchase Accounts- Definition, Characteristics, Difference between Hire Purchase System and Credit Sale, Accounting records in the books of Hire Purchaser and Vendor, different methods of calculation of interest and cash price, Maintenance suspense accounts, Payment of premium, Default in payment and partial returns of goods. Instalment Payment System- Definition, Characteristics, Difference between Hire Purchase and Instalment Payment System. Accounting records in the book of purchaser & Vendor, Interest suspense accounts.
- Unit III** Departmental Accounts- Meaning, Objectives and importance, allocation of indirect expenses, Preparation of Departmental Trading and Profit and Loss Accounts.  
Branch Accounts- Meaning and Objectives of Branch accounts, Types of Branches.  
Insolvency Accounts- Meaning, Circumstances of Insolvency, Preparation of Statement of Affairs and Deficiency Accounts of Individuals.
- Unit IV** Accounts of Insurance Companies: General Insurance Companies-Types, Statutory and Subsidiary Books, Revenue Accounts, Life Insurance Company-Nature, Difference with General Insurance, Kinds of Insurance Policies, Subsidiary books, Preparation of Revenue Accounts and Valuation of Balance Sheet. Insurance Claims- Determination or settlement of claims, Computation of Loss of Stock by Fire and Claim for Loss of Profit or Consequential Loss.  
Accounts of Banking Companies- Definition, Functions, Books of Bank, Preparation of Financial Statement or Final Accounts, Customer's Accounts.  
Voyage Accounts- Meaning, Important terminologies, Preparation of Voyage Accounts (Complete Journey and Incomplete Journey).

**Suggested Readings:**

1. Jain & Naranag, (2014). *Advanced Accounts* 18th Edition, Jain Book Agency
2. Jaisawal, K.S., (2010) *Financial Accounting*, (Both in Hindi & English Version), Vaibhav Laxmi Prakashan.
3. Gupta, R. L. and Radhaswamy, M., *Financial Accounting*: Sultan Chand and sons.
4. Shukla, M.C. Grewal T.S. and Gupta, S.C., *Advanced Accounts* S. Chand & Co..
5. Shukla, S. M. (2017). *Financial Accounting*, Edition 51st, Sahitya Bhawan Publications,
6. Gupta. R.L and Shukla, M.C. (2011). *Principles of Accountancy*, S.Chand& Company Ltd.
7. Shukla, M.C. (2010). *Advanced Accounting*, Sultan Chand & Sons

## B. COM. - I

*Paper- 3***BUSINESS REGULATORY FRAMEWORK**

**Objective:** The objective of this course is to provide a brief idea about the framework of Indian business laws.

- Unit I** Law of Contract (1872); Nature of Contract, Classifications of contract, Offer and Acceptance, Capacity of parties to Contract, Free Consent: Consideration, Legality of object, Agreement declared Void Performance of Contract, Discharge of Contract, Remedies for Breach of Contract.
- Unit II** Special Contracts, Indemnity, Guarantee, Bailment and Pledge; Sale of Goods Act 1930: Formation of contract of sale, Goods and their classifications, Price; Conditions and Warranties; Transfer of Property in goods; Performance of the Contract of Sales; Unpaid Seller and his rights.
- Unit III** Negotiable Instrument Act, 1881- Definition of Negotiable Instructions; Features; Promissory Notes; Bill of Exchange and Cheque Holder in due course. Crossing of a cheque, Negotiation and Assignment. Dishonor and Discharge of Negotiable Instrument.
- Unit IV** The Consumer Protection Act, 1986 (As amended upto 2002): Meaning and Definition, Salient features, Objectives, Consumer Protection Council, Consumer Dispute Redressal Agencies, Procedure on Admission of Complain, Foreign Exchange Management Act, 2000: Definition, Objectives, Regulation and management of Foreign Exchange.

**Suggested Readings:**

1. Gulshan S.S. and Kapoor G.K., (2014). *Business Law including Company Law*, New Age International Publishers,
2. Singh, B.K. & Tiwari, A., (2015). *Business Regulatory Framework*, SBPD Publishing
3. Singh, Avatar. (2014). *The Principles of Mercantile Law*, Lucknow, Eastern Book Co.
4. Kuchal, M.C., (2012). *Business Law*, Vikas Publishing House
5. Maheshwari, S.N. & Maheshwari, S.K. (2004). *A Manual of Business Law*, 2nd Edition, New Delhi, India: Himalaya Publishing House
6. Kapoor, N.D., (2008) *Elements of mercantile law including company law and industrial law*, Sultan Chand and Sons
7. Gulshan S and Kapoor, (2006). *Business Law*, New Age International (P) Ltd
8. Gupta, O.P, *Business Regulatory Framework*, SBPD Publishing House
9. Sharma R.C. & Vishnoi R.K., *Business Regulatory Framework*, (Hindi & English)



## B. COM. - I

*Paper- 4***BUSINESS ECONOMICS**

**Objective:** This Course is meant to acquaint the students with the principles of Business Economics as are applicable in business.

- Unit I** Introduction: Nature and scope of Business Economics, Utility; Meaning, Kinds, Law of Demand, Law of marginal diminishing utility, Elasticity of Demand; Concept and measurement of elasticity of demand, Price, Income and Cross Elasticity, Determinants of Elasticity of Demand, Importance of elasticity of demand.
- Unit II** Theory of Cost: Short run & Long run Cost Curve-Traditional and Modern approaches. Production function: Law of Variable proportion; Isoquants; Properties, Ridge Line, Optimum factor Combination and Expansion path; Returns to scale; Internal and external economics and diseconomies.
- Unit III** Market Structure- Price- Output decisions under different market conditions- Perfect and Imperfect Competition, Monopoly, Monopolistic competition, Oligopoly, Duopoly, Price discrimination and product differentiation.
- Unit IV** Business Cycle- Various Phases & its Causes; Theory of Distribution: Marginal Productivity Theory and Modern Theory, Wage- Meaning, Determination of wage Rate under perfect competition and Monopoly, Rent concept: Ricardian and Modern Theories of Rent; Interests- Concept and Theories of Interest, Profit – Concept and Theories of profit.

**Suggested Readings:**

1. Gupta G. (2011). *Managerial Economics*, McGraw-Hill Education (India) Pvt Limited
2. Seth, M.L. (2010). *Principles of Economics*, Agra, India: Lakshmi Narain Agrawal Educational Publishers
3. Adhikary M. (2000). *Business Economics*, New Delhi, India: Excel Books.
4. Ahuja H.L. (2001). *Business Economics*, S. Chand & Co.
5. Vaish & Sunderm, *Principles of Economics*, Ratan Prakashan Mandir
6. Jhingan, M.L. (2009). *Principles of Economics -1E*, Vrinda Pub,
7. Jhingan, M.L., *Vyashthi Arthashastra*, Vrinda Pub.
8. Mishra, J.P., *Vyashthi Arthashastra*
9. Kanaodia, S.K., *Vyavsayik Arthashastra*

## Paper- 5

**BUSINESS STATISTICS**

**Objective:** It enables the students to gain undergoing of Statistical techniques as are applicable to business.

- Unit I** Introduction to Statistics: Meaning, Scope, Importance and Limitation, Managerial Application, Statistical Investigation- Planning and organization, Statistical units, Methods of Investigation, Census and Sampling. Collection of Data- Primary and Secondary Data, Editing of Data- Classification of data, Frequency Distribution and Statistical Series, Tabulation of Data- Diagrammatical and Graphical Presentation of Data. Analysis of Data, Interpretation of Data.
- Unit II** Measures of Central Tendency – Mean, Median, Mode, Geometric and Harmonic Mean; Dispersion – Range, Quartile, Percentile, Quartile Deviation, Mean Deviation, Standard Deviation and its Co- efficient, Co-efficient of Variation and Variance, Test of Skewness and Dispersion, Its Importance, Co-efficient of Skewness.
- Unit III** Correlation- Meaning, application, types and degree of correlation, Methods- Scatter Diagram, Karl Pearson’s Coefficient of Correlation, Spearman’s Rank Coefficient of Correlation. Regression Analysis– Meaning, Importance, Simple Regression Equation. Standard error of estimates. Index Number: Meaning, Types and Uses, Methods of constructing Price Index Number, Fixed – Base Method, Chain-Base Method, Base conversion, Base shifting deflating and splicing. Consumer Price Index Number, Fisher’s Ideal Index Number, Reversibility Test- Time and Factor.
- Unit IV** Interpolation and Extrapolation: Meaning, Importance Methods- Binomial, Newton’s Lagrange’s Analysis of Time Series: Meaning, Importance and Components of a Time Series. Decomposition of Time Series: Moving Average Method and Method of Least square. Business Forecasting.

**Suggested Readings:**

1. Freund, J. E., & Perles, B.M. (2006). *Modern Elementary Statistics*, Prentice hall
2. Gupta, K.L., *Business Statistics*, Navyug Publication,
3. Jaisawal K.S. (2010). *Business Statistics* (Both in Hindi & English), Varanasi, India: Vaibhav Laxmi Prakashan.
4. Shukla, S.M. & Sahai, S.P. (2015). *Business Statistics*, Sahitya Bhavan Publication
5. Gupta, S.P. & Gupta, M.P. (2007). *Business Statistics*, Sultan Chand & Sons,
6. Gupta, C.B. (2009). *Introduction of Statistical Methods*, Vikas Publishing House Pvt Lt
7. Gupta, B.N., Sankhyiki
8. Lal, Muking, *Sankhyiki Ke Prarambhik Siddhant*
9. Puri, V.K., *Elements of Business Statistics*
10. Sinha, B.C., *Sankhyiki Ke Tattva*

## B. COM. – I (Optional)

**Paper- 6 (A) INTRODUCTION TO COMPUTER APPLICATIONS**

**Objective:** To develop in students an appreciation of detailed working of computers, different software and Hardware systems available in the industry and it' s ability to the business.

- Unit I** Computer: An Introduction- Computer in Business, Elements of Computer System Set-up; Indian computing Environment, components of a computer system, Generations of computer and computer languages; Software PC- Software packages-An introduction, Disk Operating system and windows: Number systems and codes. Computer Arithmetic's.
- Unit II** Introduction to Spreadsheet software, Creation of spreadsheet Applications; Range, Formulas, Function, Data Base Functions in spreadsheet: Graphics on spreadsheet. Presentation Graphics- Creating as presentation on a PC.
- Unit III** Relevance of Data Base Management Systems and Interpretations of Applications; DBMS system Network, Hierarchical and relational database, application of DBMS systems. Data Base Language, Data base package, Basics of data processing; Data Hierarchy and Data file structure, Data files organizations; Master and Transaction file. Program-development cycle.
- Unit IV** Word processing: Meaning and role of word processing in creating of document, Editing, formatting and printing document using tools such as spelling checks, Thesaurus etc. in Word processors, (MS word) Data Communication Networking- LAN, MAN & WANS. Management of data, processing systems in Business organizations.

**Suggested Readings:**

1. Thareja, Reema. (2014). "*Fundamentals of Computers*", Oxford University Press
2. Shirley, Peter. (2010). "*Fundamentals of Computer Graphics*", CRC Press
3. Goel, Anita. (2010). "*Computer Fundamentals*", Pearson India
4. Sinha, P.K. (2004). "*Computer Fundamentals*", BPB Publications,
5. Laudon & Laudon, "*Management Information System*"
6. Mansfield, Ron, "*Working in Microsoft Office*"
7. Taxali, "*PC Software made easy*"
8. Singh. Amit Kumar, "*Introduction to Computer Applications*"

## B. COM. – I (Optional)

## Paper- 6 (B)

**BUSINESS MATHEMATICS**

**Objective:** The objective of this course is enabling the student to have the required knowledge of Mathematics as is applicable to business and economic situations.

- Unit I** Materials and Determinants: Definition of matrix; Types of materials, Algebra of materials; Properties of Determinants; Calculation of values of Determinants upto third order; Adjoint of materials, Elementary row or column operations; Finding inverse of a matrix through adjoint and elementary row or column operation; Solution of system of linear equations having unique solution and involving not more than three variables.
- Unit II** Compound Interest and Annuities; Different types of interest rates; Concept of Present Value and amount of a sum; Types of Annuities, Present value and amount of an annuity including the case of continuous Compounding; Valuation of simple loans and debentures; problems relating to sinking funds.
- Unit III** Calculus (Problems and Theorems Involving trigonometrical ratios are not to be done). Differentiation: Partial derivatives up to second order; Homogeneity of Functions and Euler's theorem; Total differentials; Differentiation of implicit function with the help of total differentials. Maximum and Minimum: Cases of one variable involving second or higher order derivatives; Cases of two variables involving not more than one constraint. Integration: Integration as anti-derivative process; Standard form; Methods of Integration; Finding areas of Simple cases; consumers and Procedures surplus; Nature; Commodities Learning Curve; Leontiff Input-output Model.
- Unit IV** Linear Programming: Formulation of L.P.P.: Graphical method of solution; Problems relating to two variables including the case of mixed constraints; Cases having no solution, multiple solutions; Unbounded solution and redundant constraints. Simplex Method: Solution of Problems upto three variables, including cases of mixed constraints; Duality; Transportation Problem

**Suggested Readings:**

1. Zamarudeen, Bhambri, Khanna. (2009). "*Business Mathematics*", Vikas Publishers,
2. Mehta & Madnani, (2004). "*Mathematics for Economics*", Sultan Chand and Sons
3. Dikshit & Jain. (2009). "*Business Mathematics*", Himalaya Publishing House
4. Rsgshvachari, M. (2005). "*Mathematics for Management- An Introduction*" TMH
5. Arora, S.R., & Gupta, Kavita. (2015) "*Business Mathematics*", New Delhi, India: Taxman Publications,.
6. Agarwal, G.K., *Vyavasayik Garit*
7. Agrawal, R.S., *Mathematics*

## B. COM. – I (Optional)

*Paper- 6 (C)***BUSINESS ENGLISH/ GENERAL ENGLISH**

**Objective:** The objective of this course is enabling the student to have the required knowledge of English as is applicable to business and economic situations.

**Unit I**      **Commercial Correspondence:** Style and Construction, Significant Commercial terms and Phrases, Letter of Inquiry, Letter of Quotation, Letter of Order, Letter of Execution of Order, Letter of Complaint, Letter of Collection, Circular Letter, Application for Agency.

**Unit II**      **Official Correspondence:** Official Letter, Semi-Official Letter and Memorandum.

**Unit III**      **Journalistic Competitions on Commercial Topics:** Editorial Note on a Commercial Topic, Letter to the Editor on Economic and Commercial Topics, Script Writing for the Media, Journalistic Report Writing, Writing Advertisement Copy, Writing for Internet.

**Unit IV**      **Precise Writing**

**Suggested Readings:**

1. Claudia B. "*Gilbertson, Business English*"
2. Sylvie Donna, "*Teach Business English (Cambridge Handbook for Language)*"
3. Bob Dignen, "*Communicating in Business English*"

## B. COM. – I (Optional)

**Paper- 6 (D) PRINCIPLES AND PRACTICES OF INSURANCE**

**Objective:** This course enables the students to know the principles of Insurance.

- Unit I** Risk: Meaning, Classification, Methods of Handling Risks. Insurance: Meaning, Origin & Development, Functions, Types, Classifications, Principles, Advantages, Principles of Insurance Contract, Re-Insurance, Double-Insurance.
- Unit II** Life Insurance: Meaning, Importance, Essentials of Life Insurance Contract, Procedure of Life Insurance. Life Insurance Policy: Kinds & Conditions, Nomination & Assignment, Surrender Value.
- Unit III** Insurance Agent: Appointment, Qualifications, Functions, Rights, Duties, Liability, Termination of Insurance Agency, Working of an Insurance Agent, License, Remuneration, Code of Conduct. Motor Insurance: Registration of Insurance companies: Process, Renewal & Cancellation.
- Unit IV** Fire Insurance: Meaning, Hazards in Fire Insurance, Scope, importance, Fire Insurance Contract, Conditions of Fire Insurance Policy & Procedure. Marine Insurance: Meaning, Insurable Risk, Scope, Importance, Insurance Contract, Conditions & Types of Policy. General Insurance: meaning, functions, importance, IRDA Act 1999-main provisions.

**Suggested Readings:**

1. Mishra, M. N. & Mishra, S. B.( 2016). *Insurance: Principles and Practice*, 22/e, S. Chand Publishing.
2. Gupta O.S., *Life Insurance*, New Delhi, India: Frank Brothers.
3. Periasamy, P.( 2017). *Principles & Practice of Insuranc*, Himalaya Publishing House Pvt. Ltd.
4. Vinayakam M. Radhaswami and Vasudevam, *Insurance- Principles & Practice*
5. C. Arthur Williams, Jr., Michael L. Smith, Peter C. Young; "*Risk Management and Insurance*"
6. Kothari & Bhall, *Principles & Practice of Insurance*.

## B.Com. Part –II

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Corporate Accounting	100	--	100
2.	Marketing	100	--	100
3.	Cost Accounting	100	--	100
4.	Company Law	100	--	100
5.	Auditing	100	--	100
6. (A)	Business Graphics & Multimedia Management	80	20	100
	OR			
(B)	Business Communication	100		100
	OR			
Optional (C)	Essential of e- Commerce	100		100
	OR			
(D)	Human Resource Management	100		100
	<b>Total Marks</b>			<b>600</b>

## B. COM. – II

*Paper- 1***CORPORATE ACCOUNTING**

**Objective:** This course enables the students to develop awareness about corporate accounting in conformity with the provisions of Companies Act.

- Unit I** Shares: Features, Types of shares, Difference between Preference share and Equity share, Share capital and its types. Issue, Forfeiture and Re-issue of Shares, Redemption of Preference Shares. Debentures: Features & Types, Issue and Redemption of Debentures.
- Unit II** Profits prior to Incorporation- Use of Profit & Loss prior to incorporation, methods of computing Profit & Loss prior to incorporation. Final Accounts- General instruction for preparation of Balance Sheets and Statements of Profit and loss. Valuation of Goodwill: Meaning and nature of Goodwill, needs and methods of valuation of Goodwill. Valuation of shares: Need and methods of valuation of shares.
- Unit III** Accounting for Amalgamation of Companies as per Indian Accounting Standard 14: Meaning characteristics and objectives of Amalgamation, kinds of Amalgamation. Accounting for Internal Reconstruction: Internal and External.
- Unit IV** Consolidated Balance Sheet of Holding Companies with one subsidiary only. Analysis of Financial Statement- Various Techniques and Statement of changes in Financial Position on cash basis and working Capital basis, Familiarity with Indian Accounting Standard -3.

**Suggested Readings:**

1. Gupta R.L. Radhaswamy M., *Company Accounts*, Sultan Chand & Co.
2. Goyal, Goyal, (2013). *Corporate Accounting 3rd Edition* PHI learning pvt. Ltd
3. Maheshwari, S.N., & Maheshwari, S.K., (2009). *Corporate Accounting*, Vikas Publishing
4. Monga J.R., Ahuja, Girish, & Sehgal, Ashok, *Financial Accounting*, Noida, India: Mayur Paper Backs,
5. Shukla, S.M., & Gupta, S.P., (2016) *Advanced Accountancy*, Sahitya Bhawan Publications.
6. Jaiswal K.S., *Corporate Accounting (Both English & Hindi)*
7. Shukla, M.C., Grewal T.S. & Gupta, S.C., (2011). *Advanced Accounts*, S. Chand & Co.
8. Shukla, M.B., *Corporate Accounting*, Kitab Mahal.



## B. COM. – II

## Paper- 2

**MARKETING**

**Objective:** The objective of this course is to help students to understand the concept of marketing and its applications

- Unit I** Introduction: Nature and Scope of marketing; importance of marketing as a business function, and in the economy; Marketing concepts- traditional and modern; Selling Vs. Marketing; Marketing Mix; Marketing Environment. Consumer Behavior And Market Segmentation: Nature, scope and significance of consumer behavior; Market Segmentation- concept and importance; Bases for market segmentation.
- Unit II** Product: Concept of product, Consumer and industrial goods; Product planning and development; Packaging role and functions; Brand name and Trade Mark; After Sales Services; Product Life cycle concept. Price: Importance of price in the marketing mix Factors, affecting price of a product/Service; Discount and rebates.
- Unit III** Distribution Channels and Physical Distribution; Distribution Channels- Concept and Role; Types of distribution channels; Factors affecting choice of a distribution channel; Retailer and whole-seller; physical distribution of goods; e-marketing, Services Marketing.
- Unit IV** Promotion: Methods of promotion; Optimum promotion mix; Advertising media: their relative merits and limitations, Characteristics of an effective advertisement; Personal Selling; Selling as a career; Classification of a successful sales person; Functions of Salesman.

**Suggested Readings:**

1. Kotler, Philip, & Armstrong, Garry, (2018). *Principles of Marketing*, 17th Edition, Pearson India,
2. Shukla, Ajit K., (2016). *Marketing Management*, Varanasi, India: Vaibhav Laxmi Prakashan
3. Shukla, Ajit K., (2016). *Vipanan Prabandh*, Varanasi, India: Vaibhav Laxmi Prakashan.
4. Rajan Saxena, (2005). "Marketing Management", Tata McGraw-Hill Education,
5. Sherlekar.S.A., *Marketing Management*, Himalaya Publishing House, 14<sup>th</sup> edition
6. Varshney R.L. & Gupta S.L., (2005). *Marketing Management*, Sultan Chand & Sons.
7. Chunawalla, S. A., (2006). *Marketing Principles and Practice*, Himalaya Publishing House.
8. Shukla, Ajit Kumar, *Services Marketing*
9. Ramaswami & Namakumari, *Marketing Management*
10. Sontakki, C. M., *Marketing Management*

## B. COM. – II

## Paper- 3

**COST ACCOUNTING**

**Objective:** This course exposes the students to the basic concepts and the tools used in cost accounting.

- Unit I** Nature and Scope of Cost Accounting, Cost Vs. Management Accounting, Elements of Cost and their Classification, Methods and Techniques, Installation of Costing System, Concept of Cost Audit, Accounting for Material: Material Control, Techniques, Pricing of Material issues, Treatment of material losses.
- Unit II** Accounting for Labour: Labour Cost Control, Procedure, Labour turnover, Idle time and overtime. Methods of Wage Payment- Time and Piece Rates, Incentive Schemes. Accounting for overheads: Classification and Departmentalization, Absorption of Overheads, Determination of overhead rates, Under and Over Absorption and its treatment.
- Unit III** Cost Ascertainment: Unit Costing- Elements of cost, Expenses not included in Cost book, Methods to find out Unit cost, Job Costing- Meaning, objective, and Procedure, Batch Costing-Determination of Economic Batch Quantity, Contract Costing- Records, Types of Contracts.
- Unit IV** Operating Costing- Objects, computation of operating costing, Process Costing- Meaning and Definition, features, Objects and Principles. Cost Records: Integral and Non-integral system. Reconciliation of Cost and Financial Accounts- Meaning and Objective, Causes of difference between the Profit of Cost Account and Financial Account.

**Suggested Readings:**

1. Maheshwari, S.N., (2013). *Cost Accounting*, Mahaveer Publishers
2. Arora, M. N., (2013). *Cost Accounting: Principles and Practice*, Vikas Publishing House
3. Jain & Narang, (2012). *Cost Accounting*, Kalyani Publishers
4. Khan & Jain, (2006). *Management Accounting*, Tata McGraw-Hill Education,
5. Shukla M.B., *Cost Accounting*, Kitab Mahal,
6. M.L. Agarwal, (2007). *Cost Accounting*, Sahithya Bhawan Publications
7. Bansal, M.R. & Saxena, V.M., *Lagat Lekhankan*
8. Gupta, R.K. *Lagat Lekhankan*
9. Gupta, L.B. *Lagat Lekha*
10. Shukla, S.M. *Lagat Lekha*
11. Tulasian, P.C. *Practical Costing*
12. Shukla, Sudhir, *Cost Accounting*

## B. COM. – II

## Paper- 4

**COMPANY LAW**

**Objective:** The objective of this course is to provide basic knowledge of the provisions of the Companies Act, 2013 along with relevant cases.

- Unit I**        **Indian Companies Act, 2013:** Corporate Personality; Nature and Types of Companies, Conversion of Public Companies into Private Companies and vice versa. Formation, Promotion and Incorporation of Companies, Memorandum of Association; Articles of Association; Prospectus.
- Unit II**        **Shares-** Types, Share Capital- Kinds; Allotment of shares; Members- Categories, Modes of Acquiring Membership, Rights and Liabilities; Transfer and Transmission- Difference, Procedure; Capital Management- Methods of Borrowing, Debentures, Mortgages and Charges- Fixed and Floating
- Unit III**       **Management:** Directors, Types and Numbers of Director, Managing Director, Whole Time Director- Appointment, Qualifications & Disqualification, Duties, Vacation, Resignation and Removal, DIN- Application, Procedure and Allotment, Company Meetings- Kinds, Quorum, Voting, Resolutions, Minutes
- Unit IV**       Majority Powers & Minority Rights- Protection of Minority Rights; Prevention of Oppression and Mismanagement- Application to Tribunal for Relief, Power of Tribunal; Winding Up- Kinds and Conduct- Petition for Winding Up, Appointment of Official Liquidator and Duties.

**Suggested Readings:**

1. Kapoor, G. K., Dhamija, Sanjay, (2015). *Company Law: A Comprehensive Text Book on Companies Act 2013*, Taxmann Publication.
2. Gulshan S.S. and Kapoor G.K., (2014). *Business Law including Company Law*, New Age International Publishers,
3. Singh, Avtar, (2004). "*Company Law*", Delhi, India: Eastern Book Co., Bharat Law House,
4. Kuchal, M.C., (2004). "*Modern Indian Company Law*", Sri Mahavir Books,
5. Maheshwari, S.N. and S.K. Maheshwari, (2004). *A Manual of Business Law*, 2<sup>nd</sup> Edition, Himalaya Publishing House,
6. Gupta, O.P. (2015). *Kampani Adhiniyam*, Sahitya Bhavan Publication

## B. COM. – II

**AUDITING***Paper- 5*

**Objective:** This course aims at imparting knowledge about the principles and methods of auditing and their applications.

- Unit I** Introduction: Meaning, Objectives and Importance of Auditing, Types of Audit. Limitation of Auditing. Audit Procedure: Audit programme, Audit Note Book, Audit Working Papers, Audit Files, Audit Evidence, Consideration for commencing an Audit, Routine checking and Test checking.
- Unit II** Internal Control: Meaning, Objectives and Auditor's duties, Internal Check System: Meaning, Objectives advantages and disadvantages, Auditors Duties. Internal Check as regards cash receipts, Cash Payments, Wages, Sales and Purchases. Vouching: Meaning, Objectives, and Importance, Vouching of Cash Transactions and Trading Transactions. Verification of Assets and Liabilities: Meaning, Objectives and Verification of various Assets and Liabilities.
- Unit III** Audit of Limited Companies: Appointment, Qualifications, Rights and Powers, Duties and Liabilities of a Company Auditor. Audit Report- Meaning, Importance and Scope, Clean and Qualified Audit Report, Audit Certificate, Audit of Divisible profits and Dividends.
- Unit IV** Special Audit of Banking Companies and Insurance Companies. Special points in the Audit of Educational Institutions, Clubs and Hospitals, Nature and significance of Cost Audit; Tax Audit and Management Audit.

**Suggested Readings:**

1. Kumar, Pradeep, Sachdeva, B & Singh, Jaswant, (2018). *Auditing*, New Delhi, India: Kalyani Publishers
2. Kumar, R., & Sharma, V., (2011). *Auditing Principles and Practice*, PHI Learning Private Limited.
3. Ainapure, V., & Aniapure, M. (2009). *Auditing and Assurance* (Second ed.), PHI Learning Private Limited,
4. Kumar, P. (2006). *Auditing*, Kalyani Publisher,
5. Gupta, Kamal, (2004) *Contemporary Auditing*, Tata McGraw-Hill Education,
6. Mehta, B. K. & Mehta, Anamika. (2008). *Auditing*, Agra, India: Sahitya Bhavan Publication
7. Woolf, Emile, *Auditing Today*
8. Gupta & Bhatnagar, *Ankekshan*
9. Kumar, Raj & Kanodia, Suresh, *Ankekshan*
10. Sharma, T.R., *Ankekshan*

B. COM. – II (Optional)

**Paper- 6(A) BUSINESS GRAPHICS & MULTIMEDIA MANAGEMENT**

**Objective:** The objective of this course is to develop creativity & enhance Practical ability in the student as well as learn the anatomy of a Computer System

- Unit I** Computer System Components: Motherboard, Processor memory (RAM, ROM) Power supply, CD/DVD Drives, Video card, Monitors, Sound card, Speakers, Ports USB, Multiprogramming, Multitasking, On line processing.
- Unit II** Introduction of Multimedia, Components of Multimedia, Multimedia Project development, Hardware's & Software's for multimedia Presentation, Applications of Multimedia (Business, Homes Education & Training)
- Unit III** Microsoft Windows, features, Advantages, Control & Managing Windows (Control Panel) MS PowerPoint, Templates, The different Views of Slides (Normal, Outline, slide, slide sorter, slide show) Setting up presentation with Auto Content Wizard.
- Unit IV** Computer Graphics, various types of Graphics program, Application of Graphics, Computer Aided Design, Computer Aided Manufacturing. Introduction to DTP packages, (PageMaker, Coral Draw, and Photoshop).

**Suggested Readings:**

1. Tay, Vaughan, *Multi-Media: Making it work*, Mc Graw-Hill Education Pvt. Ltd., 8<sup>th</sup> edition.
2. José Neuman de Souza, Nazim Agoulmine, *Multimedia Management*, Kogan Page Science.
3. Voughan, Tay, *Multimedia Making it work*
4. Singh, Amit Kumar, *Computer Graphics & Multimedia Management*

## B. COM. – II (Optional)

## Paper- 6(B)

**BUSINESS COMMUNICATION**

**Objective:** The objective of this course is to develop effective business communication skills among the students.

- Unit I** Introducing Business Communication: Basic forms of Communicating, Communication Models and processes; Principles of Effective Communication; Theories of Communication; Audience Analysis. Self Development and Communication: Development of Positive Personal Attitude; SWOT Analysis; Whole Communication.
- Unit II** Corporate Communication, Formal and Informal Communication, Networks; Grapevine; Barriers in Communication; Improving Communication. Practices in Business Communication: Group discussion; Mock interviews; Seminars; Effective Listening Exercises; Individual and Group Presentations and Report Writing.
- Unit III** Writing skills: planning business messages; Rewriting and editing, The first draft, Reconstructing the final draft; Business letters and memo formats; Appearance request letters, Good news and Bad news letter; Persuasive letters; Sales letters; Collection letters; Office Memorandum. Report writing: Introduction to a Proposal, Short report and Formal report, Report Preparation. Oral Presentation: Principles of Oral Presentations, Factors affecting Presentation, Sales Presentation, Training, Presentation, Conducting Surveys, Speeches to Motivate Effective Presentation Skills.
- Unit IV** Non-verbal aspects of Communication: Body language. Kinesics, Proxemics, Para language, Effective listening, Factors affecting Listening Exercises; Oral, Written and Video Sessions; Interviewing skills: Appearing in Interviews, Conducting Interviews, Writing Resume and Letter of Application. Modern forms of communicating: Fax, E-mail, Video Conferencing etc. International Communication: Cultural Sensitiveness and Cultural Context, Writing and presenting in international situations, Inter-cultural factors in Interactions

**Suggested Readings:**

1. Urmila Rai, S.M. Rai; *Business Communication*, Himalaya Publishing House, (2009).
2. Rao, Nageshwar and P. Rajendra Das. (2006). *Communication Skills*. Mumbai, India: Himalaya Publishing House
3. Chhabra, T.N., (2012) *Business Communication*, Sun India Publication Delhi, 7th edition
4. Ludlow, R. & Panton, F., (1998). *The Essence of Effective Communications*, Prentice Hall of India Pvt. Ltd,
5. Arora, V.N. & Chandra, Lakshmi, *Improve your writing*
6. Kaul, *Business Communications*
7. Murphy & Peek, *Effective Business Communications*
8. Paul, Rajendra & Korlahali, J.S., *Essentials of Business Communication*
9. Ronald, Dule & Fielder, John S., *Principles of Business Communication*
10. Srivastva Anjani, *Business Communication*.

**B. COM. – II (Optional)****Paper- 6(C)****ESSENTIALS OF e - COMMERCE**

**Objective:** The objective of this course is to familiarize the students with the basics of e-Commerce and to comprehend its potential.

- Unit I**      **Internet and Commerce:** Business operations; E-commerce practices Vs traditional business practices; Concepts B2B, B2C, C2C, B2G, G2H, G2C; Benefits of e-commerce to organization, consumers, and society; Limitation of e-commerce; Management issues relating to e-commerce.
- Unit II**      **Application in B2C:** Consumers' shopping procedure on the internet; Impact on dis-intermediation and re-intermediation; Global market; Strategy of traditional department stores; Products in B2C model; Success factors of e-brokers; Broker-based services online; Online travel tourism services; Benefits and impact of e-commerce on travel industry; Real estate market; Online stock trading and its benefits; Online banking and its benefits; Online financial services and their future; E-auctions -benefits, implementation, and impact.
- Unit III**      **Applications in B2B:** Applications of B2B; Key technologies for B2B; Architectural models of B2B; Characteristics of the supplier-oriented marketplace, buyer-oriented marketplace and intermediary-oriented marketplace; Benefits of B2B on procurement re-engineering; Just in Time delivery in B2B; Internet-based EDI from traditional EDI; Integrating EC with back-end information system; Marketing issues in B2B.
- Unit IV**      **Applications in Governance:** EDI in governance; E-government; E-governance-applications of the internet, Concept of government-to-business, business-to-government and citizen-to-government; E-governance models; Private sector interface in e-governance.

**Suggested Readings:**

1. Laudon, Kenneth C. & Guercio Traver, Carol, (2014). *E-commerce. business. Technology society*. 10th edition. Pearson,
2. O, Brien J, Ramesh Behl, Marakas, (2013). *Management Information System*, TMH,
3. P. T. Joseph S. J., (2012). *E-Commerce: An Indian Perspective*, PHI Learning Pvt. Ltd,
4. Nidhi Dhawan, (2012). *Introduction to E-Commerce*, International Book House Pvt Ltd,
5. Pandey, Adesh K., (2010). *Concepts of E-Eommerce*, S.K. Kataria & Sons,
6. Agarwala Kamlesh N. and Agarwala Deeksha, *Bridge to the Online Storefront*, New Delhi: India, Macmillan India.
7. Agarwala Kamlesh N. and Agarwala Deeksha, *Business on the Net-Introduction to the E commerce*; New Delhi, India, Macmillan India.
8. Minoli Daniel, *Internet & Intranet Engineering*, Tata McGraw Hill, New Delhi.

**B. COM. – II (Optional)****Paper- 6(D)****HUMAN RESOURCE MANAGEMENT**

**Objective:** The paper aims to develop in students a proper understanding about Human Resource Management.

**Unit I** Human Resource Management: Concept and function; Role and competencies of HR manager; HR policies; Evolution of HRM; Emerging challenges of Human Resource Management- Workforce Diversity, Empowerment, Downsizing, VRS, Work Life Balance.

**Unit II** Training and Development: Concept and importance; Role specific and competency based training; Training and development methods- Apprenticeship, Understudy, Job Rotation, Vestibule Training, Case Study, Role Playing, Sensitivity Training, In Basket, Management Games, Conferences, Seminars, Coaching and Mentoring, Management Development Programs. Training process, Outsourcing

**Unit III** Performance Appraisal and Compensation Management: Performance Appraisal- Nature, objectives and process of Performance Appraisal; Methods of Performance Appraisal; Employee Counseling, Job changes- Transfers and promotions, Human Resource Audit. Compensation- concept and policies, Individual and Group Incentive Plans; Fringe Benefits; Performance linked compensation; pay band Compensation System; Job evaluation.

**Unit IV** Employees Health and Safety; Employee Welfare; Social Security (excluding legal provisions); Employer- Employees Relation- An overview, Grievance Handling and Redressal; Industrial Disputes- Causes and Settlement Machinery's, Human Resources Information System and e-HRM; Impact of HRM Practices on organizational Performance; Contemporary issues in Human Resource Management

**Suggested Readings:**

1. Chhabra, T.N.,(2014). Human Resource Management: Concepts and Issues, Dhanpat Rai & Co.
2. Ashwathappa, K., (2013). Human Resource Management, Tata McGraw Hill.
3. Rao, V.S.P., (2010) Human Resource Management, 3rd Edition, Excel Books
4. Tripathi, P.C., (2013). Personnel Management & Industrial Relation, Sultan Chand & Sons.
5. Dessler, G., (2011) Human Resource Management, Pearson Publication
6. Flippo, E.D., Principles of Personnel Management, Tata McGraw Hill.
7. Memoria, C.B., Personnel Management, (English & Hindi) Himalaya Publication
8. Verma, Pramod, Sevi Vargiya Prabandha
9. Kulshreshita, Sevi Vargiya Prabandha
10. Singh, D.P.N., Sevi Vargiya Prabandha
11. Youder, Dale, Sevi Vargiya Prabandha Avam Audyogik Sambandh



## B.Com. Part –III

S. No.	Paper Name	External (Yearly Examination)	Practical	Total
1.	Income Tax	100	--	100
2.	Business Finance	100	--	100
3.	Economic Environment	100	--	100
4.	Entrepreneurship & Small Business	100	--	100
5.	Goods & Services Tax (GST)	100	--	100
6. (A)	Information Technology	80	20	100
	<b>OR</b>			
(B)	Money & Financial System	100		100
	<b>OR</b>			
<b>Optional</b> (C)	Advertising & Sales Management	100		100
	<b>OR</b>			
(D)	Industrial Relation	100		100
	Viva-Voce	50	--	50
	<b>Total Marks</b>			<b>650</b>
	<b>Grand Total</b>			<b>1850</b>

## B. COM. – III

*Paper- I***INCOME TAX**

**Objective:** It enables the students to know the basic knowledge of income Tax Law comprises of Income Tax Act, 1961. Income Tax Rules, 1962, Government Notification. Finance Act – Annual. Circular & Clarification of CBDT, Judicial Decision and its implications.

- Unit I** Income Tax: Meaning, Objectives and Importance, Definition of Important Terms as per Income Tax Act, 1961- Income, Gross Total Income, Total Income, Agricultural Income, Assessment Year, Previous Year, Assesses and Person, Residence and Tax Liability, Exempted Incomes, Computation of Taxable Income under Salary head.
- Unit II** Computation of Taxable Income from House Property, Profit and Gains from Business and Profession or Vocation, (with provision of Depreciation) Capital Gains.
- Unit III** Computation of Taxable Income from Other Sources, Aggregation of Incomes and Deemed Incomes. Set-off and Carry Forward of Losses, Deductions from Gross Total Income, Assessment of an Individual.
- Unit IV** Assessment of H.U.F. and Firm, Assessment procedures: Filing of Return, Types of Assessment, Tax Administration: Authorities, Appeals & Penalties, Tax deduction at source, Advance payment of tax, Tax Management, Tax planning, Tax Evasion and Tax Avoidance.

**Suggested Readings:**

1. Ahuja, Giri & Gupta, Ravi, (2015). *Systematic Approach to Incomes Tax*, Bharat Law House Pvt. Ltd.,
2. Agrawal, B.K.(2018) *Income Tax law and practice*
3. Agrawal, B.K. (2018) *Ayakar Vidhan Avam lekhe*
4. Singhanian & Singhanian, (2018). *Direct Taxes- Law and Practice*, Taxmann Publication,
5. Shukla S.K. and Shukla, (2018) *Ayakar Vidhan Avam lekhe.* :
6. Jain, Gaur & Narang, *Ayakar*
7. Mehrotra, H.C., (2018) *Income Tax Law and Practice*
9. Mehrotra, H.C.,(2018) *Ayakar Vidhan Avam Lekhe (kar Niyojan Sahit)*
8. Singhanian, V.K., *Direct Taxes- Law and Practice*
9. Jaiswal K.S. and Agrawal Raj.K., *Income Tax law & Accounts*.

## B. COM. – III

*Paper- 2***BUSINESS FINANCE**

**Objective:** The objective of this course is to help students understand the conceptual framework of business finance.

- Unit I** Business Finance- Nature and Scope, Financial Management –Nature and Scope, Financial goals; Profit Vs. Wealth Maximization; Finance function- Investment, Financing and Dividend Decisions, Capital Budgeting: Meaning, Nature, Importance, Investment Decisions and its major Evaluation criteria.
- Unit II** Cost of Capital- Meaning importance, Calculation of Cost of Debt, Preference Shares, Equity Shares and Retained Earnings, Combined (weighted) Cost of Capital. Capitalization- Meaning, Over Capitalization, Theory of Capitalization. Capital Structure- Meaning determinants and Theories.
- Unit III** Dividend Policies: Issues in Dividend policies; Dividend models. Sources of Funds: Long Term Funds, Short- term funds. Nature, significance and determinants of Working Capital.
- Unit IV** Capital Market- (a) New Issue Market (b) Secondary market, Functions and role of Stock Exchange (BSE, NSE), Important Provisions of SEBI (Listing procedure and legal requirements, pricing and marketing of Public Issue). Money Market: Indian money markets- Composition and Structure, Acceptance and Discount houses and Call money market.

**Suggested Readings:**

1. Avadhani, V.A., *Financial System*
2. Bhalla, V.K., *Modern Working Capital Management*
3. Brigham, E.F. Gapenski, L.C., *Financial Management- Theory and Practice*
4. Chandra, Prasanna, *Financial Management Theory and Practice*
5. Khan, M.Y. & Jain, P. K., *Financial Management Text and Problems*
6. McLaney, E.J., *Financial Services. Business Finance Theory and Practice*
7. Pandey, I.M., *Financial Management*
8. Van Horne, J.C., *Financial Management and Policy*

**Paper- 3****ECONOMIC ENVIRONMENT**

**Objective:** This Course develops ability to understand and scan business environment and analyze opportunities under economic environment.

**Unit I** Indian Economic Environment: Concept, Components and Importance, Economic Trends (overview): Income, Savings and Investments, Industry; Trade and Balance of Payments, Money, Finance, Prices.

**Unit II** Problems of Growth: Unemployment; Poverty, Regional Imbalances, Social Injustice; Inflation; Parallel economy; Industrial sickness. The Five Years plan: Major policies; Resources allocation, NITI Aayog.

**Unit III** Role of Government: Monetary and Fiscal Policy; Industrial policy; Industrial licensing. Privatization; Devaluation; Export- Import Policy; Regulation of Foreign Investment; Collaboration in the light of Recent Changes.

**Unit IV** International Environment: International Trading Environment (overview); Trends in the World Trade and The problems of Developing Countries; Foreign Trade and Economic Growth; International Economic Groupings; International Economic Institutions. GATT, WTO, UNCTAD World Bank, IMF, GSP, GSTP; Counter Trade.

**Suggested Readings:**

1. Ashwathappa, K., (2014) *Essential of Business Environment Text, Cases & Exercises*, Himalaya Publishing House Pvt. Ltd,
2. Shukla, M.B., (2011). *Business Environment*, Taxmann's Publication
3. Gupta, C.B., (2014). *Business Environment*, Sultan Chand & Sons,
4. Dutta & Sundaram, (2013). *Indian Economy*, S. Chand.
5. Mishra, S.K. and Puri, V.K., *Indian Economy*
6. Sinha, V. C. (2016). *Aarthik Paryavaran*, Sahitya Bhavan Publication

**ENTREPRENEURSHIP AND SMALL BUSINESS**

**Objective:** It provides exposure to the students to the entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.

- Unit I** Entrepreneurship: Concept, Characteristics, Need and functions, Risk: Meaning Types and methods of handling risk. Entrepreneur: Characteristics, Qualities, Functions, Types, Emergence of Entrepreneurial class. Difference between Entrepreneurship & Entrepreneur. Difference between Entrepreneur & Manager. Theories of Entrepreneurship, Entrepreneurship & Environment.
- Unit II** EDP – Meaning Need, Objective, steps, outline, achievements and Entrepreneurship training programme, Institutions Established by the Government, Government Assistance and incentives. Women Entrepreneurship: Meanings, Characteristics, Qualities, Problems, Steps taken to help women entrepreneur.
- Unit III** Promotion of a venture: Concepts of Projects, Project Identification, Formulation and Report, Project Appraisal. Product Selection and Techniques. Raising of funds: Concept, Need, Types and Sources.
- Unit IV** Small Business: Process of establishing Small Business, Nature, Objectives and Importance of Small Business. Role of Financial Institutions in financing of small business, Infrastructural facilities. Latest Government policy with regard to small business. Legal requirements for establishment of new unit. Entrepreneurial Consultancy process and methods, Monitoring techniques.

**Suggested Readings:**

1. Vasant Desai, (2008). *Entrepreneurship Development and Business Communication*, Himalaya Publishing House Pvt. Ltd.
2. Shukla, M.B., (2016). *Entrepreneurship & Small Business*, Allahabad, India: Kitab Mahal
3. Lal, A, (2012). *Entrepreneurship Development and Management*, Vayu Education of India
4. Natarajan, Gordon, *Entrepreneurship Development*, 4th edition, Himalaya Publishing House Pvt. Ltd.
5. Gupta, S. L., Arun Mittal (2012). *Entrepreneurship Development*, International Book House,
6. Pareek, Udai & Venkateswara, Rao.T, *Developing Entrepreneurship book on Learning System*
7. Scholl Hammer & Kuril off, *Entrepreneurship Change and small Business Management*
8. R. C. Agrawal, *UdyamitaVikas*.(Hindi)

## B. COM. – III

## Paper- 5

**GOODS & SERVICES TAX (GST)**

**Objective:** To provide students with a working knowledge of principles and provisions of GST to understand the relevance of GST in the present Indian Tax Scenario and its contribution for economic development.

- Unit I**      **Indirect Tax:** Meaning, Features, difference between direct & Indirect Tax Types of indirect tax before GST, Shortcoming of Indirect Tax system during pre GST Era. **GST:** Meaning, advantages, disadvantages, Evolution of GST, Structure of GST: CGST/IGST/SGST/UTGST, Important definition under GST Act. **Machinery under GST:** GST council, GST network, GST Authority. **Concept of Supply:** Meaning, Features, Types: Inter -state, intra- state, mixed composite, exempt supply.
- Unit II**      **Time of supply (TOS):** Meaning, TOS of Goods & Services, TOS under Reverse Charge Mechanism, Invoicing provisions, provisions related with changes in GST rate. **Place of Supply (POS):** Meaning, POS of goods & service, intra state & Inter State supply. **Value of Supply:** Meaning, provisions related with determination of value of supply of goods & services, determination of GST liability.
- Unit III**      **Input Tax credit (ITC):** Meaning, manner of utilization of ITC, Block credit, supply not eligible for ITC, Matching, reversal & Reclaim of ITC. **Payment under GST:** Manner of Payment of GST liability, concept of Electronic Cash, credit & liability ledger, refund of excess GST. **Return:** Meaning, purpose & Importance, different type of return, due date of filing return. **Assessment under GST:** Meaning, types-self assessment, provisional assessment, summary assessment, best judgment assessment.
- Unit IV**      **Registration:** Meaning, optional registration, compulsory registration, procedure for new registration, amendment & cancellation of registration. **Composition Scheme:** condition & restriction for composition scheme. **Accounts & Records:** manner of maintenance of accounts, period of retention of relevant records, **Invoice:** format, types- debit & credit note, vouchers. **Audit:** meaning, types-mandatory, departmental & special audit. Penalty under GST, E-way bill.

**Suggested Readings:**

1. Mehrotra, H.C.& Agarwal, V.P., (2018). *Goods & Services Tax*, Agra, India: Sahitya Bhawan Publication (English & Hindi Both)
2. Agrawal, Raj. K; *Advanced Handbook on GST. Background Material on Model GST Law*, SahityaBhawan Publications.
3. Bansal, K. M; *GST a Customer's Law*, Taxmann Publication (P)Ltd, University Edition.
4. Chaudhary, Vashishtha; Dalmia, Ashu; Girdharwal, *GST- A Practical Approach*, Taxman Publication
5. Datey V.S., *GST Ready Reckoner*, Taxman Publication, New Delhi.
6. Jha R. K. & Singh, P. K. *A Bird's Eye view of GST*, Asia Law House
7. Singhania, V.K ; *Students Guide to GST & Customers Law*, Taxmann Publication (P) Ltd, University Edition.

## B. COM. – III (Optional)

Paper- 6(A)

**INFORMATION TECHNOLOGY**

**Objective:** To introduce the concept of electronic market space and electronic commerce among the potential information technology leaders.

- Unit I** Meaning and Concept of Information Technology on Line Information Services, Communications Channels; Communications Networks, Concept and Evolution of Internet, Intranet, Business Applications of internet.
- Unit II** Client/ server computing Electronic Data interchange Electronic Payment Systems, Types of E –Payment systems, E – cash, Credit Cards, Debit Cards, Components of effective Electronic payment systems.
- Unit III** Meaning and concept of E-commerce, channels of E commerce, Business Applications of Ecommerce, e-commerce Models, B2B, B2C, B2G, Online Marketing and Advertisement, E commerce recourses and infrastructure
- Unit IV** Role of Websites in E –commerce, Website design principles, Security risk of E-commerce, Types of threats ,Source of Threats-commerce Security and a rational Security Policy of E-commerce, IT –ACT-2000.

**Suggested Readings:**

1. Brinda, S., Someshwar Rao K. & Srinivas V., (2007). *Fundamentals of Information Technology*, Kalyani Publishers,
2. Rayudu, C. S. & Chaitanya C.S., (2004). *Information Technology and Applications*, Kalyani Publishers, First Edition,
3. Madan, Sushila, (2007) *Information Technology*, Taxmann's, Fourth Edition, Nov.
4. Srivastava Chetan, (2004) *Principles of Information Technology*, Kalyani Publishers,
5. Laquey, Tracy, *The Internet Companion: A Beginner's Guide to Global Networking*
6. Oberoi, Sandeep, *E-Security and You*
7. Rich Jason, R., *Starting an E-Commerce Business*
8. Singh Amit K, *Information Technology*

Paper- 6(B)

**MONEY AND FINANCIAL SYSTEM**

**Objective:** The course exposes the students to the working of money and financial system prevailing in India.

- Unit I** Money: Functions, Alternative measures to money supply in India and their different Components, Meaning and changing relative importance of each component, High Powered Money- Meaning and Uses, Sources of changes in high-powered money. Finance: Role of Finance in an economy, Kinds of Finance. Financial system: Components, Financial Intermediaries, Markets and Instruments.
- Unit II** Indian Banking System: Definition of Bank, Commercial Banks, Importance and Functions, Structure of Commercial Banking System in India. Balance Sheet of a Bank: Meaning and Importance of main Liabilities and Assets. Regional Rural Banks, Cooperative Banking in India. Process of Credit Creation by banks; Determination of money supply and total bank credit.
- Unit III** Development Banks and other Non –Banking Financial Institution: Main features. Problems and policies for Allocation of Institutional Credit, Problems between the government and the Commercial Sector, Inter-Sectoral and Inter- Regional Problems, Problem between large and small borrowers, Operation of Conflicting pressure before and after bank nationalization in 1969.
- Unit IV** The Reserve Bank of India: Functions, Instruments of Monetary and Credit Control; Main Features of Monetary Policy Since Independence. Interest Rates: Various rates in India( as Bond Rate, Bill Rate, Deposit Rate, etc.); Administered rates and Market-determined rates; Sources of difference in rates of interest; Behaviour of average level of interest rates since 1951- Impact of Inflation and Inflationary expectations

**Suggested Readings:**

1. Saha, S. K., (2015) *Indian Banking System*, SBPD Publication,
2. Deshmukh, N. D., (2014) *Indian Banking System*, Chanralok Prakashan,
3. Amandeep Verma, (2014) *Indian Monetary System and Banking Reforms*, Unistar Books,
4. Chanduler, L.V. & Goldfield, S.M. *The Economics of Money and Banking*
5. Gupta, S.B., *Monetary Planning of India*
6. Khan, M.Y., *Indian Financial Systems Theory & practice*
7. Khubchandani: *Practice and Law of Banking*
8. Pnachmakhi, V.R. Rajpuria, K.M. R & Tandon . *Money and Finance in World Economic Order*
9. Sengupta, A.K. & Agarwal, N.K. *Money Market Operations in India*



*Paper- 6(C)***ADVERTISING AND SALES MANAGEMENT**

**Objective:** The Objective of this course is to provide basic knowledge of Concept principals, tools and techniques of advertising and sales management in marketing.

- Unit I** Concept, Objective and Functions of Sales Management. Importance and Limitations of Sales Management., Nature, scope and importance of Salesmanship. Classification of Salesmanship. Selling Process, Theories of Selling.
- Unit II** Nature of Sales Management position. Function and qualities of Sales executives. Sale Organization – Purpose and types of sales organization. Steps involved in setting up sales organization. Factors determining the size of sales organization.
- Unit III** Sales Force Management: Concept and functions of Salesman. Kinds of Salesman. Essential qualities of a successful salesman. Recruitment and selection of salesman. Salesman's Training objectives and methods of salesman Training.
- Unit IV** Advertising: Concept, Objectives and Classification. Advertising Media – important media and their merits and demerits. Advertising Budget: Factors determining size of Advertising budget, Methods of determining Advertising Budget. Creation of advertisement- concept, feature and classification of advertising copy and layout. Role of advertising Agency.

**Suggested Readings:**

1. Chunawalla, S. A., (2012). *Advertising, Sales & Promotion Management*. 3rd revised edition, Himalya Publication,
2. Sontakki, C.N., (2012). *Advertising*, Kalyani Publishers
3. Shukla, Ajit K.,(2016) *Marketing Management*, Varanasi, India: Vaibhav Laxmi Prakashan.
4. George E. B. & Michael A. B. (2004). *Advertising and Promotion- An integrated marketing communications perspective*, T.M.H.
5. Jobber Devid & Lancaster Geoff, *Selling and Sales Management*
6. Ghosh, P. K., (2010). *Sales Management – Text and Cases*, Himalaya Publishing House
7. Chunawalla, S.A., *Sales Management 7<sup>th</sup> Edition*, Himalaya Publishing House Pvt. Ltd
8. Thomas, Raymond, Charles, Michael, (2008). *Sales Management: Analysis and Decision Making*, 7<sup>th</sup> Edition, Routledge,

**B. COM. – III (Optional)****Paper- 6(D)****INDUSTRIAL RELATIONS**

**Objective:** The course intends to educate and create awareness among the participants about various aspects to industrial relation and thus equip them to handle this delicate subject with maturity, objectivity to establish good IR in the industry.

**Unit I** Overview of industrial relation: Concept of Industrial Relations; Nature of Industrial Relation, Objective of Revolution of IR in India; Role of State, Trade Union, Employer's Organization; ILO in IR.

**Unit II** Trade Union: Origin and Growth, Objective, functions and Role of Trade Unions, Unions after independence, Union in the era of liberalization, problems of trade union trade union act, 1926, Collective Bargaining.

**Unit III** Technological Change in IR-Employment Issues, Management Strategy, Trade Union Response, Human Resource Management and IR- Management Approaches, Integrative Approaches to HRM; International Dimension of IR

**Unit IV** Industrial Disputes Act 1948- Settlement Mechanisms, Factories Act 1948- Features, Health, Welfare & Safety; Payment of Wages Act 1936- features; Minimum Wages Act 1948- Provisions, Wage determination.

**Suggested Readings:**

1. Mamoria C.B., Mamoria Ganker, *Dynamic of Industrial Relation*
2. Singh B.D., *Industrial Relation and Labour Laws* (Excel 1st Ed )
3. Tripathi, P.C., (2013). *Personnel Management & Industrial Relation*, Sultan Chand & Sons.
4. Mamoria, C. B., Mamoria, S, & Gankar, S. V. *Dynamics of Industrial Relations*, Himalaya Publishing House
5. Venkataratnam, C. S. *Industrial Relations*, Oxford Publications
6. Kogent, *Industrial Relations and Labour Laws* (Wiley Dreamtech)
7. Srivastava, S.C., *Industrial Relation and Labour* 4th Ed, Vikas Publishing

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शारीरिक शिक्षा महात्मा गांधी कशी विद्यापीठ  
वाराणसी

**MAHATMA GANDHI KASHI VIDYAPITH  
VARANASI**



## Syllabus

**BACHELOR OF ARTS/SCIENCE  
PHYSICAL EDUCATION  
(COMMON MINIMUM CURRICULUM-UG LEVEL)  
DEPARTMENT OF PHYSICAL EDUCATION & YOGA  
MAHATMA GANDHI KASHI VIDYAPITH  
VARANASI**

### B.A/ B.Sc-1<sup>st</sup> Year

		Paper No.	Name of Paper	Marks
Part-A	Theory	1	FOUNDATION OF PHYSICAL EDUCATION	80
		2	SCIENTIFIC BASIS OF PHYSICAL EDUCATION	80
Part-B	Practical *			40
Total				200

\* Out of 20 different sports list attached the university/ college has to choose only five sports depending on administrative feasibilities and the practical examination will be taken out of only 5 sports.

### B.A/ B.Sc -2<sup>nd</sup> Year

		Paper No.	Name of Paper	Marks
Part-A	Theory	1	OFFICIATING & COACHING	80
		2	CONCEPT OF HEALTH AND SPORTS REHABILITATION	80
Part-B	Practical*			40
Total				200

Out of 5 selected sports in BA/B.Sc-Ist Year any two sports

### B.A/ B.Sc -3<sup>rd</sup> Year

		Paper No.	Name of Paper	Marks
Part-A	Theory	1	SPORTS TRAINING	80
		2	SPORTS MANAGEMENT	80
		3	SPORTS PSYCHOLOGY	80
Part-B	Practical*			40
Part-C	Tour/Camp/ Project Work			20
Total				300

\* Out of two selected sports in BA/ B.Sc -IInd Year any one sports

Year	B A-1 <sup>st</sup> Year	B A-2 <sup>nd</sup> Year	B A-3 <sup>rd</sup> Year
Total Marks	200	200	300
<b>Grand Total of Three years= 700</b>			

**MAHATMA GANDHI KASHI VIDYAPEETH, VARAN ASI  
(PHYSICAL EDUCATION SYLLABUS)  
B.A./ B.Sc PART-1**

Theory

**Paper-1: FOUNDATION OF PHYSICAL EDUCATION**

- UNIT-I** Meaning and definition of Physical Education Aims and objectives of Physical Education Need and Importance of Physical Education Relationship of Physical Education with Education
- UNIT-II** Ancient History of Physical Education  
Medieval History of Physical Education in India  
Physical Education after independence in India (after 1947)
- UNIT- III** Scope of sociology in Physical Education  
Socialization through Sports at Home, Institution and Community  
Characteristics at different stages of growth & development
- UNIT- IV** Philosophies of Physical Education (Idealism, Naturalism & Pragmatism)  
Olympic Movements, Sports Association, schemes & awards

**Paper- 2: SCIENTIFIC BASIS OF PHYSICAL EDUCATION**

- UNIT-I** Anatomy -  
Cell  
Tissue  
Organs and its structures
- UNIT-II** Physiology- Different body Systems and its functions
- UNIT- III** Application of Mechanical concept - Force, Motion, (Newton's laws of motion) levers, equilibrium.
- UNIT- IV** Food & Nutrition-  
Balanced diet  
Elements of Diet  
Component of Diet  
Role of diet on performance

**References:**

- Bunn. John. W. **Scientific Principles of Coaching** , Englewood Cliffs, N.J. Printice Hall Inc. 1972 Khan. Eraj Ahmed. **History of Physical Education** , Patna: Scientific Book Co.
- Majumdar D.C **Encyclopedia of India Physical Culture**, Baroda Good

Companions, 1952. Mathew, D.K. and Fox Ed.L. **Physiological Basis of Physical**

**Education and Athletics**, Philadelphia: W.G. Saunders Company  
1976.

Singh Ajmer, et.al. **Modern Text Book of Physical Education Health & Sports**, Kalyani  
Publisher

MAHATMA GANDHI KASHI VIDYAPEETH, VARANASI (PHYSICAL  
EDUCATION SYLLABUS) B.A/ B.Sc. PART-II

Theory

Paper-1: OFFICIATING & COACHING

- UNIT-I** Meaning of Officiating & Coaching  
Definition of Officiating & Coaching  
Principles of Officiating & Coaching
- UNIT-II** Qualities of Coach  
Responsibilities of Coach  
Qualification  
Coaching of Individual and Dual Sports
- UNIT- III** Principles of Officiating Interpretation  
Duties  
Officials  
Signals  
Positional play
- UNIT- IV** Rules of Games & Sports.  
Types of tournaments- Elimination, League, Combination ,Consolation ,  
challenge

Paper- 2: CONCEPT OF HEALTH AND SPORTS REHABILITATION

- UNIT-I** Concept of Health Education, Meaning, Definition, Principal Health  
Education, Need and importance Health Education.
- UNIT-II** Communicable diseases, T.B, Chicken Pox, Malaria, AIDS ,  
Hepatitis, Non communicable diseases, Heart disease, Cancer , Diabetes
- UNIT- III** Therapeutic Modalities, Cold therapy ,Wax bath, Hot therapy, Contrast  
bath, Therapeutic Exercises, Active exercises & passive exercises
- UNIT- IV** Posture and concepts Common Sports injuries and its prevention, First Aid

References:

Kamlesh and Sangral, Method in Physical Education , Vinod Publication  
Ludhiana, 20014 Park, J.E. and Park, K. Preventive and Social Medicine: Jabalpu  
Walia J.S. Principles and Methods of Education , Paul Publisher, Jalandhar 1999

**MAHATMA GANDHI KASHI VIDYAPEETH, VARANASI**  
**(PHYSICAL EDUCATION SYLLABUS)**  
**B.A./B.Sc PART-III**

**Paper-1: SPORTS TRAINING**

- UNIT-I** Meaning & Definition of Sports Training , Aims of Sports training,  
Principles of sports training.  
Characteristics of sports training
- UNIT-II** Definition of Training Load  
Type of training load, Recovery & Adaptation,  
Overload & Judgment of training load
- UNIT- III** Physical Fitness components and its training programme  
Speed, Strength , Endurance, Flexibility, Coordination  
abilities
- UNIT- IV** Planning  
Periodization  
Talent identification

**Paper- 2: SPORTS MANAGEMENT**

- UNIT-I** Meaning & definition of Administration and management Phases  
management Planning, organization and supervision Staffing & budgeting
- UNIT-II** Sports Organizational structure of School, college, universities  
Districts, state and national bodies
- UNIT- III** Facilities & Equipment, Care and maintenance of outdoor facilities,  
Care and maintenance of outdoor facilities :
- UNIT- IV** Recent advancement in Physical Education  
Computer & Internet, Adapted physical education, Fitness,  
yoga and recreation/camping.

**Paper- 3: SPORTS PSYCHOLOGY**

- UNIT-I** Definition and meaning of sports psychology Need and  
importance of sports psychology Motor learning.
- UNIT-II** Motivation (Meaning, Definition, types, need and importance)
- UNIT-III** Personalities (meaning, definition, type, need and importance)



**UNIT-IV** Emotion and its role in sports Type of emotion Anxiety and aggression  
Psychological aspects of competition Preparation for competition and  
Causes of disturbance before competition

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LIST OF GAMES/ SPORTS

1. ATHLETICS
2. ARCHERY
3. BADMINTION
4. BASKETBALL
5. CRICKET
6. FOOTBALL
7. GYMNASTIC
8. HANDBALL
9. HOCKEY
10. JUDO
11. KABADDI
12. KHO-KHO
13. LAWN TENNIS
14. SWIMMING
15. TAEKWONDO
16. TABLE TENNIS
17. VOLLEY BALL
18. WRESTLING
19. WEIGHT LIFTING
20. YOGA