

Scheme & Examination of Compulsory Hindi (B.A. I--VI Sem.)

B.A. I Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper I	हिंदी अनिवार्य	100	80	20

B.A. II Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper II	हिंदी अनिवार्य	100	80	20

B.A. III Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper III	हिंदी अनिवार्य	100	80	20

B.A. IV Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper IV	हिंदी अनिवार्य	100	80	20

B.A. V Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper V	हिंदी अनिवार्य	100	80	20

B.A. VI Sem

Paper No.	Name of Paper	Max. Marks	Written	Internal
Paper VI	हिंदी अनिवार्य	100	80	20

Head
Dept. of Hindi

संयुक्त पाठ्यक्रम
(महर्षि दयानन्द विश्वविद्यालय और कुरुक्षेत्र विश्वविद्यालय के लिए)

जुलाई २०१३
बी०ए० : प्रथम सेमेस्टर
हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००
लिखित परीक्षा : ८० अंक
आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- निर्धारित पाठ्यपुस्तक मध्यकालीन काव्य-कुंज : सं० डॉ० रामसजन पाण्डेय
प्रकाशक : खाटू श्याम प्रकाशन, १२७६/५, पीर जी मोहल्ला, प्रताप टाकीज़, रोहतक।
मोबाइल न० 09991708080
- हिंदी साहित्य का आदिकाल
- काव्यशास्त्र
- वस्तुनिष्ठ प्रश्न

खण्ड--क : मध्यकालीन काव्य-कुंज

निर्धारित आलोचनात्मक प्रश्न

पाठ्यक्रम में निर्धारित कवियों पर उनके साहित्यिक परिचय, अनुभूतिगत वैशिष्ट्य तथा अभिव्यक्तिगत सौष्ठव पर ही प्रश्न पूछे जायेंगे। कवियों की विशिष्ट रचनात्मक प्रवृत्ति पर प्रश्न नहीं पूछे जायेंगे।

खण्ड--ख : हिन्दी साहित्य का आदिकाल

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ हिन्दी साहित्येतिहास लेखन की परम्परा
- २ आदिकाल का नामकरण
- ३ आदिकाल की परिस्थितियाँ
- ४ आदिकालीन साहित्य की सामान्य प्रवृत्तियाँ
- ५ रासोकाव्य परम्परा : संक्षिप्त परिचय

खण्ड--ग : काव्यशास्त्र पर आधारित विषय

- १ काव्य के तत्व
- २ रस : स्वरूप और अंग
- ३ रस के भेद

- ४ अलंकार—अनुप्रास, श्लेष, यमक, उपमा, रूपक, उत्प्रेक्षा, अतिशयोक्ति,
मानवीकरण, अन्योक्ति, समासोक्ति
छंद—दोहा, चौपाई, सोरठा, बरवै, कुण्डलियाँ, छप्पय, कवित्त, घनाक्षरी
शब्दशक्तियाँ : अभिधा, लक्षणा, व्यंजना
काव्य—गुण : प्रसाद, माधुर्य और ओज

खण्ड--घ : वस्तुनिष्ठ प्रश्न

निर्देश--

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न ५ अंक का तथा पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा ।

संयुक्त पाठ्यक्रम
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जनवरी २०१४

बी०ए० : द्वितीय सेमेस्टर

हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००

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आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- ध्रुवस्वामिनी (नाटक) : जयशंकर प्रसाद
- हिन्दी साहित्य का भक्तिकाल
- व्यावहारिक हिन्दी
- वस्तुनिष्ठ प्रश्न

खण्ड--क : ध्रुवस्वामिनी

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ 'ध्रुवस्वामिनी' नाटक का प्रतिपाद्य
- २ 'ध्रुवस्वामिनी' नाटक की पात्र-योजना
- ३ 'ध्रुवस्वामिनी' नाटक की अभिनेयता
- ४ प्रसाद की नाट्यकला

खण्ड--ख : हिन्दी साहित्य का भक्तिकाल

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ भक्तिकाल की परिस्थितियाँ
- २ संत काव्य की प्रवृत्तियाँ
- ३ सूफी काव्य की प्रवृत्तियाँ
- ४ राम काव्य की प्रवृत्तियाँ
- ५ कृष्ण काव्य की प्रवृत्तियाँ
- ६ भक्तिकाल : स्वर्णयुग

खण्ड--ग : व्यावहारिक हिन्दी

पाठ्यक्रम में निर्धारित विषय

- १ भाषा की परिभाषा
- २ भाषा के विविध रूप : बोली, मानक भाषा, राजभाषा, राष्ट्रभाषा, माध्यमभाषा, मातृभाषा
- ३ मानक-भाषा की प्रमुख प्रवृत्तियाँ
- ४ हिन्दी वर्णमाला : स्वर एवं व्यंजन
- ५ हिन्दी वर्तनी : समस्या और समाधान
- ६ मुहावरे एवं लोकोक्तियाँ

खण्ड--घ : वस्तुनिष्ठ प्रश्न

निर्देश-

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघुत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न के लिए ५ अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा ।

संयुक्त पाठ्यक्रम
(महर्षि दयानन्द विश्वविद्यालय और कुरुक्षेत्रविश्वविद्यालय के लिए)

जुलाई २०१३
बी०ए० : तृतीय सेमेस्टर
हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००
लिखित परीक्षा : ८० अंक
आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- आधुनिक हिंदी कविता,
प्रधान सं० डॉ० सरिता वशिष्ठ, कुरुक्षेत्रविश्वविद्यालय प्रकाशन, कुरुक्षेत्र
- हिंदी साहित्य का रीतिकाल
- प्रयोजनमूलक हिंदी : हिंदी कंप्यूटिंग और अनुवाद
- वस्तुनिष्ठ प्रश्न

खण्ड--क : आधुनिक हिंदी कविता

निर्धारित आलोचनात्मक प्रश्न

पाठ्यक्रम में निर्धारित कवियों के साहित्यिक परिचय, अनुभूतिगत वैशिष्ट्य तथा अभिव्यक्तिगत सौष्ठव पर ही प्रश्न पूछे जाएंगे । कवियों की विशिष्ट रचनात्मक प्रवृत्ति पर प्रश्न नहीं पूछे जाएंगे ।

खण्ड--ख : हिंदी साहित्य का रीतिकाल

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ रीतिकालीन हिंदी कविता की पृष्ठभूमि
- २ रीतिकाल का नामकरण
- ३ रीतिबद्ध काव्य की विशेषताएँ
- ४ रीतिमुक्त काव्य की विशेषताएँ
- ५ रीतिकालीन काव्य की उपलब्धियाँ

खण्ड--ग : प्रयोजनमूलक हिंदी : हिंदी कंप्यूटिंग और अनुवाद

पाठ्यक्रम में निर्धारित विषय

- १ कंप्यूटर : स्वरूप और महत्व
- २ ई-मेल : प्रेषण-ग्रहण
- ३ इंटरनेट : स्वरूप और उपयोगिता
- ४ मशीनी अनुवाद
- ५ अनुवाद : परिभाषा और स्वरूप

खण्ड--घ : वस्तुनिष्ठ प्रश्न

निर्देश-

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न के लिए ५ अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा ।

संयुक्त पाठ्यक्रम
(महर्षि दयानन्द विश्वविद्यालय और कुरुक्षेत्र विश्वविद्यालय के लिए)
बी०ए० : चतुर्थ सेमेस्टर
जनवरी २०१४
हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००
लिखित परीक्षा : ८० अंक
आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- कथा कम सं० डॉ० रोहिणी अग्रवाल,
प्रकाशक : खाटू श्याम प्रकाशन, १२७६/५, पीर जी मोहल्ला, प्रताप टाकीज, रोहतक।
मोबाइल न० 09991708080
- हिंदी साहित्य का आधुनिक काल : गद्य
- पारिभाषिक शब्दावली
- वस्तुनिष्ठ प्रश्न

खण्ड--क : कथाकम

निर्धारित आलोचनात्मक प्रश्न

पाठ्यक्रम में निर्धारित कहानीकारों के साहित्यिक परिचय, निर्धारित कहानियों के वस्तु पक्ष तथा कला पक्ष पर ही प्रश्न पूछे जाएंगे ।

खण्ड--ख : हिंदी साहित्य का आधुनिक काल : गद्य

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ आधुनिक काल की परिस्थितियाँ
- २ हिंदी उपन्यास : उद्भव और विकास
- ३ हिंदी कहानी : उद्भव और विकास
- ४ हिंदी नाटक : उद्भव और विकास
- ५ हिंदी निबन्ध : उद्भव और विकास

खण्ड--ग : पारिभाषिक शब्दावली

निर्धारित विषय

- १ पारिभाषिक शब्दावली : स्वरूप और महत्व
- २ पारिभाषिक शब्दावली के गुण
- ३ पारिभाषिक शब्दावली के निर्माण में सक्रिय विविध सम्प्रदाय : राष्ट्रीयतावादी, अन्तरराष्ट्रीयतावादी, समन्वयवादी ।

खण्ड-- घ : वस्तुनिष्ठ प्रश्न

निर्देश

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न के लिए ५ अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा ।

संयुक्त पाठ्यक्रम
(महर्षि दयानन्द विश्वविद्यालय और कुरुक्षेत्रविश्वविद्यालय के लिए)
बी०ए० : पाँचवाँ सेमेस्टर
जुलाई २०१३
हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००
लिखित परीक्षा : ८० अंक
आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- समकालीन हिंदी कविता, (कुरुक्षेत्रविश्वविद्यालय, कुरुक्षेत्रसम्पादित)
- हिंदी साहित्य का आधुनिक काल : कविता
- प्रयोजनमूलक हिंदी : पत्र लेखन, संक्षेपण तथा पल्लवन
- वस्तुनिष्ठ प्रश्न

खण्ड--क : प्रस्तावित निर्धारित पाठ्यपुस्तक

पंचम सेमेस्टर हिंदी (अनिवार्य) की समकालीन हिंदी कविता पर आधारित पाठ्यपुस्तक (जिसका नामकरण पुस्तक—निर्माण के साथ किया जाएगा) कुरुक्षेत्रविश्वविद्यालय, कुरुक्षेत्रका हिंदी—विभाग तैयार करेगा। कुरुक्षेत्रविश्वविद्यालय के हिंदी—विभाग का दायित्व होगा कि पाठ्यक्रम प्रभावी होने से पहले वह पाठ्यपुस्तक विद्यार्थियों को उपलब्ध कराए।

प्रस्तुत प्रस्तावित पाठ्य पुस्तक में निम्नलिखित रचनाकारों की रचनाओं को शामिल किया

जाएगा—

- १ स० ही० वात्स्यायन अज्ञेय
- २ धर्मवीर भारती
- ३ श्रीनरेश मेहता
- ४ नागार्जुन
- ५ रघुवीर सहाय
- ६ कुँवर नारायण
- ७ लीलाधर जगूड़ी

निर्धारित आलोचनात्मक प्रश्न

पाठ्यक्रम में निर्धारित कवियों के साहित्यिक परिचय, अनुभूतिगत वैशिष्ट्य तथा अभिव्यक्तिगत सौष्ठव पर ही प्रश्न पूछे जायेंगे। कवियों की विशिष्ट रचनात्मक प्रवृत्ति पर प्रश्न नहीं पूछे जायेंगे।

खण्ड--ख : हिंदी साहित्य का आधुनिक काल : कविता

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ भारतेन्दुयुगीन हिंदी कविता की प्रवृत्तियाँ
- २ द्विवेदीयुगीन हिंदी कविता की प्रवृत्तियाँ
- ३ छायावाद
- ४ प्रगतिवाद

- ५ प्रयोगवाद
- ६ नयी कविता
- ७ समकालीन कविता

खण्ड--ग : प्रयोजनमूलक हिंदी : पत्रलेखन, संक्षेपण तथा पल्लवन

- १ पत्रलेखन : स्वरूप और उसके विविध भेद
- २ संक्षेपण
- ३ पल्लवन

खण्ड--घ : वस्तुनिष्ठ प्रश्न

निर्देश

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघूत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न के लिए ५ अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा।

संयुक्त पाठ्यक्रम
(महर्षि दयानन्द विश्वविद्यालय और कुरुक्षेत्र विश्वविद्यालय के लिए)
बी०ए० षष्ठ सेमेस्टर
जनवरी २०१४
हिन्दी (अनिवार्य)

समय : ३ घण्टे

कुल अंक : १००
लिखित परीक्षा : ८० अंक
आंतरिक मूल्यांकन : २० अंक

निर्धारित पाठ्यक्रम

- नव्यतर विधाओं पर आधारित पाठ्यपुस्तक, (कुरुक्षेत्र विश्वविद्यालय, कुरुक्षेत्र सम्पादित)
- हरियाणवी लोक साहित्य का इतिहास
- हिंदी पत्रकारिता
- वस्तुनिष्ठ प्रश्न

खण्ड क : प्रस्तावित निर्धारित पाठ्यपुस्तक

षष्ठ सेमेस्टर हिंदी (अनिवार्य) की नव्यतर गद्य विधाओं पर आधारित पाठ्यपुस्तक (जिसका नामकरण पुस्तक-निर्माण के साथ किया जाएगा) कुरुक्षेत्र विश्वविद्यालय, कुरुक्षेत्रका हिंदी-विभाग तैयार करेगा। कुरुक्षेत्र विश्वविद्यालय, कुरुक्षेत्रके हिंदी-विभाग का दायित्व होगा कि पाठ्यक्रम प्रभावी होने से पहले वह पाठ्यपुस्तक विद्यार्थियों को उपलब्ध कराए।

प्रस्तुत प्रस्तावित पाठ्य पुस्तक में निम्नलिखित लेखकों की रचनाओं को शामिल किया जाएगा—

- | | |
|---------------------|-------------------------------|
| १ (निबन्ध) | : बालमुकुन्द गुप्त |
| २ (निबन्ध) | : आचार्य रामचन्द्र शुक्ल |
| ३ (संस्मरण) | : महादेवी वर्मा |
| ४ (ललित निबन्ध) | : आचार्य हजारीप्रसाद द्विवेदी |
| ५ (ललित निबन्ध) | : विद्यानिवास मिश्र |
| ६ (व्यंग्य) | : हरिशंकर परसाई |
| ७ (यात्रावृत्तान्त) | : राहुल सांकृत्यायन |

निर्धारित आलोचनात्मक प्रश्न

पाठ्यक्रम में निर्धारित लेखकों के साहित्यिक परिचय, निबन्धों के वस्तु पक्ष तथा कला पक्ष पर ही प्रश्न पूछे जाएंगे।

खण्ड-ख : हरियाणवी भाषा और साहित्य का इतिहास

पाठ्यक्रम में निर्धारित आलोचनात्मक प्रश्न

- १ हरियाणवी भाषा का उद्भव और विकास
- २ हरियाणवी भाषा की प्रमुख बोलियाँ
- ३ हरियाणा की सांग परम्परा : उद्भव और विकास
- ४ हरियाणवी भाषा का आधुनिक साहित्य
 - (क) हरियाणवी कविता : परिचय और प्रवृत्तियाँ
 - (ख) हरियाणवी का गद्य साहित्य
 - १ उपन्यास साहित्य
 - २ कहानी साहित्य

खण्ड--ग : प्रयोजनमूलक हिंदी : पत्रकारिता

- १ पत्रकारिता : स्वरूप एवं प्रकार
- २ शीर्षक की संरचना
- ३ सम्पादक के गुण और दायित्व
- ४ फीचर लेखन
- ५ स्वतंत्र प्रेस की अवधारणा

खण्ड--घ वस्तुनिष्ठ प्रश्न

निर्देश

- १ खण्ड (क) में निर्धारित पाठ्य-पुस्तक में से व्याख्या के लिए चार अवतरण पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो की सप्रसंग व्याख्या करनी होगी । प्रत्येक व्याख्या ६ अंक की होगी । पूरा प्रश्न १२ अंक का होगा ।
- २ खण्ड (क) में निर्धारित आलोचनात्मक प्रश्नों में से दो प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को एक प्रश्न का उत्तर देना होगा । यह प्रश्न ८ अंक का होगा ।
- ३ खण्ड (क) में निर्धारित पाठ्य पुस्तक एवं आलोचनात्मक प्रश्नों में से छः लघुत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं चार प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए चार अंक निर्धारित हैं । पूरा प्रश्न १६ अंक का होगा ।
- ४ खण्ड (ख) में निर्धारित आलोचनात्मक प्रश्नों में से चार प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न ८-८ अंक का होगा । इस प्रकार यह प्रश्न १६ अंक का होगा ।
- ५ खण्ड (ख) में निर्धारित प्रश्नों में से चार लघुत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को लगभग १५० शब्दों में किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक प्रश्न के लिए पाँच अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ६ खण्ड (ग) में निर्धारित पाठ्यक्रम में से चार लघुत्तरी प्रश्न पूछे जाएंगे जिनमें से परीक्षार्थियों को किन्हीं दो प्रश्नों का उत्तर देना होगा । प्रत्येक उप प्रश्न के लिए ५ अंक निर्धारित हैं । पूरा प्रश्न १० अंक का होगा ।
- ७ खण्ड (घ) में पूरे पाठ्यक्रम में से ८ वस्तुनिष्ठ प्रश्न पूछे जाएंगे । प्रत्येक प्रश्न १ अंक का तथा पूरा प्रश्न ८ अंक का होगा ।

B. A. Part I
English (Compulsory)
Semester I
Literature and Language I

Scheme of Examination

Total Marks:	100
Theory:	80
Int. Assessment:	20
Time:	3 hrs

Prescribed Text :

Mohan, Loveleen, Randeep Rana and Jaibir Singh Hooda eds. *Literature and Language I*,
Delhi: Orient Blackswan, 2015 (Revised Edition).

Workload: 8 periods of 45 minutes per week for Text: 2 periods of 45 minutes per week for composition for a group of 20 students.

Instructions to the Paper-setter and Students:

Note: All questions are compulsory.

Q 1 will be based on phonetic transcription given in the chapters in the text book. The students shall transcribe *eight* words out of the given *twelve*.

(08)

Q 2 will comprise very short answer type questions (using a word, a phrase or one or two sentences each) based on the chapters in the text book. The students shall answer any *eight* out of the given *twelve* items.

(08)

Q 3 will comprise inference based questions to elicit the understanding of the text by the students. The students shall answer any *five* out of the given *eight* questions based on the chapters (in about 75-100 words each).

(20)

Q 4 will be based on a comprehension passage from the text followed by *four* questions.

(04)

Q 5 will be based on vocabulary given in the exercises. The students shall attempt questions on vocabulary as directed. (e.g. framing sentences of their own or giving various forms of the given words-synonyms, antonyms, one word substitutes). The students shall answer any *eight* out of the given *twelve* words.

(08)

Q 6 will be based on grammar topics discussed in the text book. It will have two parts – (a) and (b). Part (a) will be based on the use of tenses and Part (b) on parts of speech. Both the parts will carry 12 marks each. There will be 50% internal choice in both the parts.

(24)

Note: Questions will be based on the exercises but not necessarily from the exercises as such.

In Q 7, students will be required to write a Paragraph in about 150 words on any *one* out of the given *three* topics. The topics will be similar to the topics given in the exercises in the text book.

(08)

B. A. Part I
English (Compulsory)
Semester II
Literature and Language II

Scheme of Examination

Total Marks: 100
Theory: 80
Int. Assessment: 20
Time: 3 hrs

Prescribed Text :

Literature and Language I I eds. Jaibir S. Hooda, Randeep Rana and Loveleen Mohan.

Workload: 8 periods of 45 minutes duration per week for Text. 2 periods of 45 minutes duration per week for Grammar and Composition for a group of 20 students.

Instructions to the Paper-setter and Students:

Note: All questions are compulsory.

Q.No.1 (a) Transcription of one/two syllabic words only from the words given in the exercises given at the end of the chapters. Students will be required to transcribe any four out of the given eight words. 4 Marks

(b) Antonyms and synonyms from the exercises given at the end of the chapters. Students will be required to give four antonyms and four synonyms out of the given eight each. 4 Marks

Q.No.2 (a) Very short answer type questions. Students will be required to answer any four out of given eight questions in a word/phrase/sentence. The questions may not necessarily be the same as given in the exercises. 4 Marks

(b) Students will be required to attempt any six out of the given nine questions in 2 – 5 sentences/50 words each. Short answer type questions also may not be the same as given in the exercises. 12 Marks

Q.No. 3 Long answer type questions. Students will be required to attempt in about 150 – 200 words each any three out of the given six questions. 21 Marks

Q.No. 4 (a) Grammar: This question will be based on the grammar exercises given in the text. The sentences will not necessarily be the same as given in exercises. There will be 50% internal choice. 20 Marks

(b) One question based on Grammar topics covered in Semester I (with 50% internal choice) 7 Marks

Q.No.5 Composition: Students will be required to write an essay in about 200 words on one of the two given topics with hints for composition. 8 Marks

B.A. Part II
English (Compulsory)
Semester III
Session 2015-16

Scheme of Examination

Total Marks:	100
Theory:	80
Int. Assessment:	20
Time:	3 hrs

Prescribed Text:

Fragrances: edited by Dinesh Kumar, Sunita Siroha and S.S. Rehal, and published by Orient Blackswan, New Delhi.

Workload: 8 periods of 45 minutes duration per week for Text. 2 periods of 45 minutes duration per week for Grammar and Composition for a group of 20 students.

Instructions to the Paper-setter and Students:

Note: All questions are compulsory.

Q.No.1. Students will be required to explain any *two* stanzas out of the given *three* with reference to the context. (8 Marks)

Q.No.2. It will comprise very short answer type questions based on the poems in the text book. The students shall answer any *six* out of the given *eight* questions (in about 20 to 30 words each). (6 Marks)

Q.No.3. It will comprise inference based questions to elicit the understanding of the text by the students. The students shall answer any *two* out of the given *three* questions based on the poems (in about 150 to 200 words each). (12 Marks)

Q.No.4. It will be based on a comprehension passage from the text followed by *four* questions. (4 Marks)

Q.No.5. (a) This question will be based on the grammar topics discussed in the text book. The sentences will not necessarily be the same as given in the exercises. Students will be required to attempt any *sixteen* out of the given *twenty four*. (16 Marks)

(b) In this question the students will be required to attempt *four* out of the given *six* questions (*two* each based on poetic forms and devices). The candidates may be asked to identify devices and forms on the basis of extracts from the prescribed poems. (12 Marks)

(c) Transcription of any *six* words out of the given nine from the text (not more than trisyllabic words). (6 Marks)

(For visually challenged students only)

Students will be required to write a paragraph in about 100 words on any *one* out of the given *three* paragraphs of general nature.

(d) Vocabulary exercise. The student will attempt any *eight* out of the given *twelve* vocabulary based items (not necessarily the same as given in the exercises). (8 Marks)

Q.No.6 Composition: Students will be required to write an essay in about 200 words on any *one* of the *four* given topics of general nature. (8 Marks)

B.A. Part II
English (Compulsory)
Semester IV (Session 2015-16)

Scheme of Examination

Total Marks: 100
Theory: 80
Int. Assessment: 20
Time: 3 hrs

Prescribed Text:

Centre Stage edited by Sunita Siroha, S.S. Rehal and Dinesh Kumar and published by Orient Blackswan, New Delhi.

Workload: 8 periods of 45 minutes duration per week for Text. 2 periods of 45 minutes duration per week for Grammar and Composition for a group of 20 students.

Instructions to the Paper-setter and Students:

Note: All questions are compulsory.

- Q.No.1. Explanation of one extract out of the given two with reference to the context. (8 Marks)
- Q.No.2.(a) Very short answer type text-based questions: Students will be required to answer any six out of the given eight questions in a word/phrase/sentence. (6 Marks)
- (b) Students will be required to attempt any two out of the given three questions based on the text in 100 words each. Short answer type questions also may not be the same as given in the exercises. (6+6 Marks)
- Q.No.3. Long answer type question based on the text, to be answered in about 300 words on any one of the given two questions. The questions will be designed to test the candidate's critical understanding of the text. (12 Marks)
- Q.No.4(a) **Writing Skills:** This question, with internal choice, will be based on the topics discussed in the text-book under the title "Extended Language Skills" except "Translation". (15 Marks)
- (b) Students will be required to transcribe and mark primary stress on any ten words out of the given fifteen words. (10 Marks)
- (For visually challenged candidates only) There will be a question based on vocabulary.
- (c) Vocabulary exercise (any five out of the given eight). (5 Marks)
- Q.No.5 **Translation:**
- (a) Students will be required to translate one short passage from Hindi into English. (6 Marks)
- (b) Students will be required to translate one short passage from English into Hindi. (6 Marks)
- Or (In lieu of translation for Foreign students only)
- Make a précis of a prose passage (300 words). (12 Marks)

UGBOS dt 20.01.2016

P. K. Palla

B. A. Part III
English (Compulsory)
Semester V
Session 2016-2017

Scheme of Examination

Total Marks: 100
Theory: 80
Int. Assessment: 20
Time: 3 Hours

Prescribed Text: To be got published by CDLU, Sirsa

Work Load: 8 Periods of 45 minutes duration per week for Text and 2 periods of 45 minutes duration per week for composition for a group of 20 students

Instructions to the Paper-Setter and Students

In Question 1, students will be required to answer any *four* out of the given *six* in about 100 words each from the prescribed text.

4x4 =16

Question 2 will be an essay type question (with internal choice) from the prescribed text.

14

In Question 3, students will be required to give answers to the questions that follow a passage from the prescribed text.

6

In Question 4, students will be required to write short notes on any *three* literary terms out of the given *five*. Students are also required to illustrate the term by citing from the prescribed text.

3x3 =9

Question 5 will be a 'Do as Directed' type question based on following items:

(A) Conversion of Sentences – from simple to compound and complex sentences. 6

(B) Conditional Clauses 6

(C) Defining and Non-Defining Clauses 6

[Standard Grammar books like *A Handbook of English Grammar* by R. W. Zandvoort and *A Comprehensive Grammar of English Language* by Randolph Quirk]

In Question 6, students will be required to develop a short story on the basis of the given outline/hints

5

In Question 7, students will be required to make a précis of a passage of about 300 words.

12

Handwritten signature and date
18/12

B.A.III English (Compulsory)

Semester VI Jan.2017

(w.e.f. Session 2016-17)

Title – *Interpreting A Play: The Merchant of Venice*

&

Developing Composition Skills

Edited by Deepti Dharmani, Pankaj Sharma and Umed Singh :

Macmillan Publishers India Pvt.Ltd.

A Compulsory textbook prescribed for BA 6th Semester

CDLU Sirsa, MDU Rohtak, KU Kurukshetra

Work Load : 8 periods of 45 minutes a week for Text

2 periods of 45 minutes a week for composition for a group of 20 students

Text: To be prepared and got published by CDLU, Sirsa

Scheme of Examination

Total Marks : 100

Theory : 80

Internal Assessment : 20

Time 3 Hours

Instructions to the Paper Setter and the Students

- Q.1 a) Explanation with reference to the context of a given passage (with internal choice) taken from the prescribed text. 8
- b) Short answer type questions: Students will be required to give answers (in about 50 words) to five questions out of given eight questions based on the prescribed text: 3X5 = 15
- Q.2 Students will be required to attempt one essay type question based on the prescribed text (with internal choice). 12

Head,
Department of English
and
MND
ROHTAK
University

- Q.3 a) Students will be required to write a précis of an unseen prose passage of about 400 words. 10
- b) Students will be required to attempt a summary/abstract of a given unseen passage of about 250 words. 10
- c) Students will be required to attempt one word substitute of any five of the given eight: This question will be set from the prescribed text book. 5
- Q.4 Letter Writing: Business & Official letters based on the text but not necessarily the same.
Students will be required to attempt one of the given two. 10
- Q.5 Comprehension of an unseen passage 10

Anand Datta
Head,
Department of English
and Foreign Lgs.,
M. D. University,
ROHTAK.

पाठ्यक्रम

महर्षि दयानंद विश्वविद्यालय, रोहतक

संस्कृत (ऐच्छिक)

बी.ए. प्रथम वर्ष (प्रथम सेमेस्टर)

समय: 3 घण्टे

कुल अंक: 80

आन्तरिक मूल्यांकन: 20

20 अंक

यूनिट-1 संस्कृतवाग्व्यवहार:-

संस्कृत व्यवहारसाहस्री (प्रकाशक : संस्कृत भारती, माता मन्दिर गली, झण्डेवालान, नई दिल्ली) पुस्तक में से 1 से 8 विषयों (शिष्टाचारः, मेलनम्, सरल वाक्यानि, सामान्य वाक्यानि, मित्रमेलनम्, यात्रा, प्रवासतः प्रतिनिर्वतनम्, छात्राः) में संस्कृत में सरल प्रश्नोत्तर रूप में लिखित परीक्षा।

यूनिट-2 हितोपदेशः (मित्र लाभः- कथामुख, काक-मृग-कूर्म-मूषिका-कथा, गृद्ध-विडाल-कथा) 20 अंक

यूनिट-3 शब्दरूपाणि-

(क) शब्दरूपाणि- राम, कवि, भानु, पितृ, लता, मति, नदी, धेनु, वधू, मातृ, फल, वारि, मधु। 10 अंक

(ख) धातुरूपाणि- परस्मैपदे- भू, पठ्, हस्, नम्, गम्, अस्, हन्, क्रुध्, नश्, नृत्, अद्, इष्, पृच्छ, चिन्त्। 10 अंक

यूनिट-4 सन्धिः-अच् सन्धिः, हल् सन्धिः, विसर्ग सन्धिः। 20 अंक

दिशा-निर्देश-16-16 अंकों के कुल पाँच प्रश्न पूछे जाएंगे जिनमें से प्रथम प्रश्न अनिवार्य होगा जिसमें वस्तुनिष्ठ प्रश्न (प्रत्येक यूनिट में से दो) पूछे जाएंगे। $8 \times 2 = 16$ अंक

शेष चार प्रश्नों में यूनिट अनुसार निर्देश अधोलिखित हैं-

यूनिट-1 संस्कृत में पूछे गये 12 प्रश्नों में से किन्हीं 8 प्रश्नों का संस्कृत में उत्तर। $8 \times 2 = 16$

यूनिट-2 (क) किन्हीं 6 गद्यांशों या पद्यांशों में से किन्हीं 3 का सरलार्थ। $3 \times 4 = 12$

(ख) किन्हीं दो कथाओं में से किसी 1 का सारांश। $1 \times 4 = 04$

यूनिट-3 (क) चार शब्दों में से किन्हीं 2 शब्दों के सम्पूर्ण रूप। $2 \times 4 = 08$

(ख) चार धातुओं में से किन्हीं 2 धातुओं के पूछ गये 2 लकारों में सम्पूर्ण रूप $2 \times 4 = 08$

यूनिट-4 (क) 2 में से किसी एक सन्धि की सोदाहरण परिभाषा। $1 \times 6 = 06$

(ख) 8 में से किन्हीं 5 प्रयोगों में सन्धि या विग्रह प्रदर्शन। $5 \times 2 = 10$



संस्कृत ऐच्छिक
बी.ए. (द्वितीय सामिसत्र)

समय 3 घण्टे

कुल अंक 80

यूनिट-1	(क) हिन्दी से संस्कृत में सरल वाक्यों का अनुवाद। (ख) कण्ठस्थ श्लोक	10 अंक 4अंक
यूनिट-2	संस्कृत ग्रन्थानुशीलनम्- (क) दूतवाक्यम् (भासविरचितम्) (ख) शुकनासोपदेशः (कादम्बरीतः)	12 अंक 12 अंक
यूनिट-3	पदरूपाणि- (क) शब्दरूपाणि- आत्मन्, दण्डिन्, वाच्, सरित्, <u>सर्व</u> , <u>तद्</u> , <u>एतद्</u> , <u>यद्</u> , <u>किम्</u> , <u>इदम्</u> (तीनों लिंगों में) अस्मद्, युष्मद्, एक, द्वि, त्रि, चतुर, पंचन्। (ख) धातुरूपाणि- आत्मनेपदे - सेव्, लभ्, रुच्, मुद्, याच्। उभेयपदे- कृ, नी, ह, भज्, पच्।	10 अंक 10 अंक
यूनिट-4	सन्धि:- हल सन्धि :, विसर्ग सन्धि:।	10 अंक
यूनिट-5	छन्दांसि- स्रग्धरा, वंशस्थ, शिखरिणी, मन्दाक्रान्ता, वसन्ततिलका, शार्दूलविक्रीडितम्।	12 अंक
दिशा-निर्देश:-		
यूनिट-1	(1) 15 सरल हिन्दी वाक्यों में से किन्हीं 10 का संस्कृत में अनुवाद (1) किन्हीं दो कण्ठस्थ श्लोकों का शुद्ध लेखन	10 x 1 = 10 2 x 2 = 4
यूनिट-2	(1) तीन पद्यों में से किन्हीं 2 का सरलार्थ (2) तीन गद्यांशों में से किन्हीं 2 का सरलार्थ (3) दूतवाक्यम् तथा शुकनासोपदेश में वर्णित दो पात्रों में से किसी एक का चरित्र चित्रण	2 x 4 = 8 2 x 4 = 8 1 x 8 = 8
यूनिट-3	(1) चार शब्दों में से किन्हीं दो शब्दों के सम्पूर्ण रूप (2) चार धातुओं में से किन्हीं दो धातुओं के पूछ गये दो लकारों में सम्पूर्ण रूप	2 x 5 = 10 2 x 5 = 10
यूनिट-4	(1) दो में से किसी एक सन्धि की सोदाहरण परिभाषा (2) आठ में से किन्हीं 5 प्रयोगों में सन्धि अथवा विग्रह प्रदर्शन	1 x 5 = 5 5 x 1 = 5
यूनिट-5	(1) दो में से किसी एक छन्द का लक्षण और उदाहरण (2) दो में से किसी एक श्लोक में गणप्रदर्शन सहित छन्द की पहचान	1 x 6 = 6 1 x 6 = 6

बी.ए. (तृतीय सामिसत्र)

संस्कृत ऐच्छिक

समय: 3 घण्टे

कुल अंक- 80

यूनिट 1. संस्कृतव्यवहारसाहस्री, 9-16 पाठ 20

यूनिट 2. बाल रामायण- प्रथम अध्याय 20

यूनिट 3. व्याकरण-

(क) तद्धित प्रत्यय- मतुप्, इनि, ठक्, त्वा, तल्

(ख) निम्न धातुओं के णिजन्त व सन्नन्त रूप- (लट् लकार)
भू, पठ्, गम्, पा, लिख्, श्रू, भृ, दा, स्था, हस् 10

10

यूनिट 4. (क) समास- अव्ययीभाव, तत्पुरुष (द्विगु तथा कर्मधारय सहित) 10

(ख) अनुवाद- हिन्दी से संस्कृत में अनुवाद 10

दिशा निर्देश-

नोट- 16-16 अंक के कुल पाँच प्रश्न पूछे जायेंगे जिनमें से प्रथम प्रश्न वस्तुनिष्ठ होगा जिसमें आठ वस्तुनिष्ठ

प्रश्न (प्रत्येक यूनिट में से दो) पूछे जायेंगे 8X2=16

शेष चार प्रश्नों के यूनिट अनुसार निर्देश अधोलिखित हैं-

यूनिट-1 10 में से किन्हीं 8 प्रश्नों के संस्कृत में उत्तर 8

X2=16

यूनिट-2 (क) 4 में से किन्हीं 2 पद्यों की सप्रसंग व्याख्या

2X5=10

(ख) पाठ्य पुस्तक के आधार पर दो प्रश्नों में से किसी एक का उत्तर,

(चरित्र-चित्रण अथवा सारांश) 1

X6=6

यूनिट-3 (क) 8 में से किन्हीं 4 के तद्धितान्त रूप 4

X2=8

(ख) 8 में से किन्हीं 4 निर्दिष्ट धातुओं के निर्दिष्ट रूप 4

X2=8

यूनिट-4 (क) 8 में से किन्हीं 4 समस्त पदों का समस्त रूप या विग्रह रूप 4

X2=8

(ख) 8 में से किन्हीं 4 वाक्यों का अनुवाद 4X2=8

बी.ए. (चतुर्थ सामिसत्र)

संस्कृत ऐच्छिक

समय: 3 घण्टे

कुल अंक- 80

यूनिट 1. श्रीमद्भगवद्गीता (द्वितीय अध्याय) 20

यूनिट 2. रघुवंशमहाकाव्यम् (द्वितीय सर्ग) 20

यूनिट 3. व्याकरण-

(क) कृदन्त प्रत्यय-, क्त, क्तवत्, क्त्वा, ण्यत्, तुमुन्, शतृ, शानच्, यत्, तव्यत्, अनीयर् 10

(ख) समास- द्वन्द्व, बहुव्रीहि 10

यूनिट 4. (क) प्रत्याहार सूत्र , (लघुसिद्धान्त कौमुदी) 10

(ख) संस्कृत में पत्र लेखन 10

दिशा निर्देश-

नोट- 16-16 अंक के कुल पाँच प्रश्न पूछे जायेंगे जिनमें से प्रथम प्रश्न वस्तुनिष्ठ होगा जिसमें आठ वस्तुनिष्ठ

प्रश्न (प्रत्येक यूनिट में से दो) पूछे जायेंगे 8X2=16

ऐसे चार प्रश्नों के यूनिट अनुसार निर्देश अधोलिखित हैं-

यूनिट-1 (क) श्रीमद्भगवद्गीता के 4 में से किन्हीं 2 पद्यों की सप्रसंग व्याख्या 2

X5=10

(ख) श्रीमद्भगवद्गीता के आधार पर समालोचनात्मक दो वैकल्पिक प्रश्न
या सारांश में से एक का उत्तर 1X6=6

X5=10

यूनिट-2 (क) 4 में से किन्हीं 2 पद्यों की सप्रसंग व्याख्या 2

(ख) रघुवंश के आधार पर दो प्रश्नों में से एक का उत्तर 1X6=6

X2=8

यूनिट-3 (क) 8 शब्दों में से किन्हीं 4 में प्रकृति प्रत्यय प्रदर्शन 4

X2=8

(ख) 8 शब्दों में से किन्हीं 4 के समस्त या विग्रह रूप 4

यूनिट-4 (क) 8 में से किन्हीं 4 प्रत्याहारों का विवरण 4X2=8

(ख) किन्हीं दो विषयों में से एक विषय पर पत्र-लेखन 1X8=8

बी. ए. संस्कृत-(ऐच्छिक)

पञ्चम सामिसत्र

2013-14

समय-3 घंटे

अंक-80

यूनिट 1.	संस्कृत वाग्व्यवहारः	
	संस्कृत व्यवहार साहस्री (17-21पाठ तक)	20
यूनिट 2.	अभिज्ञान शाकुन्तलम् (1-4 अंक पर्यन्त)	20
यूनिट 3.	संस्कृत साहित्य का इतिहास	
	(क) संहिता, से लेकर वेदाङ्ग साहित्य तक	20
	संहिता- ऋग्वेद, यजुर्वेद, सामवेद, अथर्ववेद- काल एवं वर्ण्यविषय	
	ब्राह्मण- चारों संहिताओं से सम्बन्धित ब्राह्मण- सामान्य परिचय	
	आरण्यक एवं उपनिषद- चारों संहिताओं से सम्बद्ध- सामान्य परिचय	
	वेदाङ्ग साहित्य- शिक्षा, कल्प, व्याकरण, निरुक्त, छन्द, ज्योतिष, सामान्य परिचय	20
यूनिट 4.	लघुसिद्धान्त कौमुदी- स्त्री प्रत्यय प्रकरण	
दिशा निर्देश-		20
यूनिट-1	15 में से किन्हीं 10 प्रश्नों का संस्कृत में उत्तर	10X2=20
यूनिट-2	(क) 4 में से 2 श्लोकों की सप्रसंग व्याख्या	2X6=12
	(ख) चरित्र-चित्रण अथवा अंक का सार, दो में से एक प्रश्न	1X8=8
यूनिट-3	8 में से 4 पर टिप्पणी	4X5=20
यूनिट-4	(क) 4 में से 2 सूत्रों की सोदाहरण व्याख्या	2X5=10
	(ख) 10 में से 5 पदों में प्रकृति प्रत्यय अथवा निष्पन्न रूप प्रदर्शन	5X2=10

बी. ए. संस्कृत-(ऐच्छिक) 2013-14

समय- 3 घंटे

षष्ठ सामिसत्र

अंक-80

यूनिट 1.	संस्कृत वाग्व्यवहारः	
	संस्कृत व्यवहार साहस्री (22-26 पाठ तक)	20
यूनिट 2.	अभिज्ञान शाकुन्तलम् (5-7 अंक पर्यन्त)	20
यूनिट 3.	संस्कृत साहित्य का इतिहास	20
	रामायण, महाभारत, अश्वघोष, भास, कालिदास, बाणभट्ट, सुबन्धु, दण्डी, भवभूति, भारवि, माघ, श्रीहर्ष, अम्बिकादत्त व्यास।	
यूनिट 4.	(क) निबन्ध - सरल विषयों पर संस्कृत में सरल निबन्ध	10
	(ख) अलंकार- अनुप्रास, श्लेष, यमक, उपमा, उत्प्रेक्षा, रूपक, अर्थान्तरन्यास, अतिशयोक्ति, विभावना, विशेषोक्ति	10

दिशा निर्देश-

यूनिट-1	15 में से किन्हीं 10 प्रश्नों का संस्कृत में उत्तर	10X2=20
यूनिट-2	(क) 4 में से 2 श्लोकों की सप्रसंग व्याख्या	2X6=12
	(ख) चरित्र-चित्रण अथवा अंक का सार, दो में से एक प्रश्न	1X8=8
यूनिट-3	8 में से 4 पर टिप्पणी	4X5=20
यूनिट-4	(क) 4 में से किसी एक विषय पर निबन्ध	1X10=10
	(ख) 4 में से किन्हीं 2 अलंकारों के लक्षण एवं उदाहरण	2X5=10

SCHEME OF B.A. Part-I (PASS COURSE)
IN POLITICAL SCIENCE
SEMESTER SYSTEM 2017-2018

<i>Class</i>	<i>Nomenclature of Paper</i>	<i>Internal Assess.</i>	<i>Theory Total Marks</i>		<i>Time</i>
B.A. (Sem. I)	Option (i) Indian Constitution	20	80	100	3 Hrs.
-do-	Option (ii) International Relations-I	20	80	100	3 Hrs.
B.A. (Sem.II)	Option (i) Indian Politics	20	80	100	3 Hrs.
-do-	Option (ii) International Relations-II	20	80	100	3 Hrs.
B.A. Part - II					
B.A. (Sem. III)	Option (i) Principles of Political Sciences-I	20	80	100	3 Hrs.
-do-	Option (ii) Indian Political Thinker-I	20	80	100	3 Hrs.
B.A. (Sem.IV)	Option (i) Principles of Political Sciences-II	20	80	100	3 Hrs.
-do-	Option (ii) Indian Political Thinkers-II	20	80	100	3 Hrs.
B.A. Part -III					
B.A. (Sem. V)	Option (i) Comparative Politics	20	80	100	3 Hrs.
-do-	Option (ii) International Organization-I	20	80	100	3 Hrs.
B.A. (Sem.VI)	Option (i) Comparative Constitutions of UK & USA	20	80	100	3 Hrs.
-do-	Option (ii) International Organization-II	20	80	100	3 Hrs.

NOTE :- The students are required to opt only one out of two Optional papers in each Semester.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-I, Political Science (Pass Course)
Semester-I

Syllabi and Courses of Reading

NOTE: There will be two Optional papers. The students will have to opt only one paper out of the two papers. The maximum marks are 100. (Theory 80, Internal Assessment 20).

Option (i) : Indian Constitution

M. Marks: 80

Internal Assessment: 20

Time: 3 Hours

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

UNIT-I

Indian Constitution – Sources and Features, Preamble, Fundamental Rights, Fundamental Duties and Directive Principles of State Policy.

UNIT-II

Union and State Executive – President, Prime Minister, Council of Ministers;
State Executive – Governor, Chief Minister and Council of Ministers.

UNIT-III

Union and State Legislature – Parliament-Composition and Functions; Speaker of Lok Sabha Amendment Process; State Legislature-Vidhan Sabha; Panchayati Raj

UNIT-IV

Judiciary – Supreme Court, High Courts, Judicial Review.

Reading:

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. D.D. Basu and B. Parekh (ed.), Crisis and Change in Contemporary India, New Delhi, Sage, 1994.
4. C.P. Bhambhri, The Indian State: Fifty Years, New Delhi, Shipra, 1997.
5. P. Brass, Politics of India Since Independence, Hyderabad, Orient Longman, 1990.
6. R. Kothari, Politics in India, New Delhi, Orient Longman, 1970.
7. W.H. Morris Jones, Government and Politics in India, Delhi, BL Publications, 1974.
8. J.R. Siwach, Dynamics of Indian Government & Politics, New Delhi, Sterling Publishers, 1985.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-I, Political Science (Pass Course)
Semester-I

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (ii): International Relations-I

Max. Marks: 80

Internal Assessment: 20

Time: 3 Hrs.

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Unit-I

Definition, Nature, Scope and Development of International Relations,
Autonomy Debate
regarding International Relations.

Unit-II

Approaches and Theories:-

- a) Idealist Approach
- b) Realist Approach
- c) Systems Approach
- d) Marxian Approach

Unit-III

National Power : Definition, Elements and Assessment, Limitations on
National Power:
International Law, International Morality and World Public Opinion

Unit-IV

Balance of Power, Collective, Security.

Readings

1. John, Baylis and Steve Smith, *Globalization of World Politics*, Oxford, London, 1997.
2. P.Allan and K. Goldman (eds.), *The End of the Cold War*, Dordrecht, Martinus Nijhoff, 1992.
3. S. Burchill et. al., *Theories of International Relations*, Hamsphire, Macmillan, 2001.
4. S.H. Hoffman, *Essays in Theory and Politics of International Relations*, Boulder Colorado, Westview Press, 1989.
5. M.P. Sullivan, *Theories of International Politics: Enduring Paradigm in a Changing World*, Hamsphire, Macmillan, 2001.

MAHARSHI DAYANAND UNIVERSITY ROHTAK

B.A. Part-I, Political Science (Pass Course)

Semester-II

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (i) : Indian Politics

M. Marks : 80

Internal Assessment : 20

Time : 3 Hours

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

UNIT-I

Federalism and its Working with reference to Centre-State Relations, Demand for State

Autonomy; Emerging Trends in Indian Federalism.

UNIT-II

Election Commission, Electoral Process and its Defects and Voting

Behaviour, Electoral

Reforms, Problem of Defection.

UNIT-III

Party System in India: National and Regional Political Parties.

UNIT-IV

Role of Caste, Religion, Language, Regionalism in India, Politics of Reservation.

.

Reading:

1. D.D. Basu and B. Parekh (ed.), Crisis and Change in Contemporary India, New Delhi, Sage, 1994.
2. P. Brass, Politics of India Since Independence, Hyderabad, Orient Longman, 1990.
3. S. Kaushik (ed.), Indian Government and Politics, Delhi University, Directorate of Hindi Implementation racy and Discontent: India's Growing Crisis of Governability, Cambridge, Cambridge University Press, 1991.
4. R. Kothari, Politics in India, New Delhi, Orient Longman, 1970.
5. R. Kothari, Party System and Election Studies, Bombay, Asia Publishing House, 1967.
6. J.R. Siwach, Dynamics of Indian Government & Politics, New Delhi, Sterling Publishers, 1985.
7. R. Thakur, The Government & Politics of India, London, Macmillan, 1995.

MAHARSHI DAYANAND UNIVERSITY ROHTAK

B.A. Part-I, Political Science (Pass Course)

Semester-II

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

M. Marks: 80

Internal Assessment: 20

Time: 3 Hours

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Option (ii): International Relations-II

Unit-I

Ideology in International Relations, National Interest, Foreign Policy, Diplomacy

Unit-II

Cold War, Non-Alignment, End of Cold War.

Unit-III

Meaning of Disarmament and Arms-control: Types of Disarmament; History of Disarmament: NPT, CTBT.

Unit-IV

New International Economic Order, North-South Dialogue, Globalization.

Readings

1. John, Baylis and Steve Smith, *Globalization of World Politics*, Oxford, London, 1997.
2. P.Allan and K. Goldman (eds.), *The End of the Cold War*, Dordrecht, Martinus Nijhoff, 1992.
3. S. Burchill et. al., *Theories of International Relations*, Hamsphire, Macmillan, 2001.
4. K.W. Deutsch, *The Analysis of International Relations*, New Delhi, Prentice Hall, 1989.
5. asingstoke, Macmillan, 1999.
5. F. Halliday, *Rethinking International Relations*, Basingstoke, Macmillan, 1994.
7. M.S. Rajan, *Non-Alignment and the Non-Alignment Movement in the Present World Order*, Delhi, Konark, 1994.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-II, Political Science (Pass Course)
Semester-III

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (i) : Principles of Political Science-I

Max. Marks : 80

Internal Assessment : 20

Time : 3 Hrs.

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Unit-I

Political Science: Definition, Meaning, Nature and Scope.
Relations of Political Science with other Social Sciences.

Unit-II

State: Definition, Elements, Relations with the other organizations.
Theories of the Origin of the State.

Unit-III

Nature of State: Liberal, Marxian.
Functions of State: Liberal and Socialist Views.
Welfare State: Concept and Functions.

Unit-IV

Sovereignty: Definition, Attributes and Types.
Theories of Sovereignty: Monistic and Pluralistic.

Readings

- 1 **The Dynamics of Diplomacy, Jean Robert Leguey- Feilleux, Published by (VIVA) Vinod Vasishta for viva Books Private Ltd., 4732/23 Ansari Road, New Delhi-110002, Printed by Anand Sons, Delhi-100092, First Edition-2010.**
- 2 **The game of Diplomacy- Richard Sharp, Published in Great Britain by Arthur Barker Ltd. London, 1928**
- 3 **Diplomacy for the 21st Century, Naunihal Singh, Naurang Rai Mittal Publications (New Delhi) First Edition- 2002.**
- 4 **Conduct of the New Diplomacy: James H. Cantor, Harper & Row, New York, Evanston and London, Copyright-1964.**
- 5 **Modern Diplomacy: Pivotalities and Dimensions, GVG Krishnanmurthy, Marinder Sagar, Sagar Publications, New Delhi-110001, 1980.**
- 6 **Theory and Practice of Diplomacy: Dr. Harish Chander Sharma, College Book Depot, Jaipur, New Delhi.**

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-II, Political Science (Pass Course)
Semester-III
Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

(Option-ii) Indian Political Thinkers-I

Max. Marks : 80

Internal Assessment :
20

Time : 3 Hrs.

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Unit-I

Raja Ram Mohan Ray and Swami Dayanand,

Unit-II

Dada Bhai Narojee and Gopal Krishan Gokhle

Unit-III

Swami Vivekanand and Aurbind Ghosh

Unit-IV

Lala Lajpat Rai and Bal Gangadhar Tilak

Readings

1. A.S. Altekar, *State and Government in Ancient India*, Delhi, Motilal Banarsidass, 1966.
2. A.Appadorai, *Documents on Political Thought in Modern India*, 2 Vols. Bombay Oxford University Pres, 1970.
3. S. Ghose, *Modern Indian Political Thought*, Delhi, Allied, 1984.
4. V.R. Mehta, *Foundations of Indian Political Thought*, New Delhi, Manohar, 1992.
5. T. Pantham, and K. Deustch (eds), *Political Thought in Modern India*, New Delhi, Sage, 1986.
6. B. Parekh and T. Pantham (eds), *Political Discourse: Exploration in Indian and Western Political Thought*, New Delhi, Sage, 1987.
7. V.R. Mehta, *Foundations of Indian Political Thought*, New Delhi, Manohar, 1992.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-II, Political Science (Pass Course)
Semester-IV
Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (i) : Principles of Political Science-II

M. Marks : 80
Internal Assessment : 20
Time : 3 Hours

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Unit-I

Concepts and Theories of Rights.
Relationships between Rights and duties.
Universal Declaration of Human Rights.

Unit-II

Concept and Theories of Liberty and Equality.
Relationship between Liberty and Equality.

Unit-III

Concepts of Social Change
Concept and Theories and Development.

Unit-IV

RTI and Consumer Protection and Welfare.

Readings

- 1 **The Dynamics of Diplomacy, Jean Robert Leguey- Feilleux, Published by (VIVA) Vinod Vasishtha for viva Books Private Ltd., 4732/23 Ansari Road, New Delhi-110002, Printed by Anand Sons, Delhi-100092, First Edition-2010.**
- 2 **The game of Diplomacy- Richard Sharp, Published in Great Britain by Arthur Barker Ltd. London, 1928**
- 3 **Diplomacy for the 21st Century, Naunihal Singh, Naurang Rai Mittal Publications (New Delhi) First Edition- 2002.**
- 4 **Conduct of the New Diplomacy: James C. Cannon, Harper & Row, New York, Evanston and London, Copyright-1964.**
- 5 **Modern Diplomacy: Perspectives and Dimensions, GVG Krishnanmurthy, Marinder Sagar, Sagar Publications, New Delhi-110001, 1980.**
- 6 **Theory and Practice of Diplomacy: Dr. Harish Chander Sharma, College Book Depot, Jaipur, New Delhi.**

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-II, Political Science (Pass Course)
Semester-IV
Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (ii) : Indian Political Thinkers

Max. Marks : 80
Internal Assessment : 20
Time : 3 Hrs.

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of eight short answer questions of 2 marks each.

Unit-I

Mahatma Gandhi and M.N, Roy

Unit-II

Jawaharlal Nehru and B.R. Ambedkar

Unit-III

Subhash Chander Bose and Bhagat Singh

Unit-IV

J.P. Narayan and Ram Manohar Lohia

Readings

1. A.Appadorai, Indian Political Thinking Through the Ages, Delhi Khanna Publishers, 1992.
2. K.P. Karunakaran, Indian Politics from Dababhai Naoroji to Gandhi : A Study of Political Ideas of Modern India, New Delhi, Gitanjali, 1975.
3. V.R.Mehta, Foundations of Indian Political Thought, New Delhi, Manohar, 1992.
4. V.P. Verma, Modern Indian Political Thought, Agra, Lakshmi Narain Aggarwal, 1974

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-III, Political Science (Pass Course)
Semester-V
Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (i): Comparative Politics

M. Marks: 80
Internal Assessment: 20
Time: 3 Hours

NOTE : Total 10 questions will be set: four each from Part A and Part B and the two from Part C. Candidates will have to attempt five questions in all selecting at least one question from each part. There will be one compulsory multiple choice objective type question.

UNIT-I

Comparative Politics-Definition, Scope; Traditional & Modern Concerns; Comparative Methods.

UNIT-II

Approaches to the Study of Comparative Politics: Input-Output (David Easton), Structural-Function (G. Almond), Political Development, Political Culture (G. Almond).

UNIT-III

Constitutionalism: History, Nature, Type and Problem in Modern Times.

UNIT-IV

Constitutional Structure: (a) Formal-Executive, Legislation and Judiciary, (b) Informal Structures– Political Parties and Pressure Groups.

Readings

1. G.A. Almond and J.S. Coleman, The Politics of the Developing Areas, Princeton NJ, Princeton University Press, 1960.
2. G.A. Almond, and S. Verba, The Civic Culture : Political Attitudes and Democracy in Five Nations, Princeton NJ, Princeton University Press, 1963.
3. L.J.Cantori and A.H. Zeigler (ed.), Comparative Politics in the Post-Behaviouralist Era, London, Lynne Rienner Publisher, 1988.

4. O. Dunleavy and B.O' Leary, Theories of Liberal Democratic State, London, Macmillan, 1987.
5. R. Hauge and M. Harrop, Comparative Government and Politics. An Introduction, 5th edn., New York, Palgrave, 1001.
6. H. Finer, Theory and Practice of Modern Government, London, Methuen, 1969.
7. J.C. Johari, Comparative Political Theory: New Dimensions, Basic Concepts and Major Trends, New Delhi, Sterling, 1987.
8. K. Kumar, Revolution : The Theory and Practice of a European Idea, London, Weidenfeld and Nicolson, 1971.
9. R.C. Macridis, The Study of Comparative Government, New York, Doubleday, 1955.
10. R.C. Macridis and R.E. Ward, Modern Political Systems : Europe, and Asia, 2nd edn. Englewood Cliffs NJ, Prentice Hall, 1968.
11. J. Manor (ed.), Rethinking Third World Politics, London, Longman, 1991.
12. R.C. Macridis, Modern European Governments : Cases in Comparative Policy - Making, Englewood Cliffs NJ, Prentice Hall, 1968.
13. L.W. Pey (ed.), Communication and Political Development, Princeton NJ, Princeton University Press, 1963.
14. R.I. Rotberg (ed.), Politics and Political Change : A Journal of Inter-Disciplinary History Reader, Massachusetts, MIT Press, 1001.
15. H.J. Wiarda (ed.), New Developments in Comparative Politics, Boulder Colorado, Westview Press, 1986.

MAHARSHI DAYANAND UNIVERSITY ROHTAK

B.A. Part-III, Political Science (Pass Course)

Semester-V

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (ii) : International Organization-I

Max. Marks: 80

Internal Assessment: 20

Time: 3 Hrs.

Note: Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of nine short answer questions of 2 marks each.

Unit-I

International Organization: Meaning, Nature and Scope.
Evolution and growth of International Organization.

Unit-II

League of Nations, Structure, Objectives, Functions and Causes of Failure.

Unit-III

U.N.O.: Origins, Objectives and Principles, Membership, Structure and Functions.
Organs of United Nations: General Assembly, Security Councils, Economic and Social Council,
U.N. Secretariat, International Court of Justice

Unit: IV

Specialized Agencies of the United Nations: UNESCO, IMF, ILO, UNICEF, WHO.

Readings:

1. E. Laurd, A History of the United Nations, London, Macmillan, 1989.
2. W.H. Lewis (ed.), The Security Role of the United Nations, New York, Praegar, 1991.
3. P. Baehr and L. Gordenker, The United Nations in the 1990s, London, Oxford University Press, 1992.
4. K. P. Saxena, Reforming the United Nations : The Challenge and Relevance, New Delhi, Sage, 1993.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
B.A. Part-III, Political Science (Pass Course)
Semester-VI
Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (i) : Comparative Constitutions of UK & USA

M. Marks : 80
Internal Assessment : 20
Time : 3 Hours

NOTE : Total 10 questions will be set: four each from Part A and Part B and the two from Part C. Candidates will have to attempt five questions in all selecting at least one question from each part. There will be one compulsory multiple choice objective type question.

UNIT-I

Evolution, Conventions, Legacies and Basic features of Constitutions of UK & USA; Socio-Economic basis of Constitutions of UK & USA.

UNIT-II

Comparative Study of Executive, Legislature

UNIT-III

Comparative study of Judiciary of U.K. & U.S.A.
Comparative studies of Structures, Functions and roles of political parties and pressure groups of UK & USA.

UNIT-IV

Electoral Processes, Voting Behaviour, Bureaucracy of UK & USA.

Readings

1. G. Almond et al., *Comparative Politics Today : A World View*, 7th edn., New York, London, Harper/Collins, 1000.
2. W. Bagehot, *The English Constitution*, London, Fontana, 1963.
3. J. Blondel, *An Introduction to Comparative Government*, London, Weidenfeld and Nicolson, 1969.
4. E.S. Griffith, *The American System of Government*, 6th edn., London, ethuen, 1983.
5. A.Lijphart,(ed.), *Parliamentary versus Presidential Government*, Oxford and New York, Oxford University Press, 1992.
6. M. Rhodes, P. Heywood and V. Wright, *Developments in West European Politics*, Basingstoke, Macmillan, 1997.
7. J. Wilson, *American Government*, 4th edn., Boston Massachusetts, Houghton Mifflin, 1997.

MAHARSHI DAYANAND UNIVERSITY ROHTAK

B.A. Part-III, Political Science (Pass Course)

Semester-VI

Syllabi and Courses of Reading

Note: The candidate will be required to attempt 5 questions in all. Question 1 consisting of (preferably eight) number of short answer type question (having no internal choice) spread over the whole syllabi should be compulsory. The candidate will be required to attempt 4 questions selecting at least one from each unit. All questions will carry equal marks.

Option (ii) : International Organization-II

Max. Marks : 80

Internal Assessment : 20

Time : 3 Hrs.

Note : Students are required to attempt five questions in all, selecting one question from each unit. Question No. 9 (Short Answers) will be from entire syllabus and is compulsory. This section will consist of nine short answer questions of 2 marks each.

Unit-I

Regional Organizations, European Community, SAARC, ASEAN

Unit-II

UN and Social Justice: Human Rights, Decolonization.

Unit-III

Working of the U.N. towards Peace : Peace Making, Peace, Enforcement, Peace building and Peace Keeping, An Assessment of U.N.

Unit: IV

UN and the Third World; Reforms and Democratization of U.N. System, India's claim for Permanent Membership of the Security Council.

Readings

1. Richard K. Ashley, "The Eye of Power : The Politics of World Modelling," International Organization, Vol. 37, No. 3, 1983.
2. E. Laurd, A History of the United Nations, London, Macmillan, 1989.
3. W.H. Lewis (ed.), The Security Role of the United Nations, New York, Praegar, 1991.
4. P. Baehr and L. Gordenker, The United Nations in the 1990s, London, Oxford University Press, 1992.
5. Rikhey, Strengthening UN Peace keeping, London, Hurst and Co., 1993.
6. K. P. Saxena, Reforming the United Nations : The Challenge and Relevance, New Delhi, Sage, 1993.

SCHEME OF B.A. (PASS COURSE) SEMESTER SYSTEM
(PSYCHOLOGY) 2014-17

<u>Class</u>	<u>Nomenclature of paper</u>	<u>Internal Assess.</u>	<u>Theory</u>	<u>Time</u>
B.A.(Sem.-I)	Introduction to Psychology	15	60	3 Hours
-do-	Practical		25	3 Hours
B.A.(Sem.-II)	Experimental Psychology	15	60	3 Hours
- do-	Practical		25	3 Hours
B.A.(Sem.-III)	Social Psychology	15	60	3 Hours
-do-	Practical		25	3 Hours
B.A. (Sem.-IV)	Developmental Psychology	15	60	3 Hours
-do-	Practical		25	3 Hours
B.A.(Sem.-V)	Psychopathology	15	60	3 Hours
-do-	Practical		25	3 Hours
B.A. (Sem.-VI)	Applied Psychology	15	60	3 Hours
-do-	Practical		25	3 Hours

B.A. (PASS COURSE) PSYCHOLOGY SYLLABUS (2014-17)

B.A. (Semester-I)

INTRODUCTION TO PSYCHOLOGY (2014-15)

Theory: 60

Internal Assessment: 15

Time: 3 hours

- Note:** - (i) The question paper will comprise of nine questions, each carrying 12 marks.
(ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
(iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Psychology: History, Emergence as Science, Subject matter.

Methods of Psychology: Experimental, Observation, Survey.

UNIT-II

Sensory Processes: Visual, Auditory – Structure and Functions of Eye and Ear.

Perception: Nature, Perception of form – Figure and ground, Perceptual Organization, Depth Perception–cues.

UNIT-III

Emotion: Nature, Bodily changes. Theories of Emotion: James-Lange, Cannon-Bard and Schachter–Singer.

Motivation: Nature, Biological and Psychological Motives.

UNIT-IV

Personality: Nature, Determinants of personality, Type and Trait approach.

Intelligence: Nature, Theories: Spearman, Thurstone, and Cattell.

References:

- Atkinson, R.L., Atkinson, R.L, et al. (1985) *Introduction to Psychology*. N. Y.: HBJ Publishers.
Singh, A.K. (2009) *Uchattar Samanaya Manovigyan*. Delhi: Moti Lal Banarsidas.
Singh, A. & Singh, U. (1984). *Prayogatamak Manovigyan*. Bhiwani: Vedic Prakashan.
Singh, R. & Shyam, R. (2008) *Adhunik Sangyanatmak Manovigyan*. Panchkula: Haryana Sahitya Akadami.

B. A. (Semester-I)

PRACTICAL

M.Marks : 25

Time : 3 hrs.

1. EPQ/EPI
2. Retinal color zones/Color Blindness
3. Sound Localization
4. Study of emotions.
5. Simple reaction time
6. Verbal Test of Intelligence.
7. Performance Test of Intelligence/RPM.
8. Observation (Speed & accuracy)
9. Experiment on form perception/Depth Perception
10. Test of Motivation.

Note: Students are to conduct and report at least 6(six) practicals.
The examiner will allot one practical at the time of examination.

- Note: -**
- (i) The question paper will comprise of nine questions, each carrying 12 marks.
 - (ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
 - (iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Attention: Nature, Characteristics, and types.

Psychophysics: Problems of Psychophysics and Methods (Classical).

UNIT-II

Learning: Definition, Factors affecting, Trial and error learning,

Insight learning, Classical and Operant conditioning.

UNIT-III

Memory: Definition, Stages, STM and LTM – Methods to Study Memory.

Forgetting: Factors leading to forgetting, Pneomonics.

UNIT-IV

Problem solving: Stages of problem solving, Convergent and Divergent thinking.

Statistics: Frequency Distribution, Graphical presentation of data, Measures of central tendencies.

References:

Atkinson, R.L., Atkinson, R.L, et al. (1985) *Introduction to Psychology*. N. Y.: HBJ Publishers.

D' Amato, M.R. (2001) *Experimental Psychology: Methodology, Psychophysics and Learning*. New Delhi: McGraw Hill.

Singh, A.K. (2009) *Uchattar Samanaya Manovigyan*. Delhi: Moti Lal Banarsidas.

Singh, A. & Singh, U. (1984). *Prayogatamak Manovigyan*. Bhiwani: Vedic Prakashan.

Singh, R. & Shyam, R. (2008) *Adhunik Sangyanatmak Manovigyan*. Panchkula: Haryana Sahitya Akadami.

1. Serial Position Effect.
2. Experiment on STM
3. Experiment on LTM
4. Retroactive Inhibition
5. AL by method of constant stimuli
6. DL by method of limits.
7. Muller-Lyre Illusion
8. Problem Solving
9. Bilateral Transfer of Training/ Maze Learning
10. Span of Attention.

Note: Students are to conduct and report at least 6 (six) practicals.
The examiner will allot one practical at the time of examination.

- Note: -**
- (i) The question paper will comprise of nine questions, each carrying 12 marks.
 - (ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
 - (iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Introduction: Nature, subject matter, Sociometric method.

Socialization: Nature, Process and Agents of Socialization.

UNIT-II

Group: Types and functions; Social Norms: Meaning, Characteristics and formation.

Leadership: Types, Function, Theories– Trait, Situational, and Interactional.

UNIT-III

Attitudes: Characteristics, Development and Attitude change.

Prejudice: Nature, Development and Stereotypes.

UNIT-IV

Prosocial Behaviour: Nature, Determinants ,Cognitive Model.

Aggression: Nature, determinants and prevention.

References:

- Baron, R.A. and Byrne, D. (2008) *Samajik Manovigyan (Hindi Sanskaran)*. Delhi: Pearson.
- Chaube S.P. (1985) *Social Psychology*. Agra: Educational Publishers.
- Perlman, D. and Cozby, P.C. (1983). *Social Psychology*. New York: CBS College Publishing.
- Rai, B.C. (1989) *Social Psychology*. Delhi: Sultan Pub.
- Singh, A.K. (2009). *Samaj Manovigyan ki Rooprekha* . Delhi: Moti Lal Banarsidas.

B.A. (Semester-III)

PRACTICAL

**M.Marks : 25
Time : 3 hrs.**

1. Sociometry
2. Measurement of Attitude
3. Altruism Scale
4. Stereotypes
5. Anger Expression/Aggression Scale
6. Prejudice Scale
7. Leadership Styles
8. Social Facilitation
9. Rosenwig's P.F. Test/Norm formation
10. Social Conformity

Note: Students are to conduct and report at least 6(six) practicals.
The examiner will allot one practical at the time of examination.

- Note: -**
- (i) The question paper will comprise of nine questions, each carrying 12 marks.
 - (ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
 - (iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Human Development; Concept and principles

Factors in human development; Biological, Social and Cultural

UNIT-II

Prenatal development, determinants and stages.

Infancy: Characteristics, Hazards and adjustment.

UNIT-III

Childhood: Characteristics, Perceptual, Motor, Emotional, Cognitive Development.

Adoloscents: Characteristics and problems of adoloscents and adjustment.

UNIT-IV

Adulthood: Early adulthood, late adulthood and aging-Changing patterns and problems.

Measures of variability: Quartile deviation, Standard deviation.

References:

Berk, L.E. (2004). *Development Through the Life Span*. Delhi: Pearson Education.

Hurlock, E.B. (2001) *Developmental Psychology: A life-span approach*. New Delhi: Tata McGraw Hill.

Lal, J.N., & Srivasstava, A. (2001) *Modern Developmental Psychology*. Agra: Vinod Pustak Bhandar.

Sheffer, D.R. & Katherine, K. (2007). *Developmental Psychology: Childhood And Adolescence* NewYork: Thomson Wadsworth.

Santrock, J.W. (1997). *Life Span Development*. Dubuque: Brown and Benchmark.

Singh, R. & Shyam, R. (2008) *Comprehensive Statistics for Behavioural Sciences (in Hindi)*. Sanjay Prakashan, Delhi.

1. Cognitive Development
2. Emotional Maturity Scale
3. Parent-Child Relationship
4. Self Concept
5. Youth Problem Inventory
6. Self Esteem Inventory
7. Study of values
8. Family Environment Inventory
9. Impulsiveness Scale
10. Case Study

Note: Students are to conduct and report at least 6(six) practicals.
The examiner will allot one practical at the time of examination.

- Note: -**
- (i) The question paper will comprise of nine questions, each carrying 12 marks.
 - (ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
 - (iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Concept of normality and abnormality.

Models of Psychopathology: Biological, Psychodynamic, Behavioural, and Cognitive.

UNIT-II

Classification of Psychopathology: Need for classification, DSM system.

Diagnostic Assessment: Case history, Interview, Projective techniques.

UNIT-III

Anxiety Based Disorders: GAD, OCD, and Phobic disorders-Symptom and Causes.

Substance/drug abuse – Causes, Consequences and Rehabilitation.

UNIT-IV

Mood disorders: Unipolar and bipolar-Symptoms and causes.

Schizophrenia: Nature, types, and causes.

References:

- Anand, V. and Srivastva, R. (2003). *Manovikriti Vigyan*, Delhi: Moti Lal Banarsi Das.
- Carson, R.C.; Butcher, J.N., et al. (2007). *Abnormal Psychology*. (13th Ed.) New Delhi: Pearson Education.
- Davison, G.C. & Neale, J.M. (1998). *Abnormal Psychology* (7th Ed.) New York: Willy.
- Sarason, I.G. and Sarason, B.R. (2005). *Abnormal Psychology: The Problem of Maladaptive Behaviour* (10th Ed.) New Delhi: Pearson Education Inc.
- Singh, A.K. (2006). *Adhunik Asamanya Manovigyan*, Delhi: Moti Lal Banarasi Das.
- Srivastava, D.N. (1991) *Adhunik Asamanya Manovigyan* (6th Ed.) Agra: Sahitya.

1. Clinical Interview
2. CAQ
3. TAT
4. WAT
5. Depression Inventory
6. Anxiety Scale
7. WAIS
8. Emotional Intelligence
9. PGI Memory Scale
10. DMI

Note: Students are to conduct and report at least 6 (six) practicals.
The examiner will allot one practical at the time of examination.

- Note: -**
- (i) The question paper will comprise of nine questions, each carrying 12 marks.
 - (ii) Question No. one will be compulsory comprising of 06 short answer questions each carrying 02 marks (each to be answered in 30 words)
 - (iii) Remaining eight questions (essay type) would be set unit-wise (two questions per unit) and the candidate would attempt at least one question from each unit.

UNIT-I

Applied Psychology: Meaning, History, fields, and careers in psychology.

Organizational Psychology: Nature, Scope, objectives, and development.

UNIT-II

Guidance: Objectives, Principles, types of guidance, Organization of guidance programme.

Counselling: Need, Principles, Special areas, and Types of Counselling.

UNIT-III

Health Psychology: Meaning, Scope and Objectives; Concept of health and illness.

Psychological factors in physical illness, Life style and health, Stress and coping.

UNIT-IV

Forensic psychology: Psychology and Law, Eyewitness Memory; Accuracy and improvement.

Statistics: Correlation- Meaning, Rank difference, and Product moment method.

References: -

- Annastasi, A (1979) *Fields of Applied Psychology* (2nd ed.) U.S.A.: McGraw. Hill. Garrett, H.E. (2005) *Statistics in Psychology and Education*. Delhi: Paragon Ind. Pub. Goldstem, A.P.; Krasner, L. (1989) *Modern Applied Psychology*. New York: Pergamon Press. Rao, S.N. (2004). *Guidance and Counselling*. New Delhi: Discovery Publishing House. Taylor, S.E. (2006) *Health Psychology* (6th ed.) Delhi: Tata McGraw Hill.
- Verma, R.S., Singh, S., & Sharma, D. (1982). *Vayavaharik Manovigyan*. Agra: Vinod Pustak Mandir.

B.A. (Semester-VI)

PRACTICAL

M.Marks: 25
Time: 3 hrs.

1. Stress Scale
2. Coping Styles/Wellbeing Scale
3. General Health Questionnaire
4. Life Style Schedule
5. Aptitude Scale
6. Interest Inventory
7. Job Satisfaction
8. Counselling Need Inventory
9. Job Stress Scale
10. Healthiness Scale/Adjustment Inventory

Note: Students are to conduct and report at least 6(six) practicals.
The examiner will allot one practical at the time of examination.

Scheme of B.A. (Economics)

1st Year

Semester-I

	Max. Marks	Internal Assessment
Paper-I Microeconomics-I	80	20

Semester-II

Paper-IMicroeconomics-II	80	20
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B.A. (ECONOMICS)
Semester-I
PAPER 1 : Microeconomics – I

Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.

Unit-I

The Economic Problem: Scarcity and Choice, Functions of an Economic System, Circular Flow of Economic Activities, System of Economic Organization, Micro and Macro Economics, Law of Demand, Elasticity of Demand: concept, types, measurement, determinants and importance.

Unit -II

Consumer Theory: Concept of utility, Cardinal utility analysis, marginal and total utility, consumer's equilibrium, Derivation of demand curve, consumer's surplus.

Ordinal Utility Theory: Indifference curves analysis, characteristics, budget line, marginal rate of substitution, Consumer's Equilibrium, Price, income and substitution effects, Derivation of demand curve, Limitations of utility theory of demand.

Unit- III

Producer's behaviour and Supply: Supply, Firm as an agent of production, Law of variable proportions, Returns to scale, characteristics of Iso-quants, Ridge lines, least cost combination of factors, Internal and external economies and diseconomies. Movements and shifts in supply curve, Elasticity of supply.

Unit - IV

Cost Analysis: Concepts of costs, short period costs and long period costs, Modern Theory of costs,

Revenue: Concepts of revenue; total, average and marginal revenue and their relationships, Break-even-analysis & its uses

Note: -

The question paper will consist of 9 questions. The candidate will be asked to attempt 5 questions in all selecting one question from each unit. Question 9 shall be compulsory consisting of short answer type nine questions of two marks each and spread over the entire syllabus. All questions will carry equal marks.

Books recommended:

1. Paul Samuelson and Nordhaus: Economics, Tata Mcgraw Hill Publishing Company, New Delhi.
2. N. Gregory Mankiw: Principles of Economics, Thomson.
3. J.E. Stiglitz and G.E. Walsh: Principles of Economics, W.W. Norton & Co. N.Y.
4. R.G. Lipsey, and K.A. Chrystal, Principles of Economics Oxford University Press, Oxford.
5. A. Kousiomyonnis, Modern Microeconomics, Macmillan.
6. R.G. Lipsey and K.A. Chrystal, Economics, Oxford University Press, Oxford.

B.A. (ECONOMICS)
Semester-II
PAPER 1 : Microeconomics – II

Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.

Unit – I

Market Structures, Perfect Competition: Characteristics and assumptions, Price determination under perfect competition, Equilibrium of the firm and industry in the short period and the long period.

Monopoly: Characteristics, Equilibrium of the monopoly firm in short period and long period, Concept of supply-curve under monopoly, Price discrimination, Measure of monopoly power.

Unit-II

Imperfect Market: Monopolistic competition, characteristics, short period and long period equilibrium of the firm, Group-equilibrium, selling costs, product differentiation, excess capacity. Oligopoly: Characteristics, emergence of oligopoly, Cournot's model, Bertrand's model, Price rigidity, Price leadership, Collusive and non-collusive oligopoly.

Unit-III

Market failure: Market efficiency, Reasons for Market failure, Public goods and externalities, transaction costs, asymmetric information, public policy towards monopoly and competition.

Unit-IV

Theory of factor pricing: Marginal productivity theory of distribution, Backward bending supply curve of labour, Ricardian and modern theory of rent, quasi-rent, net and gross interest, theories of interest, net and gross profit, theories of profit.

Note: -

The question paper will consist of 9 questions. The candidate will be asked to attempt 5 questions in all selecting one question from each unit. Question 9 shall be compulsory consisting of short answer type nine questions of two marks each and spread over the entire syllabus. All questions will carry equal marks.

Books recommended:

1. Paul Samuelson and Nordhaus: Economics), Tata Mcgraw Hill Publishing Company, New Delhi.
2. N. Gregory Mankiw: Principles of Economics, Thomson.
3. J.E. Stiglitz and G.E. Walsh: Principles of Economics, W.W. Norton & Co. N.Y.
4. R.G. Lipsey, and K.A. Chrystal, Principles of Economics Oxford University Press, Oxford.
5. A. Kousiomyonnis, Modern Microeconomics, Macmillan.
6. R.G. Lipsey and K.A. Chrystal, Economics, Oxford University Press, Oxford.

Note: -

The question paper will consist of 9 questions. The candidate will be asked to attempt 5 questions in all selecting one question from each unit. Question 9 shall be compulsory consisting of short answer type nine questions of two marks each and spread over the entire syllabus. All questions will carry equal marks.

B.A. – II

Semester-III	Macroeconomics-I
Semester-IV	Macroeconomics-II

B.A.-III

Semester-V	Development Economics with one unit of Indian Economy -I
Semester-VI	International Trade and Finance with one unit of Indian Economy - II



B.A. – II (ECONOMICS)
SEMESTER- III

Macroeconomics-I

Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.

Unit-I

Introduction to Macroeconomics and National Income Accounting

Macroeconomics: Nature and Scope; Macroeconomic Issues in an Economy. Concepts of GDP and National Income; Measurement of National Income and Related Aggregates; Nominal and Real Income; Limitations of the GDP concept. Methods of measurement of India's National Income by CSO.

Unit-II

National Income Determination

Actual and potential GDP; Aggregate Expenditure –Consumption Function , Investment Function; Equilibrium GDP; Concepts of MPC , APC, MPS, APS. Autonomous Expenditure; The Concept of Multiplier.

Unit-III

National Income Determination in an Open Economy with Government

Fiscal Policy - Impact of Changes in Govt.Expenditure and Taxes; Net Export Function; Net Exports and Equilibrium GDP.

Unit-IV

GDP and Price Level in Short and Long Run

Aggregate Demand and Aggregate Supply; Multiplier Analysis with AD curve and Price level Changes; Aggregate Supply in Short Run and Long Run.

Reference:

1. R.G.Lipsey and K.A.Chrysal: Principles of Economics (Latest Edition) (Oxford University Press).
2. Joseph E. Stiglitz and Carl E. Walsh Principles of Macroeconomics, W.W. Norton & Company, Inc., New York, N.Y.
3. Paul A. Samuelson and William D. Nordhans (Indian Adoption by Sudip Choudhary and Anindya Sen) : Economics, Tata Mcgraw Hill, New Delhi
4. N. Gregory Mankin: Principles of Macro Economics, Cengage Learning India Pvt. Ltd. New Delhi.
5. Ackley, G (1978), Macroeconomics: Theory and Policy, Macmillan, New York.
6. Banson, W.a. (1989), Macroeconomic Theory and Policy (3rd Ed.), Harper & Row, New York.
7. Shapiro, E (1996), Macroeconomic Analysis Galgotia Publication, New Delhi.

B.A. – II (ECONOMICS)
SEMESTER- IV

Macroeconomics-I

Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.

Money in a Modern Economy

Concept of Money in a Modern Economy; Monetary Aggregates; Demand for Money; Quantity Theory of Money; Liquidity Preference and Rate of Interest; Money Supply, Credit Creation and Monetary Policy.

Unit- II

IS-LM Analysis, Trade Cycle Theory and Growth Theory

Derivation of IS and LM Functions; IS-LM and Aggregate Demand; Shifts in AD Curve. Theories of Trade cycles: Samuelson and Hicks models, Harrod and Domar growth model.

Unit- III

Balance of Payments and Exchange Rate

Gains from International Trade, Balance of Payments; Market for Foreign Exchange; Determination of Exchange Rates.

Unit- IV

Public Finance

Nature and Scope of Public Finance, Principle of Maximum Social Advantage, Effects of Public Expenditure, Impact and Incidence of taxes, Characteristics of a Good Taxation System.

Reference:

1. R.G.Lipsey and K.A.Chrysal: Principles of Economics (Latest Edition) (Oxford University Press).
2. Joseph E. Stiglitz and Carl E. Walsh Principles of Macroeconomics, W.W. Norton & Company, Inc., New York, N.Y.
3. Paul A. Samuelson and William D. Nordhans (Indian Adoption by Sudip Choudhary and Anindya Sen) : Economics, Tata Mcgraw Hill, New Delhi
4. N. Gregorgy Mankin: Principles of Macro Economics, Cengage Learning India Pvt. Ltd. New Delhi.
5. Ackley, G (1978), Macroeconomics: Theory and Policy, Macmillan, New York.
6. Banson, W.a. (1989), Macroeconomic Theory and Policy (3rd Ed.), Harper & Row, New York.
7. Shapiro, E (1996), Macroeconomic Analysis Galgotia Publication, New Delhi.

Scheme of B.A. (Economics) Semester System Pass Course

Session 2013-14

3rd Year

Semester-V **Development Economics Max. Marks: 80 Internal Assessment: 20**

Semester-VI **International Economics Max. Marks: 80 Internal Assessment: 20**

**BA (Economics) Pass Course
2013-14
Semester V
Development Economics**

**Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.**

Unit –I

Features of U.D.C's, Economic Growth and Development; Determinants, Measurement and obstacles of Economic Development, Vicious Circle of Poverty.

Unit-II

Balanced and Unbalanced Growth Theories, Lewis' Model and Leibenstein's Critical minimum effort thesis.

Unit III

Environment, Meaning, features and components of Environment. Scope of Environmental Economics; Environment as a necessity and luxury. Population-Environment linkage. Features of Environment as a public good.

Unit IV

Natural Resources; Environmental pollution, types, causes and effects. Control policies; Environmental legislations in India. Sustainable Development: meaning; indicators, measurement and importance of Sustainable Development.

Note:-

The question paper will consist of 9 questions. The candidate will be asked to attempt 5 questions in all, selecting one question from each unit. Question 9 shall be compulsory consisting of short answer type nine questions of two marks each and spread over the entire syllabus. All questions will carry equal marks.

Book recommended:

1. G. Meir and James E. Rauch (2000), "Leading Issues in Economic Development," Oxford University Press, New York.
2. Goodstein, E.S. (2002), "Economics and the Environment, 3rd edition, Prentice Hall.
3. Sinha
4. S.K. Mishra and V.K. Puri, "Indian Economy", Himalaya Publishing House, New Delhi.
5. Ray, Debraj (2004), "Development Economics," Oxford University Press, New Delhi.
6. Ghatak, Subrata (2003), Introduction to Development Economics, Routledge, London, New York.
7. Thirwall, A. P. (2003), "Growth and Development," 7th ed. Palgrave Macmillan, New York.

**BA (Economics) Pass Course
2013-14
Semester VI
International Economics**

**Max. Marks: 80
Internal Assessment: 20
Time: 3 Hrs.**

Unit-I

Inter-regional and International Trade; Comparative Cost Theory; Hecksher-Ohlin Theory; Rate of Exchange Determination; Mint Par Theory and Purchasing Power Parity Theory

Unit-II

Fixed and Flexible Exchange Rate; Exchange Rate Policy in India. Free Trade Vs Protection; Terms of Trade, Exchange Control.

Unit-III

Change in Value, Volume, Composition and direction of Foreign Trade in India since 1991; Balance of Trade and Balance of Payments Structure, causes of adverse Balance of Payment in India and measure to correct it. Foreign Trade Multiplier.

Unit-IV

Objectives, Functions and advantages for India of International Monetary Fund; World Bank; World Trade Organisation and South Asian Association for Regional Cooperation Preferential Trading Arrangement (SAPTA).

Note:-

The question paper will consist of 9 questions. The candidate will be asked to attempt 5 questions in all selecting one question from each unit. Question 9 shall be compulsory consisting of short answer type nine questions of two marks each and spread over the entire syllabus. All questions will carry equal marks.

Book recommended:

1. Bo-Soderston, "International Economics", Macmillan Press, London.
2. Alok Ghosh, "Indian Economy", World Press, Calcutta.
3. A.N. Aggarwal, "Indian Economy", Vikas Publication, New Delhi.
4. Rudra Dutta and KPM Sundram, "Indian Economy", S.Chand Publication, New Delhi.
5. S.K. Misra and V.K. Puri, "Indian Economy", Himalaya Publishing House, New Delhi.

Department of Geography
Maharshi Dayanand University, Rohtak
Scheme of Examination
w. e. f. Session 2015-16

B.A. Geography (Pass Course)

Paper No.	Title	Internal Assessment	External Assessment	Maximum Marks	Time
Semester-I					
101	Geography of India	15	60	75	3 Hours
102	Maps and scales (Practical)			25	3 Hours
Semester-II					
103	Physical Geography I	15	60	75	3 Hours
104	Representation of Physical Features (Practical)			25	3 Hours
Semester-III(Session 2016-17)					
201	Physical Geography II	15	60	75	3 Hours
202	Representation of Climate Data (Practical)			25	3 Hours
Semester – IV					
203	Human Geography	15	60	75	3 Hours
204	Maps projections (Practical)			25	3 Hours
Semester – V(Session 2017-18)					
301	Economic Geography	15	60	75	3 Hours
302	Distribution Maps and Diagrams (Practical)			25	3 Hours
Semester- VI					
303	Introduction to Remote Sensing, GIS and Quantitative Methods	15	60	75	3 Hours
304	Introduction to Remote Sensing and Field Survey Report (Practical)			25	3 Hours

Paper 101 Geography of India

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks.

SECTION- A

1. India: Location, relief structure and drainage systems.
2. Climate, soils, natural vegetation, and natural disasters in India.

SECTION – B

3. Population: distribution, density, growth and composition.
4. Migration, human settlement types and levels of urbanization.

SECTION-C

5. Land resources, irrigation, regional variations in cropping pattern, Green revolution and problems of Indian agriculture.
6. Energy and mineral resources: coal, petroleum, hydroelectricity and nuclear energy, iron ore, manganese and mica.

SECTION-D

7. Industries- iron and steel, cotton textile, sugar and petrochemical industries; and industrial regions of India.
8. Modes of transport and communication, international trade changing pattern of export and import.

Suggested Readings

1. Deshpande, C D: India – A Regional Interpretation, Northern Book Depot, New Delhi, 1992.
2. Singh, Gopal : Geography of India, Atma Ram and Sons, 2006.
3. Shafi, M : Geography of South Asia, McMillan and Company, Calcutta, 2000.
4. Singh, R L (ed) : India : A Regional Geography, National Geographical Society, India, Varanasi, 1971.
5. Singh, Surender and Saroha, Jitender : Geography of India, Access Publishing India Pvt. Ltd., New Delhi, 2014.
6. Spate, D H K and ATA Learmonth : Indian and Pakistan – Land, People and Economy, Methuen and Company, London, 1967.

Paper 102 Maps and Scales (Practical)

Maximum Marks: 25

Time : 3 Hours

Distribution of Marks

Exercises = 15

Record File = 05

Viva-voce = 05

Note: There will be four questions in all and candidate has to attempt three exercises.

1. Introduction to Cartography.

2. Maps and their types.

3. Map Scales.

Exercises

(i) Methods of Expressing a scale

2

(ii) Conversion of Statement of Scale into R.F. and vice-versa.

(iii) Plain Scale (Km and mile)

(iv) Comparative Scale

1

(v) Diagonal Scale

1

4 Measurement of Distances and Areas on Maps

5 Enlargement and Reduction of Maps

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Mothuen and Co. Ltd., London
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.I. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad.
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Viksa Publication House.

Paper 103 Physical Geography – I

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks.

SECTION- A

1. Definition, Nature, scope and fields of Physical Geography.
2. Interior of the earth, Geological time scale and rocks.

SECTION- B

3. Earth movements; organic, eperogenic, earth quakes and volcanoes.
4. Theory of Isostasy ; Wegner's theory of continental drift and Plate tectonic theory.

SECTION- C

5. Weathering; causes and its types.
6. Mass-movements; causes, its types and impacts.

SECTION- D

7. Concept of cycle of erosion; cycle of erosion by W.M.Davis and
8. Process of Wind, River, Underground water, Glaciers and Sea waves.

References

1. Sharma H.S. Perspective in Geomorphology, Concept, New Delhi 1980.
2. Singh Savinder, Geomorphology, Prayag Publication, Allahabad 1998.
3. Singh Savinder, Physical Geography Prayag Publication, Allahabad, 1998.
4. Sparks B.W. Geomorphology, Jojngman, London, 1960.
5. Thornbury W.D. 1969 Principles of Geomorphology, New York, John Wiley & Sons.

Paper 104 Representation of Physical Features (Practical)

Maximum Marks: 25

Time : 3 Hours

Distribution of Marks

Exercises = 15

Record File = 05

Viva-voce = 05

Note: There will be four questions in all and candidate has to attempt three exercises.

	Exercises
1. Introduction to Topographical Sheets	3
India and adjacent countries	
. Degree Sheet	
. Half Degree Sheet	
. Quarter Degree Sheet	
. Conventional Signs	
2. Methods of representing relief	1
3. Representation of Topographical features by contours.	4
Slopes (Concave, convex, undulating and terraced)	
Valleys (V Shaped, U shaped, Gorge, Re-entrant)	
Ridges (Conical hill, Volcanic hill, Plateau, Escarpment)	
Complex features (waterfall, sea cliff, overhanging cliff, Fiord coast)	
4. Drawing of Profiles	5
(a) Cross Profiles: Serial, superimposed, projected and composite profiles.	
(b) Longitudinal profiles	

Suggested Readings:

1. F.J. Monkhouse and H.R. Wilkinson (1972) Maps and Diagrams, Mothuen and Co. Ltd., London.
2. L.R. Singh and Raghuvander Singh (1973), Map Work and Practical Geography, Central Book Depot, Allahabad.
3. R.I. Singh and P.K. Dutt (1968), Elements of Practical Geography, Students Friends, Allahabad
4. Singh Gopal (2004) 4th edition, Map Work and Practical Geography, Vikas Publication House, New Delhi.

Paper 201 Physical Geography-II

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks.

SECTION-A

1. Weather and Climate; Origin, composition and structure of atmosphere.
2. Insolation, Global heat budget, Horizontal and vertical distribution of temperature, inversion of temperature.

SECTION-B

3. Atmospheric pressure- measurement and distribution, pressure belts, planetary winds, Monsoon, Jet Streams EL NINO- La Nina Phenomenon and Local winds.
4. Humidity- measurement and variables, evaporation, condensation, precipitation forms and types and distribution, hydrological cycle.

SECTION-C

5. Air masses- concept and classification; Fronts- type and characteristics, Weather disturbances- tropical and extra-tropical cyclones.
6. Climate classification by Koppen; climatic change and global warming.

SECTION-D

7. Configuration of oceanic floors and surface relief of Pacific, Atlantic and Indian Oceans; temperature and salinity of oceans.
8. Tides, waves and oceanic currents; circulation in Pacific, Atlantic and Indian Oceans; Oceanic resources.

Suggested Readings:

1. Barry, RG and Chorley R.J., Atmosphere, Weather and Climate, Routledge, 1998.
2. Critchfield, H., General Climatology, Prentice-Hall of India, 2002.
3. King, C. Oceanography for Geographers, Edward Arnold, London, 1975.
4. Trewartha, GT: An Introduction to Climate, Mc-Graw Hill, New York, 1981.
5. Trewartha, G.T., The Earth's Problems Climates, University of Wisconsin Press, USA.

Paper – 202 Representation of Climatic Data (Practical)

Maximum Marks: 25

Time : 3 Hours

Distribution of Marks

Exercises = 15

Record File = 05

Viva-voce = 05

Note: There will be four questions in all and candidate has to attempt three exercises.

1. Measurement of temperature, rainfall, pressure and humidity.
2. Representation of temperature and rainfall.
 - (i) Line and Bar Graph – 1 Exercise.
 - (ii) Distribution of temperature (180 therms) – 1 Exercise.
 - (iii) Distribution of rainfall (180 hytes) – 1 Exercise.
 - (iv) Hythergraph - 1 Exercise.
 - (v) Rainfall deviation diagram - 1 Exercise.
3. Climograph (wet and dry places) - 2 Exercise.
4. Distribution of pressure (180 bars) - 2 Exercise.
5. Weather map Interpretation (January & July) - 2 Exercise.
6. Change and tape survey – 2 Exercise.

Suggested Readings:

1. Mishra R.P. and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Monkhouse, FJ, and Wilkinson H.R., 1972. Maps and Diagrams, Methuen Press, London
3. Robinson, A.H. et.al. Elements of Cartography, John Wiley & Sons, 1995.
4. Singh, R.L., 1979. Elements of Practical Geography, Kalyani Publisher, New Delhi.

Paper 203 Human Geography

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks. Section -I

1. Nature and scope of Human Geography, Branches of Human Geography, Approaches to the study of Human Geography.
2. Division of Mankind: Spatial distribution of race and tribes of India; concept of men-environment relation : A historical approach.

Section - II

3. Human adaptation to the environment (i) Cold region – Eskimo (ii) Hot region- Bushman (iii) Plateau – Gonds (iv) Mountains – Gujjars
4. Meaning, nature and components of resources; Classification of resources – renewal and non- renewable ; biotic and abiotic, recyclable and non recyclable.
Distribution, utilization and conservation of biotic (flora and fauna) and abiotic (water, minerals and energy) resources.

Section - III

5. Distribution and density of world population, population growth, fertility and mortality patterns.
6. Concept of over, under and optimum population; Population theories: Malthus, Ricardo and Marx.

Section-IV

7. Rural settlements: Meaning, classification and types. Urban settlements: Origin, classification and functions of towns.
8. Population pressure, resource use and environment degradation; sustainable development, concept of deforestation, soil erosion, air and water pollution.

Suggested Readings:-

1. Agarwal, A etal : The Citizen's Fifth Citizen's Report, Centre for Science & Environment, New Delhi, 1999.
2. Alexander, John. W. : Economic Geography, Prentice Hall of India Ltd., New Delhi, 1988.
3. Bergwan, Edward E: Human Geography: Culture Connections and Landscape, Prentice-Hall, New Jersey, 1985.
4. Carr, M. Patterns: Process and Change in Human Geography, McMillan Education, London, 1987.
5. Chandna, R.C. : A Geography of Population : Concepts, Determinants and Patterns, Kalyani Publishers, New Delhi, 1986.
6. DeBlij, H. J. : Human Geography, Culture, Society and Space, John Wiley, New York, 1996.
7. Fellman, J.L. : Human Geography-Landscapes of Human Activities, Brown and Benchman Pub., USA, 1997.
8. Global Environment Outlook: Earthscan, London, 2000.
9. McBride, P.J. Human Geography; Systems Patterns and Change, Nelson, UK and Canada, 1996.
10. Michael, Can: New Patterns : Process and Change in Human Geography, Nelson, 1996.

Paper 204 Maps Projections (Practical)

Maximum Marks: 25

Time : 3 Hours

Distribution of Marks

Exercises = 15

Record File = 05

Viva-voce = 05

Note: There will be four questions in all and candidate has to attempt three exercises.

Total Exercises = 15

1. Introduction to Map Projection: Meaning, Classification and importance; Characteristics of latitudes and longitudes lines.
2. Cylindrical projections: Characteristics, applications and drawing; (3)
 - (i) Simple cylindrical projection
 - (ii) Cylindrical equal area projection.
 - (iii) True shape or orthomorphic or Mercator's Projection. (5)
3. Conical Projections: Characteristics, applications and drawing.
 - (i) Simple conical projections with one standard parallel
 - (ii) Simple conical projection with two standard parallel
 - (iii) Bonne's Projection
 - (iv) Polyconic projection.
 - (v) International Map Projection.
4. Zenithal Projections: Characteristics, applications and drawing. (5)
 - (i) Polar Zenithal Equidistant Projection.
 - (ii) Polar Zenithal Equal Area Projection
 - (iii) Polar Zenithal Gnomonic Projection
 - (iv) Polar Zenithal Stereographic Projection.
 - (v) Polar Zenithal Orthographic Projection
5. Characteristics, applications and drawings of (i) Sinosoidal and (2)
(ii) Mollweide Projections.
6. Plane Table Survey. (2)

Suggested Readings:-

1. Goyal K.K.1981.. Practical Geography, Manthan Publication, Rohtak.
2. Gregory S. 1963. Statistical Methods and the Geography, Longman, London.
3. Khan, A.A. 1996. Text Book of Practical Geography, Concept, New Delhi,.
4. Lawarence, GRP1968. Cartographic Methods, Methuen, London,.
5. Monkhouse, F.J. and Wilkinson, H.R1994. Maps and Diagrams, Methuen, London,
6. Pal. S.K. 1998: Statistics for Geoscientist- Techniques and Applications, Concept Publication, New Delhi,.
7. Sarkar, A.K 1997: Practical Geography-A Systematic Approach, Orient Longman, Calcutta,.
8. Singh, R.L. 1972. Elements of Practical Geography, Kalyani Pub., New Delhi
9. Steers, J.B. Map Projections; University of London Press, London.

Paper 301 Economic Geography

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks.

Section A

1. Nature, scope and relationship of economic geography with economics and other branches of social sciences.
2. Classification of economic activities and their impact on environment.

Section B

3. World natural resources: Types, bases and classification.
4. Conservation and utilization of natural resources.

Section C

5. Spatial distribution of food (rice and wheat), commercial (cotton and sugarcane) and plantation crops (tea, rubber and coffee).
6. Classification of mineral resources (ferrous and non-ferrous), distribution and production of coal, iron ore, petroleum and natural gas.

Section D

7. Classification of industries, world distribution and production of iron and steel and textile industry, major industrial complexes of the world.
8. Transport, communication and trade: geographical factors in their development, major modes of water, land and air transport, recent trends in international trade

Suggested Readings:

1. Hartshorne TN and Alexander JW. 1988. Economic Geography, Prentice Hall, New Delhi.
2. Jones CF and Darkenwald GG. 1975. Economic Geography. McMillan Company, New York
3. Thomas, RS. 1962. The Geography of Economic Activities. McGraw Hill, New York.
4. Wheeler J et al. 1995. Economic Geography. John Wiley, New York.

Paper 302 Distribution Maps and Diagrams (Practical)

Maximum Marks: 25

Time : 3 Hours

Distribution of Marks

Exercises = 15

Record File = 05

Viva-voce = 05

Note: There will be four questions in all and candidate has to attempt three exercises.

1. Principal of map design and layout
2. Symbolization: point, line and area symbol
3. Lettering and toponomy
4. Mechanics of map construction
5. Distribution maps
 - (i) Qualitative distribution maps
 - Choroschematic maps- 1 Exercise
 - Chorochromatic maps- 2 Exercise
 - (ii) Quantitative distribution Maps
 - Isopleth maps-3 Exercises
 - Choropleth maps-3 Exercises
 - Dot maps-3 Exercises
 - Diagrammatic maps- 3 Exercises.
6. Prismatic Compass Survey – 2 Exercises.

Suggested readings:

1. Mishra RP and Ramesh A. 1999. Fundamentals of Cartography, Concept Publishing Company, New Delhi.
2. Monkhouse FJ and Wilkinson HR. 1972. Maps and Diagrams, Methuen Press, London
3. Singh Gopal. 2004. Map Work and Practical Geography, Vikas Publication House, New Delhi.
4. Singh RL. 1979. Elements of Practical Geography, Kalyani Publishers, New Delhi

Paper-303-Introduction to Remote Sensing, GIS & Quantitative Methods

Internal Assessment Marks: 15

External Assessment Marks: 60

Maximum Marks : 75

Time : 3 Hours

Note: There shall be nine questions in all. The candidates have to attempt five questions including Question 1 which is compulsory comprising six short questions to be answered in 15-20 words each. In addition the candidates have to attempt four more questions selecting at least one from each section. All questions carry equal marks.

Section-A

1. Introduction to Aerial Photographs: their advantages and types.
2. Elements of aerial Photo interpretation.

Section-B

3. Introduction to Remote Sensing; Electromagnetic spectrum, stages in remote sensing, type of satellites.
4. Types of Imageries and their application in various fields such as agriculture, environment and resource mapping.

Section-C

5. Introduction to Geographical Information System: Definition, purpose, advantages and software and hardware requirements.
6. Application of GIS in various fields of geography.

Section-D

7. Measure of Central Tendency: Mean, Median and Mode.
8. Measure of Dispersion: Range, Quartile deviation and Mean deviation, Standard deviation, Coefficient of variation.

Suggested Readings:

1. Aslam Mahmood 1993. Statistical Methods in Geographical Studies, Rajesh Publications, New Delhi,.
2. John R. Jensen 2009. Remote Sensing of the Environment;, An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi,
3. Kumar Meenakshi 2001. Remote Sensing, NCERT, New Delhi,
4. Lillesand and R.W.Kiefer,2005. Remote Sensing and Image Interpretation, John Wiley and Sons.
5. Pritvish Nag, and M.Kudrat 1998. Digital Remote Sensing, Concept Publishing Company, New Delhi,

**Paper 304 – Introduction to Remote Sensing and Field Survey Report
(Practical)**

**Maximum Marks: 25
Time: 3 Hours**

I - Remote Sensing Practical -15 Marks

Marks Breakup

Exercise = 09

Record book = 03

Viva-voce = 03

Note: There will be four questions in all and candidate has to attempt three exercises.

1. Demarcation of Principal Point, Conjugate Principal point and Flight line on Aerial Photographs – 1 Exercise
2. Determination of Scale of Aerial Photographs – 1 Exercise.
3. Interpretation of Single Vertical Photographs – 1 Exercise.
4. Use of Stereoscope and Identification of Features – 1 Exercise.
5. Identification of Features on IRSID, LISS III imagery (Mark copy of FCC) -1 Exercise.

II Socio-economic Survey and Report Writing -10 marks.

Marks Breakup

Field Survey Report = 06 marks

Viva-voce = 04 marks

Suggested Readings:-

1. John R. Jensen, Remote Sensing of the Environment; An Earth Resource Perspective, Pearson Education, (India Edition) New Delhi, 2009.
2. Lillesand and R.W.Kiefer, Remote Sensing and Image Interpretation, John Wiley and Sons, 1994.

Maharshi Dayanand University

Rohtak



Ordinances, Syllabus and Courses of
Reading for

B. A. Ist year History (Pass Course)
I & II Semester Examination

Session 2014-2015

Scheme of Examination of B.A. 1st year History (Pass Course)

2014-15

1st Semester

Name of the Paper	Max. Marks	Theory	Internal Assessment	Time
Paper-I: History of India (Earliest times to c. 1200 A.D.)	100	80	20	3Hrs.

2nd Semester

Paper-II : History of India (c. 1200 A.D. to 1707 A.D.)	100	80	20	3Hrs.
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Scheme of Examination of B.A. 2nd year History (Pass Course)

2015-16

3rd Semester

Paper-III : History of India (c. 1707 to 1947 A.D.)	100	80	20	3Hrs.
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4th Semester

Paper-IV : History of Haryana (Earliest Times to 1947 A.D.)	100	80	20	3Hrs.
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Scheme of Examination of B.A. 3rd year History (Pass Course)

2016-17

5th Semester

Paper-V: Ancient & Modern World	100	80	20	3Hrs.
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6th Semester

Paper-VI : Modern World	100	80	20	3Hrs.
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B.A. Ist year History (Pass Course) : Ist Semester

Paper-I : History of India (earliest times to c. 1200 A.D.)

Max. Marks	: 100
Theory	: 80
Internal Assessment	: 20
Time	: 3 Hrs.

Note: The paper setter shall set nine questions in all, taking two questions from each unit and one compulsory question (Q.No. 9) containing eight short answer type questions of two marks each covering the entire syllabus. The candidate shall attempt five questions in all selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit-I

1. Reconstructing and Interpreting Ancient India

- a. Defining History, History and Past
- b. Sources of Ancient India

2. Pre-Historical Age

- a. Main features of Palaeolithic, Mesolithic and Neolithic Cultures of India

3. Harappan Civilization

- a. Origin, Extent and Town Planning
- b. Economy and Religion
- c. Problem of Decay

Unit-II

4. The Vedic Age (c.1500 B.C. to 600 B.C.)

- a. Social, Economic Activities
- b. Political, Religious Activities

5. Second Urbanization and the rise of Territorial States

6. New Religious Movements : Jainism & Buddhism

- 7. a. Foreign Invasions:** Achaemenian and Masedonian, their Impacts.
- b. Mauryan Empire:** Formation and Consolidation
 - : Ashoka's Dhamma
 - : Social and Economic condition
 - : Decline of Empire

8. Post Mauryan Age

- a. The Kushanas
- b. Satavahanas
- c. Cholas

9. Gupta Empire

- a. Formation and Consolidation
- b. Contribution to Indian Culture

Post Gupta period

- a. Pushpabhutis
- b. Tripartite Struggle- Pratiharas, Palas, Rastrakutas
- c. Arab & Turkish invasions and their Impacts

Unit-IV

Maps:

1. Important sites of Harappan Civilization
2. Extent of Ashoka's Empire and Pillar Edicts
3. Ports and Trade routes of Ancient India
4. Extent of Kushana's Empire

5. Extent of Harshavardhana Empire

Suggested Readings :

Jha, D.N.	<i>Prachin Bharat</i> , Hindi Madhyam Karyanvaya Nideshalaya, University of Delhi, 1995
Jha , D.N.and K.M. Srimali (ed.)	<i>Prachin Bharat ka Itihas</i> , Hindi Madhyam Karyanvaya Nideshalaya , University of Delhi, 2007
Majumdar, R.C.	<i>Prachin Bharat</i> , Motilal Banarsidass, Delhi, 1973
Mukharjee, R.K.	<i>Prachin Bharat</i> , Raj Kamal Prakashan, New Delhi, 1990
Pandey, A.B.	<i>Purva Madhyakalin Bharat</i> , Central Book Depot, Allahabad, 1999 (Rev. edn.)
Raychaudhry, H.C.:	<i>Political History of Ancient India</i> , University of Calcutta, 1972
Sharma, R.S.	<i>Aspects of Political Ideas and Institutions in Ancient India</i> Motilal Banarasidass, Delhi, 1996 (Rev. Edn.)
Sharma, R.S.	<i>Prarambhik Bharat ka Aarthik aur Samajik Itihas</i> , Hindi Madhyam Karyanvaya Nidishalaya, University of Delhi, 2000.
Thapar, Romila	<i>Adikalin Bharat ki Vyakhya</i> , Granth Shilpi, Delhi, 2008
”	<i>Ancient Indian Social History</i> , Orient Longman, New Delhi, 2004
”	<i>A History of India</i> , Vol. I, Penguin, 1966
”	<i>Ashok aur Maurya Samrajya ka Patan</i> , Granth Shilpi, Delhi, 1997
”	<i>Interpreting Ancient India</i> , Granth Shilpi, New Delhi, 1985
”	<i>Vansh se Rajya Tak</i> , Granth Shilpi, New Delhi, 2004

B.A. Ist year History (Pass Course) : IInd Semester

Paper-II : History of India (c.1200 A.D. to 1707 A.D.)

Max.Marks	: 100
Theory	: 80
Internal Assessment	: 20
Time	: 3 Hrs.

Note: The paper setter shall set nine questions in all, taking two questions from each unit and one compulsory question (Q.No. 9) containing eight short answer type questions of two marks each covering the entire syllabus. The candidate shall attempt five questions in all selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit-I

- 1. Reconstructing and Interpreting Medieval India :** Definition, Sources
- 2. Delhi Sultanate:** Establishment and Consolidation under Early Turks-Aibek, Iltutmish, Balban
- 3. Expansion of Delhi Sultanate** under Khiljis and Tughlaqs, Disintegration of Delhi Sultanate

Unit-II

- 4. India on the eve of Babur's invasion:** His major achievements
- 5. Second Afghan Empire:** Shershah Suri and his major achievements
- 6. Consolidation and Expansion of Mughal Empire :** Akbar, Jahangir, Shahjahan, Aurangzeb

Unit-III

- 7. Administrative Institutional Developments:**
Iqtadari, Mansabdari
- 8. Economic Aspects during Medieval Period :**
 - a. Land Revenue System
 - b. Industries, Trade and Commerce
- 9. Socio-Religious Life during Medieval Period :**
 - a. Bhakti Movement
 - b. Sufi Movement
 - c. Din-e-Ilahi
 - d. Art and Architecture

Unit-IV

Map:

1. Extent of Sultanate under Alauddin Khalji
2. Urban Centres during Sultanate period
3. Political Condition of India on the eve of Babur's invasion
4. India under Akbar(1605 A.D.)
5. India under Aurangzeb(1707 A.D.)

Suggested Readings :

- Chandra, Satish *Madhyakalin Bharat* (Sultanate to Mughals), Vol. I & II, Jawahar Publication, New Delhi, 2000, 2001
- Dodwell, H.H. (ed.) *The Cambridge History of India*, Vol. V, S. Chand & Co., New Delhi, 1986
- Habibulla, A.B.M. *Foundation of Muslim Rule in India*, Central Book Depot, Allahabad, 1976
- Pandey, A.B. *Uttar Madhyakalin Bharat*, Vol. III, Panchsheel Prakashan, Kanpur, 1976
- Sharma, G. D. *Madhyakalin Bharat ki Samajik, Arthik aur Rajnitik Sansthayen*, Rajasthan Hindi Granth Academy, Jaipur, 1990
- Srivastava, A.L. *Madhyakalin Bhartiya Sanskriti*, Shivalal & Agrawal Company Prakashan, Agra, 1975
- Verma, H.C. *Madhyakalin Bharat*, Vol. I & II, Hindi Madhyam, Karyanvaya Nideshalaya, University of Delhi , 2000

B.A. 2nd year History (Pass Course) : IIIrd Semester

Paper -III : History of India (c.1707-1947 A.D.)

Max.Marks	: 100
Theory	: 80
Internal Assessment	: 20
Time	: 3 Hrs.

Note: The paper-setter shall set nine questions in all, taking two questions from each unit and one compulsory question (Q.No. 9), containing eight short answer type questions of two marks each, covering the entire syllabus. The candidate shall attempt five questions in all, selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit-I

1. Disintegration of central authority

- a. Decline of Mughal Empire and Rise of successor states
- b. British Conquest of India: its nature: a brief survey-
Eastern India- Bengal; Southern India- Mysore and Marathas ;North and
Western India-Awadh, Sind and Punjab

2. Consolidation of British rule and resistance

- a. Administration and Foreign policy
- b. Early resistance and Revolt of 1857

Unit-II

3. Society of India

- a. Social condition in 18th century
- b. Indian cultural renaissance
- c. Social impact of British rule

4. Economy of India

- a. Economic condition in 18th century
- b. British land revenue policy
- c. Rise of Modern Industry
- d. Economic impact of British rule

Unit-III

5. Emergence of Nationalism

- a. Causes of the emergence of National Movement
- b. Indian National Congress and National Freedom Movement (1885-1947)
- c. Revolutionaries

6. Towards Freedom

- a. Constitutional Development: 1909 to 1935
- b. Emergence of Communal and separatists politics
- c. Negotiations for independence and transfer of power

Unit-IV

Maps

1. India during 1764
2. Important places of 1857 Revolt
3. Centers of socio-religious movements.
4. Important places of Revolutionary Movements.
5. Places associated with significant sessions of Indian National Congress

Suggested Readings:

Bipan, Chandra(ed.)	<i>Bharat ka Swatantrata Sangharsh</i> , Hindi Madhyam Karyanvay Nideshalay, University of Delhi, 1998
Desai,A.R.	<i>Bhartiya Rashtravad ki Samajik Prishthabhumti</i> , Macmillan, Delhi, 1967
Kashyap, Subhash	<i>Swatantrata Andolan ka Itihas</i> , Hindi Madhyam Karyanvay Nideshalay, University of Delhi,1997
Ray, Satya M.(ed.)	<i>Bharat mein Upniveshwad aur Rashtravad</i> , Hindi Madhyam Karyanvay

	Nideshalay , University of Delhi,1986
Sarkar,Sumit	<i>Adhunik Bharat</i> , Rajkamal Publication, Delhi, 1999
Sharma, Ramvilas	<i>Swadhinta Sangram ke Badalte Paripeksh</i> , Hindi Madhyam Karyanvay Nideshalay, University of Delhi, 1995
Spear, Percival	<i>Oxford History of India</i> , Oxford University Press, New Delhi,1974
Stokes,Eric	<i>Peasant and the Raj</i> , Cambridge University Press, Delhi, 1975
Sukla,R.L.(ed.)	<i>Adhunik Bharat ka Itihas</i> , Hindi Madhyam Karyanvay Nideshalay, University of Delhi,1990
Tara Chand	<i>History of the Freedom Movement in India</i> , Vol. 1 to 4, The Publication Division, Ministry of Information and Broadcasting, Delhi,1961
Verma, H.C. (ed.)	<i>Madhya Kaleen Bharat</i> ,(1540-1761),Vol.2 Hindi Madhyam Karyanvay Nideshalay, University of Delhi, 2002

B.A. 2nd year History (Pass Course) : IVth Semester

Paper-IV: History of Haryana (from earliest times to 1947 A.D.)

Max.Marks	: 100
Theory	: 80
Internal Assessment	: 20
Time	: 3 Hrs.

Note: The paper-setter shall set nine questions in all, taking two questions from each unit and one compulsory question (Q.No. 9), containing Eight short answer type questions of two marks each, covering the entire syllabus. The candidate shall attempt five questions in all, selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit-I

1. Regional Study : A case of Haryana

- a. General survey of sources of the History of Haryana
- b. Stone age in Haryana: A brief survey
- c. Harappan Civilization : General features

2. Towards State Formation

- a. Kurus, Historicity of the battle of Mahabharata
- b. Rise of Republics: Yaudheyas and Agras

3. Rise of Powers during Early Medieval Period

- a. Pushabhutis
- b. Tomars

Unit-II

4. Battles and Revolts during Medieval Period

- a. Battles of Tarain and their impact
- b. Battles of Panipat and their impact
- c. Resistance of Jats, Revolt of Satnamis

5. Political Developments in 18th Century

- a. Nawabi Kingdoms and Intrusion of Sikhs
- b. Marathas, George Thomas and East India Company

Unit-III

6. Political and Social Reactions of British Rule

- a. Revolt of 1857
- b. Arya Samaj
- c. Spread of Modern Education

7. Freedom Movement in Haryana

- a. Political consciousness and peoples' participation-1885-1919

8. Towards Freedom

- a. Mass Movements: Non-co-operation and Quit India Movement
- b. Unionist Party
- c. Praja Mandal Movement: A brief Survey

Unit-IV

Maps

1. Main centres of Harappan civilization in Haryana
2. Haryana at the time of Harshavardhana
3. Urban centres(1200 AD to 1700 AD) during Medieval Period
4. Major centres of 1857 Revolt in Haryana
5. Main centres of Freedom Struggle in Haryana

Suggested Readings:

Buddha Prakash	<i>Glimpses of Haryana</i> , Kurukshetra University Press, Kurukshetra, 1967
Buddha Prakash	<i>Haryana Through The Ages</i> , Kurukshetra University Press Kurukshetra, 1976
Fredman, J.L., Lodrick, D.O. and Rudolph, L.I.(eds.)	<i>The Idea of Rajasthan: Exploration in Regional Identity</i> , Manohar Publication, New Delhi, 2001
Mittal, S.C.	<i>Haryana: Historical Perspective</i> , Atlantic Publishers, New Delhi, 1986
Phadke, H.A.	<i>Haryana: Ancient and Medieval</i> , Harman Publishing House, New Delhi, 1999
Rai, Gulshan	<i>Formation of Haryana</i> , B.R. Publishing Corporation, Delhi, 1987
Singh, Pardaman & Shukla, S.P	<i>Freedom Struggle in Haryana and the Indian National Congress (1885-1985)</i> , Chandigarh, 1985
Shukla, S.P.	<i>India's Freedom Struggle and the Role of Haryana</i> , Criterion Publications, New Delhi, 1985
Yadav, J.N.Singh	<i>Haryana Studies in History and Politics</i> , Manohar Publication, Delhi, 1976
Yadav, K.C	<i>Haryana Itihas evam Sanskriti</i> , Vol. 1-2, Manohar Publication, Delhi, 1998
Yadav, K.C.	<i>Haryana Ka Itihas</i> , Vol. 1-3, Macmillan, New Delhi, 1982

B.A. III Year (Pass Course) - Semester V

Paper - V : Ancient and Medieval World

Max Marks	:	100
Theory	:	80
Internal Assessment	:	20
Time	:	3 Hrs.

Note: The paper setter shall set nine questions in all taking two question from each unit and one compulsory question (Q. No. 9) containing Eight short answer type questions of two marks each covering entire syllabus. The candidate shall attempt five questions in all selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit – I

1. Pre-Historic Cultures

- (a) Hunting stage (Paleolithic)
- (b) Hunting – gathering stage (Mesolithic)
- (c) Food producing stage (Neolithic)

2. Bronze Age Civilizations

- (a) Sumerian Civilization : Socio-economic structure
- (b) Egyptian Civilization : Socio-economic structure
- (c) Indus Civilization : Socio-economic structure

Unit - II

3. Iron age civilizations

- (a) Greek civilization : Polity, Society and Economy
- (b) Roman civilization : Polity, Society and Economy
- (c) Indian civilization : P.G.W. Culture

4. Feudalism in Medieval Europe

- (a) Feudalism : Definition, Rise, Features and Decline
- (b) Role of Church in Medieval Europe

Unit – III

5. Islamic World

- (a) Rise of Islam : Socio-Political background of Pre-Islamic Arabia, Evolution of Islamic State under Prophet Muhammad, Pious Caliphs
- (b) State under Umayyads and Abbasids; Intellectual and cultural contribution of the Arab civilization

6. Transition of Europe from Medieval to Modern Period :

- (a) Renaissance : Rise and it's impact
- (b) Reformation : Rise and it's impact

Unit IV

7. Map Work

- a. Indus valley civilization
- b. Main centers of Greek-Roman civilization
- c. Formation of empire under Abbasids

Suggested Readings

Anderson, Perry	Passages from Antiquity to Feudalism, Verso Publication, London, 1978.
Andes, Antony	Greek Society, Penguin, London, 1975 (reprint)
Childe, G.	What Happened in History, Penguin Books, London, 1964
Clark, Grahame	World Prehistory in New Perspective, Cambridge University Press, 1996 (reprint)
Duby, Shayam Charan	Manav aur Sanskriti, Raj Kamal, Delhi 1993.
Goyal, Shriram	Vishva ki Prachin Sabhyatayen, Vishavavidyalaya Prakashan, Varanasi, 1994
Pandey, Jainender	Puratattva Vimarsh, Prachya Vidya Sansthan, Allahabad, 1983
Pathak, Sushil Madhav	Vishva ki Prachin Sabhyataon ka Itihas, Bihar Hindi Granth Academy, Patna, 1986
Possehl, Gregory (ed.)	Harappan Civilization: Contemporary Perspective, Oxford

	University Press, 1982
Ray, Uday Naraian	Vishva Sabhyata ka Itihas, Lok Bharti, Allahabad, 1982
Sahu, Kishori Prasad	Islam Udbhava aur Vikas, Bihar Hindi Granth Academy, Patna, 2008
Sharma, Devprakash	Bharat evam Sindhu Sabhyata, Sharda Publishing House, Delhi, 1999
Salmon, T. Edward	A History of the Roman World, Methuen & Co., London, 1968
Shukla, Sankta Prasad & Singh, Rajender	Vishav Ki Prachin Sabhaytaye Avam Sansthaaye, Pointer Publication, Jaipur, 2003
Shukal, Sankta Prasad & Thaplyal, Kiran Kumar	Sindhu Sabhyata, Uttar Pradesh Hindi Granth Academy, Lucknow, 1976
Virotaam, Bal Mukund	Madhayakalin Europe ka Itihas, Bihar Hindi Granth Academy, Patna, 1985
Wheeler, Mortimer	Prithvi se Puratatva, Vaigyanik tatha Takniki Shabdawali Aayog, New Delhi, 1968

B.A. III Year (Pass Course)- Semester VI

Paper VI : Modern World

Max Marks	:	100
Theory	:	80
Internal Assessment	:	20
Time	:	3 Hrs.

Note: The paper setter shall set nine questions in all taking two question from each unit and one compulsory question (Q. No. 9) containing Eight short answer type questions of two marks each covering entire syllabus. The candidate shall attempt five questions in all selecting one question from each unit and the compulsory question. All questions shall carry equal marks.

Unit – I

- 1. Economic Development – I**
 - (a) Mercantilism
 - (b) Agricultural Revolution
 - (c) Technological Revolution
- 2. Economic Development – II**
 - (a) Capitalism – Its stages and development
 - (b) Imperialism – Its theories and development

Unit - II

- 3. Political Development – I**
 - (a) French Revolution
 - (b) Liberalism in Britain
 - (c) Nationalism in Germany & Italy
- 4. Political Development – II**
 - (a) Russian Revolution
 - (b) Fascism in Italy
 - (c) Nazism in Germany

Unit – III

- 5. Colonialism**
 - (a) Stages of Colonialism in India
 - (b) China and the West
 - (c) Japan and the West
- 6. World in the Crisis**
 - (a) Ist World War and peace settlements
 - (b) IInd World War
- 7. Non-Alignment Movement**
 - (a) Origin
 - (b) Development

Unit IV

- 8. Maps**
 - i. Area of Agriculture Revolution
 - ii. Europe on the eve of French Revolution
 - iii. Unification of Italy
 - iv. Unification of Germany

Suggested Readings

Chauhan, Devender Singh	Europe ka Itihas, Madhay Pradesh Hindi Garanth Academy, Bhopal, 1996
Derfler, Leslie	Europea wampanth ke sau varsh (Socialism since Marx) Macmillan, Delhi ,1977.
Fisher, H.A.L.	History of Europe 2. From the Beginning of the Eighteenth Century of 1935.
Grant, Arthur James and Temperley, Harold	Europe in the Nineteenth and Twentieth Centuries, Vol. I-II, Longman, London, 1976
Gupta, Parthasarthi (ed.)	Europe ka Itihas, Delhi : Hindi Madhyam Karayavan Nideshalaya, University of Delhi, 1993 (reprint)
Jain & Mathur	Adhunik Vishva ka Itihas (1500-2000), Jain Prakashan Mandir, Jaipur, 2002
Phukam, Meenaxi	Rise of the Modern West : Social and Economic History of Early Modern Europe, Macmillan, Delhi, 1998
Rai, Kaulaswar	Adhunik Europe (1789-1945), Kitab Mahal, Allahabad, 1986
Sinha, Arvind	Sankranti Kaleen Europe, Granth Shilpi, Delhi, 2009
Thomson, David	Europe since Napoleon, Penguin Books, London, Reprinted, 1990
Vijay, Devesh	Adhunik Europe Ka Itihas, Delhi : Hindi Madhyam Karayanvan Nideshalaya, Delhi Vishwvidhyalaya, 2010
Vijay, Devesh (ed)	Europia Sanskriti (1400-1800), Delhi : Hindi Madhyam Karayanvan Nideshalaya, Delhi Vishwvidhyalaya, 2009

NEW SCHEME

Scheme of Examination of B.A. 1st Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
BM 111	Algebra	6 periods/ 4 hours per week	27	6	100
BM 112	Calculus	6 periods/ 4 hours per week	27	7	
BM 113	Solid Geometry	6 periods/ 4 hours per week	26	7	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Algebra**Paper: BM 111****Max. Marks:**

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices. Rank of a matrices. Inverse of a matrix. Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix. Cayley Hamilton theorem and its use in finding the inverse of a matrix.

Section – II

Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations. Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.

Section – III

Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations.

Section – IV :

Nature of the roots of an equation Descarte's rule of signs. Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions.

Books Recommended :

1. H.S. Hall and S.R. Knight : Higher Algebra, H.M. Publications 1994.
2. Shanti Narayan : A Text Books of Matrices.
3. Chandrika Prasad : Text Book on Algebra and Theory of Equations.
Pothishala Private Ltd., Allahabad.

(w.e.f. 2018-19)

Calculus**Paper: BM 112****Max. Marks:**

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

Section – II

Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves. Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Type of cusps.

Section – III :

Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae. Rectification, intrinsic equations of curve.

Section – IV :

Quadrature (area) Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. Theorems of Pappu's and Guilden.

Books Recommended :

1. Differential and Integral Calculus : Shanti Narayan.
2. Murray R. Spiegel : Theory and Problems of Advanced Calculus. Schaun's Outline series. Schaum Publishing Co., New York.
3. N. Piskunov : Differential and integral Calculus. Peace Publishers, Moscow.
4. Gorakh Prasad : Differential Calculus. Pothishasla Pvt. Ltd., Allahabad.
5. Gorakh Prasad : Integral Calculus. Pothishala Pvt. Ltd., Allahabad.

(w.e.f. 2018-19)

Solid Geometry**Paper: BM 113****Max. Marks:****5 x 4 = 20****1 x 6 = 6****Total = 26****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of conic. System of conics. Confocal conics. Polar equation of a conic, tangent and normal to the conic.

Section – II :

Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, radical plane of two spheres. Co-axial system of spheres

Cones. Right circular cone, enveloping cone and reciprocal cone.

Cylinder: Right circular cylinder and enveloping cylinder.

Section – III :

Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoids. Polar plane of a point. Enveloping cone of a coinoid. Enveloping cylinder of a coinoid.

Section – IV :

Paraboloids: Circular section, Plane sections of conicoids.

Generating lines. Confocal conicoid. Reduction of second degree equations.

Books Recommended

1. R.J.T. Bill, Elementary Treatise on Coördinary Geometry of Three Dimensions, MacMillan India Ltd. 1994.
2. P.K. Jain and Khalil Ahmad : A Textbook of Analytical Geometry of Three Dimensions, Wiley Eastern Ltd. 1999.

NEW SCHEME

Scheme of Examination of B.A. 2nd Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
BM 121	Number Theory and Trigonometry	6 periods/ 4 hours per week	27	6	100
BM 122	Ordinary Differential Equations	6 periods/ 4 hours per week	27	7	
BM 123	Vector Calculus	6 periods/ 4 hours per week	26	7	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Number Theory and Trigonometry**Paper: BM 121****Max. Marks:**

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple)
Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat's theorem. Wilson's theorem and its converse. Linear Diophantine equations in two variables

Section – II :

Complete residue system and reduced residue system modulo m . Euler's ϕ function Euler's generalization of Fermat's theorem. Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function $[x]$. The number of divisors and the sum of divisors of a natural number n (The functions $d(n)$ and $\sigma(n)$). Moebius function and Moebius inversion formula.

Section - III :

De Moivre's Theorem and its Applications. Expansion of trigonometrical functions. Direct circular and hyperbolic functions and their properties.

Section – IV :

Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity. Gregory's series. Summation of Trigonometry series.

Books Recommended :

1. S.L. Loney : Plane Trigonometry Part – II, Macmillan and Company, London.
2. R.S. Verma and K.S. Sukla : Text Book on Trigonometry, Pothishala Pvt. Ltd. Allahabad.
3. Ivan Niven and H.S. Zuckerman. An Introduction to the Theory of Numbers.

(w.e.f. 2018-19)

Ordinary Differential Equations**Paper: BM 122****Max. Marks:**

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange's equations, Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions.

Section – II :

Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves.. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous linear ordinary differential equations.

Section – III :

Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients.

Section – IV :

Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact. General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Method of auxiliary equations.

Books Recommended :

1. D.A. Murray : Introductory Course in Differential Equations. Orient Longman (India) . 1967
2. A.R.Forsyth : A Treatise on Differential Equations, Machmillan and Co. Ltd. London
3. E.A. Coddington : Introduction to Differential Equations.
4. S.L.Ross: Differential Equations, John Wiley & Sons
5. B.Rai & D.P. Chaudhary : Ordinary Differential Equations; Narosa, Publishing House Pvt. Ltd.

(w.e.f. 2018-19)

Vector Calculus**Paper: BM 123****Max. Marks:**

5 x 4 = 20
1 x 6 = 6
Total = 26

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Scalar and vector product of three vectors, product of four vectors. Reciprocal vectors. Vector differentiation. Scalar Valued point functions, vector valued point functions, derivative along a curve, directional derivatives

Section – II

Gradient of a scalar point function, geometrical interpretation of grad Φ , character of gradient as a point function. Divergence and curl of vector point function, characters of Div \vec{f} and Curl \vec{f} as point function, examples. Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator.

Section – III

Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors. Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates and Spherical co-ordinates.

Section – IV

Vector integration; Line integral, Surface integral, Volume integral.
Theorems of Gauss, Green & Stokes and problems based on these theorems.

Books Recommended:

1. Murraray R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murraray R. Spiegel : Vector Analysis, Schaum Publisgning Company, New York.
3. N. Saran and S.N. Nigam. Introduction to Vector Analysis, Pothishala Pvt. Ltd., Allahabad.
4. Shanti Narayna : A Text Book of Vector Calculus. S. Chand & Co., New Delhi.

NEW SCHEME

Scheme of Examination of B.A. 3rd Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
BM 231	Advanced Calculus	6 periods/ 4 hours per week	27	6	100
BM 232	Partial Differential Equations	6 periods/ 4 hours per week	27	7	
BM 233	Statics	6 periods/ 4 hours per week	26	7	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Advanced Calculus

Paper: BM 231

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chain rule of differentiability. Mean value theorems; Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations. Taylor's Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives, Indeterminate forms.

Section – II

Limit and continuity of real valued functions of two variables. Partial differentiation. Total Differentials; Composite functions & implicit functions. Change of variables. Homogenous functions & Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables.

Section – III

Differentiability of real valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem. Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers.

Section – IV

Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involute, evolutes, Bertrand Curves. Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.

Books Recommended:

1. C.E. Weatherburn : Differential Geometry of three dimensions, Radhe Publishing House, Calcutta
2. Gabriel Klaumber : Mathematical analysis, Mrcel Dekkar, Inc., New York, 1975
3. R.R. Goldberg : Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970
4. Gorakh Prasad : Differential Calculus, Pothishala Pvt. Ltd., Allahabad
5. S.C. Malik : Mathematical Analysis, Wiley Eastern Ltd., Allahabad.
6. Shanti Narayan : A Course in Mathematical Analysis, S.Chand and company, New Delhi
7. Murray, R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing co., New York

(w.e.f. 2018-19)

Partial Differential Equations

Paper: BM 232

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Partial differential equations: Formation, order and degree, Linear and Non-Linear Partial differential equations of the first order: Complete solution, singular solution, General solution, Solution of Lagrange's linear equations, Charpit's general method of solution. Compatible systems of first order equations, Jacobi's method.

Section – II

Linear partial differential equations of second and higher orders, Linear and non-linear homogenous and non-homogenous equations with constant co-efficients, Partial differential equation with variable co-efficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals, Equations reducible to linear equations with constant co-efficients.

Section – III

Classification of linear partial differential equations of second order, Hyperbolic, parabolic and elliptic types, Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions, Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order.

Section – IV

Cauchy's problem for second order partial differential equations, Characteristic equations and characteristic curves of second order partial differential equation, Method of separation of variables: Solution of Laplace's equation, Wave equation (one and two dimensions), Diffusion (Heat) equation (one and two dimension) in Cartesian Co-ordinate system.

Books Recommended:

1. D.A.Murray: Introductory Course on Differential Equations, Orient Longman, (India), 1967
2. Erwin Kreyszing : Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999
3. A.R. Forsyth : A Treatise on Differential Equations, Macmillan and Co. Ltd.
4. Ian N.Sneddon : Elements of Partial Differential Equations, McGraw Hill Book Company, 1988
5. Frank Ayres : Theory and Problems of Differential Equations, McGraw Hill Book Company, 1972
6. J.N. Sharma & Kehar Singh : Partial Differential Equations

(w.e.f. 2018-19)

Statics

Paper: BM 233

Max. Marks:

5 x 4 = 20
1 x 6 = 6
Total = 26

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions (each carrying 5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Composition and resolution of forces. Parallel forces. Moments and Couples.

Section – II

Analytical conditions of equilibrium of coplanar forces. Friction. Centre of Gravity.

Section – III

Virtual work. Forces in three dimensions. Poinsots central axis.

Section – IV

Wrenches. Null lines and planes. Stable and unstable equilibrium.

Books Recommended:

1. S.L. Loney : Statics, Macmillan Company, London
2. R.S. Verma : A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad

NEW SCHEME**Scheme of Examination of B.A. 4th Semester Mathematics
(w.e.f. 2018-2019)**

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks			
			Theory	Internal Assessment	Practical	Total
BM 241	Sequences and Series	6 periods/ 4 hours per week	27	6	--	100
BM 242	Special Functions and Integral transforms	6 periods/ 4 hours per week	27	7	--	
BM 243	Programming in C and Numerical Methods	6 periods/ 4 hours per week	20	--	13	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)
Sequences and Series

Paper: BM 241

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. Bolzano-Weierstrass theorem, Open covers, Compact sets and Heine-Borel Theorem.

Section – II

Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence, Subsequences, Subsequential limits.

Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series, Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series.

Section – III

Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.

Section – IV

Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: Abel's lemma, Abel's test, Dirichlet's test, Insertion and removal of parenthesis, re-arrangement of terms in a series, Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem (statement only), Multiplication of series, Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products.

Books Recommended:

1. R.R. Goldberg : Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970
2. S.C. Malik : Mathematical Analysis, Wiley Eastern Ltd., Allahabad.
3. Shanti Narayan : A Course in Mathematical Analysis, S.Chand and company, New Delhi
4. Murray, R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing co., New York
5. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
6. Earl D. Rainville, Infinite Series, The Macmillan Co., New York

(w.e.f. 2018-19)
Special Functions and Integral Transforms

Paper: BM 242

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions. Bessel equation and its solution: Bessel functions and their properties-Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.

Section – II

Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties-Recurrence Relations and generating functions. Orthogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials, Laplace Integral Representation of Legendre polynomial.

Section – III

Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform.

Section – IV

Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem, Fourier Transform of Derivatives, Relations between Fourier transform and Laplace transform, Parseval's identity for Fourier transforms, solution of differential Equations using Fourier Transforms.

Books Recommended:

1. Erwin Kreyszing : Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999
2. A.R. Forsyth : A Treatise on Differential Equations, Macmillan and Co. Ltd.
3. I.N. Sneddon : Special Functions on mathematics, Physics & Chemistry.
4. W.W. Bell : Special Functions for Scientists & Engineers.
5. I.N. Sneddon: the use of integral transform, McGraw Hill, 1972
6. Murray R. Spiegel: Laplace transform, Schaum's Series.

(w.e.f. 2018-19)

Programming in C and Numerical Methods**Part-A (Theory)****Paper: BM 243****Max. Marks:****3.5 x 4 = 14****1 x 6 = 6****Total = 20****Time: 3 Hours**

Note:- The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 3.5 marks), and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Programmer's model of a computer, Algorithms, Flow charts, Data types, Operators and expressions, Input / outputs functions.

Section – II

Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops, Switch Statement & Case control structures. Functions, Preprocessors and Arrays.

Section – III

Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters. Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures. Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions.

Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods.

Section – IV

Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method.

Books Recommended:

1. B.W. Kernighan and D.M. Ritchie : The C Programming Language, 2nd Edition
2. V. Rajaraman : Programming in C, Prentice Hall of India, 1994
3. Byron S. Gottfried : Theory and Problems of Programming with C, Tata McGraw-Hill Publishing Co. Ltd., 1998
4. M.K. Jain, S.R.K. Lyengar, R.K. Jain : Numerical Method, Problems and Solutions, New Age International (P) Ltd., 1996
5. M.K. Jain, S.R.K. Lyengar, R.K. Jain : Numerical Method for Scientific and Engineering Computation, New Age International (P) Ltd., 1999
6. Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd.
7. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill Publishing Co. Ltd.
8. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill Publishing Co. Ltd.
9. Babu Ram: Numerical Methods, Pearson Publication.
10. R.S. Gupta, Elements of Numerical Analysis, Macmillan's India 2010.

Part-B (Practical)**Max. Marks: 13****Time: 3 Hours**

There will be a separate practical paper which will consist simple programs in C and the implementation of Numerical Methods, studied in the paper BM 243 (Part-A).

NEW SCHEME**Scheme of Examination of B.A. 5th Semester Mathematics
(w.e.f. 2018-2019)**

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks			
			Theory	Internal Assessment	Total	Total
BM 351	Real Analysis	6 periods/ 4 hours per week	27	6	--	100
BM 352	Groups and Rings	6 periods/ 4 hours per week	27	7	--	
BM 363	Numerical Analysis	6 periods/ 4 hours per week	20	--	13	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)
Real Analysis

Paper: BM 351

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks), and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Riemann integral, Integrability of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus.

Section – II

Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter. Continuity, Differentiability and integrability of an integral of a function of a parameter.

Section – III

Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle

Section – IV

Continuous functions, uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property, continuity in relation with compactness, connectedness, components, continuity in relation with connectedness.

Books Recommended:

1. P.K. Jain and Khalil Ahmad: Metric Spaces, 2nd Ed., Narosa, 2004
2. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
3. R.R. Goldberg : Real analysis, Oxford & IBH publishing Co., New Delhi, 1970
4. D. Somasundaram and B. Choudhary : A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997
5. Shanti Narayan : A Course of Mathematical Analysis, S. Chand & Co., New Delhi
6. E.T. Copson, Metric Spaces, Cambridge University Press, 1968.
7. G.F. Simmons : Introduction to Topology and Modern Analysis, McGraw Hill, 1963.

(w.e.f. 2018-19)
Groups and Rings

Paper: BM 352

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria, Generation of groups, cyclic groups, Cosets, Left and right cosets, Index of a sub-group Coset decomposition, Lagrange's theorem and its consequences, Normal subgroups, Quotient groups,

Section – II

Homomorphisms, isomorphisms, automorphisms and inner automorphisms of a group. Automorphisms of cyclic groups, Permutations groups. Even and odd permutations. Alternating groups, Cayley's theorem, Center of a group and derived group of a group.

Section – III

Introduction to rings, subrings, integral domains and fields, Characteristics of a ring. Ring homomorphisms, ideals (principal, prime and Maximal) and Quotient rings, Field of quotients of an integral domain.

Section – IV

Euclidean rings, Polynomial rings, Polynomials over the rational field, The Eisenstein's criterion, Polynomial rings over commutative rings, Unique factorization domain, R unique factorization domain implies so is $R[X_1, X_2, \dots, X_n]$

Books Recommended:

1. I.N. Herstein : Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal : Basic Abstract Algebra (2nd edition).
3. Vivek Sahai and Vikas Bist : Algebra, Narosa Publishing House.
4. I.S. Luther and I.B.S. Passi : Algebra, Vol.-II, Narosa Publishing House.
5. J.B. Gallian: Abstract Algebra, Narosa Publishing House.

(w.e.f. 2018-19)
Numerical Analysis

Part-A (Theory)

Paper: BM 363

Max. Marks:

3.5 x 4 = 14
1 x 6 = 6
Total = 20

Time: 3 Hours

Note:- The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 3.5 marks), and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals: Newton's forward and Newton's backward interpolation formulae. Interpolation with unequal intervals: Newton's divided difference, Lagrange's Interpolation formulae, Hermite Formula.

Section – II

Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula.

Probability distribution of random variables, Binomial distribution, Poisson's distribution, Normal distribution: Mean, Variance and Fitting.

Section – III

Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II.

Eigen Value Problems: Power method, Jacobi's method, Given's method, House-Holder's method, QR method, Lanczos method.

Section – IV

Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one-third and three-eighth rule, Chebychev formula, Gauss Quadrature formula.

Numerical solution of ordinary differential equations: Single step methods-Picard's method. Taylor's series method, Euler's method, Runge-Kutta Methods. Multiple step methods; Predictor-corrector method, Modified Euler's method, Milne-Simpson's method.

Books Recommended:

1. Babu Ram: Numerical Methods, Pearson Publication.
2. R.S. Gupta, Elements of Numerical Analysis, Macmillan's India 2010.
3. M.K. Jain, S.R.K. Iyengar, R.K. Jain : Numerical Method, Problems and Solutions, New Age International (P) Ltd., 1996

4. M.K. Jain, S.R.K. Iyengar, R.K. Jain : Numerical Method for Scientific and Engineering Computation, New Age International (P) Ltd., 1999
5. C.E. Froberg : Introduction to Numerical Analysis (2nd Edition).
6. Melvin J. Maaron : Numerical Analysis-A Practical Approach, Macmillan Publishing Co., Inc., New York
7. R.Y. Rubnistein : Simulation and the Monte Carlo Methods, John Wiley, 1981
8. Radhey S. Gupta: Elements of Numerical Analysis, Macmillan Publishing Co.

Part-B (Practical)**Max. Marks: 13****Time: 3 Hours**

There will be a separate practical paper which will consist simple programs in C and the implementation of Numerical Methods, studied in the paper BM 363 (Part-A).

NEW SCHEME

Scheme of Examination of B.A. 6th Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
BM 361	Real and Complex Analysis	6 periods/ 4 hours per week	27	6	100
BM 362	Linear Algebra	6 periods/ 4 hours per week	27	7	
BM 353	Dynamics	6 periods/ 4 hours per week	26	7	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Real and Complex Analysis**Paper: BM 361****Max. Marks:****4.5 x 4 = 18****1.5 x 6 = 9****Total = 27****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Jacobians, Beta and Gamma functions, Double and Triple integrals, Dirichlet's integrals, change of order of integration in double integrals.

Section – II

Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients, Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals.

Section – III

Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.

Section – IV

Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings.

Books Recommended:

1. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
2. R.R. Goldberg : Real analysis, Oxford & IBH publishing Co., New Delhi, 1970
3. D. Somasundaram and B. Choudhary : A First Course in Mathematical, Analysis, Narosa Publishing House, New Delhi, 1997
4. Shanti Narayan : A Course of Mathematical Analysis, S. Chand & Co., New Delhi
5. R.V. Churchill & J.W. Brown: Complex Variables and Applications, 5th Edition, McGraw-Hill, New York, 1990

6. Shanti Narayan : Theory of Functions of a Complex Variable, S. Chand & Co., New Delhi.

(w.e.f. 2018-19)
Linear Algebra

Paper: BM 362

Max. Marks:

4.5 x 4 = 18
1.5 x 6 = 9
Total = 27

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 4.5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.

Section – II

Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem,

Section – III

Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations.

Section – IV

Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations.

Books Recommended:

1. I.N. Herstein : Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal : Basic Abstract Algebra (2nd edition).
3. Vivek Sahai and Vikas Bist : Algebra, Narosa Publishing House.
4. I.S. Luther and I.B.S. Passi : Algebra, Vol.-II, Narosa Publishing House.

(w.e.f. 2018-19)

Dynamics**Paper: BM 353****Max. Marks:****5 x 4 = 20****1 x 6 = 6****Total = 26****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions (each carrying 5 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 1 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings.

Section – II

Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.

Section – III

Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity.

Section – IV

General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems.

Books Recommended:

1. S.L.Loney : An Elementary Treatise on the Dynamics of a Particle and a Rigid Bodies, Cambridge University Press, 1956
2. F. Chorlton : Dynamics, CBS Publishers, New Delhi
3. A.S. Ramsey: Dynamics Part-1&2, CBS Publisher & Distributors.

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M.D.UNIVERSITY, ROHTAK
SCHEME OF STUDIES, SYLLABUS & EXAMINATION OF ENVIRONMENTAL
STUDIES
(Common For All UG Courses)

Course Section No.	Course Title	Teaching Schedule			Marks Theory	Exam. Schedule		Total Practical Exam Marks	Du ration
		L	T	P Total of class					
GES 106F	Environmental 3hrs Studies	3	0	1 4	75	25			100

GES-106-F : ENVIRONMENTAL STUDIES

Theory	75 Marks
Field Work	25 Marks (Practical)

Unit-1 The Multidisciplinary nature of environmental studies. Definition, scope and importance.

Unit-2 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 forests and tribal people.
 - b) Water resources : Use and over-utilisation 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 non- renewable energy sources, use of alternate energy sources, case studies.
 - f) 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.

(8 lectures)

Unit-3 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)

(6 lectures)

Unit-4 Biodiversity and its conservation

- * Introduction - Definition : Genetic, Species and ecosystem diversity.
- * Biogeographical classification of India.
- * 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.

(8 lectures)

Unit-5 Environmental pollution :

Definition, causes, 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
- * Solids waste management : causes, effects and control measures of urban and industrial wastes.
 - * Role of an individual in prevention of pollution.
 - * Pollution case studies.
 - * Disaster management : floods, earthquake, cyclone and landslides.

(8 lectures)

Unit-6 Social issues and the Environment :

- * From unsustainable to sustainable development.
- * Urban problems related to energy.
- * Water conservation, rain water harvesting, watershed management.
- * Resettlement and rehabilitation of people : its problems and concerns case studies.
- * Environmental ethics : Issues and possible solutions.

- * Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.
- * 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. (7 lectures)

Unit-7 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. Woman and Child Welfare. Role of Information Technology in Environment and human health. Case Studies. (6 lectures)

Unit-8 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.
- * Study of simple ecosystems- pond, river, hill slopes, etc. (Field work equal to 5 lecture hours).

References

1. Agarwal, K.C. 2001 Environmental Biology, Nidi Pub. Ltd. Bikaner.
2. Bharucha, Frach, The Biodiversity of India, Mapin Publishing Pvt. Ltd. Ahmedabad-380013, India, E-mail : mapin@icenet.net (R).
3. Brunner R.C. 1989, Hazardous Waste Incineration, Mc. Graw Hill Inc. 480p.

4. Clark R.S., Marine pollution, Slanderson Press Oxford (TB).
5. Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Pub. House, Mumbai 1196 p.
6. De A.K., Environmental Chemistry, Wiley Eastern Ltd.
7. Down to Earth, Centre for Science and Environment (R).
8. Gleick, H.P., 1993. Water in crisis, Pacific Institute for Studies in Dev. Environment & Security Stockholm Env. Institute, Oxford Univ. Press, 473p.
9. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R).
10. Heywood, V.H. & Watson, R.T. 1995. Global Biodiversity Assessment, Cambridge Uni. Press 1140p.
11. Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284p.
12. Mackinney, M.L. & Schoch, RM 1996, Environmental Science systems & solutions, Web enhanced edition. 639p.
13. Mhaskar A.K., Mayyer Hazardous, Tekchno-Science Publications (TB)
14. Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB).
15. Odum, E.P. 1971, Fundamentals of Ecology. W.B. Saunders Co. USA, 574p.
16. Rao M.N. & Datta, A.K. 1987 Waste Water Treatment. Oxford & TBH Publ. Co. Pvt. Ltd. 345p.
17. Sharma, B.K. 2001, Environmental Chemistry, Goal Publ. House, Meerut.
18. Survey of the Environment, The Hindu (M).
19. Townsend C., Harper J. and Michael Begon. Essentials of Ecology, Blackwell Science (TB).
20. Trivedi R.K., Handbook of Environmental Laws, Rules, Guidelines, Comliances and Standards, Vol. I and II Enviro Media (R).
21. Tridevi R.K. and P.K. Goal, Introduction to air pollution, Techno

Science Publications (TR).

22. Wagner K.D., 1998, Environmental Management, W.B. Saunders co. Philadelphia, USA 499p.
23. A text book environmental education G.V.S. Publishers by Dr. J.P. Yadav.

(M) Magazine

(R) Reference

(TB) Textbook

The scheme of the paper will be as under :

The subject of Environmental Studies will be included as a qualifying paper in all UG Courses (including professional courses also) and the students will be required to qualify the same otherwise the final result will not be declared and degree will not be awarded. Annual System : The duration of the course will be 50 lectures. The examination will be conducted along with the annual examinations. Wherever semester system prevails the environmental Course of 50 lectures will be conducted in the second semester and the examination shall be conducted at the end of the second semester.

Exam. Pattern : In case of awarding the marks, the question paper will carry 100 marks. Theory: 75 marks, Practical : 25 marks. The structure of the question paper will be:

Part- A: Short Answer Pattern : 25 marks

Part- B: Essay Type with inbuilt choice: 50 marks

Part- C : Field Work (Practical) : 25 marks

Instructions for Examiners :

Part- A : Question No. 1 is compulsory and will contain ten short- answer type question of 2.5 marks each covering the entire syllabus

Part- B : Eight essay type questions (with inbuilt choice) will be set from the entire syllabus and the candidate will be required to answer any four of them. Each question will be of 12.5 marks.

The examination of the regular students will be conducted by the concerned college/Institute. Each student will be required to score minimum 35% marks separately in theory and practical. The marks in this qualifying paper will not be included in determining the percentage of marks obtained for the award of degree. However, these marks will be shown in the detailed marks certificate of the students.

SCHEME OF EXAMINATION

B.Sc. (PASS COURSE) PHYSICS Semester I – II w.e.f. 2016-17

Semester I

Paper No.	Paper Code	Name of the paper	Max. marks	IA	Time
Paper I	PHY-101	Mechanics	45	10	3 Hrs.
Paper II	PHY-102	Electricity and Magnetism	45	10	3 Hrs.
Paper III	PHY-103	Practical	40	-	3 Hrs.

Semester II

Paper No.	Paper Code	Name of the paper	Max. marks	IA	Time
Paper I	PHY-201	Properties of Matters, Kinetic Theory and Relativity	45	10	3 Hrs.
Paper II	PHY-202	Electro-magnetic Induction and Electronic Devices	45	10	3 Hrs.
Paper III	PHY-203	Practical	40	-	3 Hrs.

B.Sc. (PASS COURSE) PHYSICS Semester III – IV w.e.f. 2017-18

Semester III

Paper No.	Paper Code	Name of the paper	Max. marks	IA	Time
Paper I	PHY-301	Computer Programming Thermodynamics	45	10	3 Hrs.
Paper II	PHY-302	Optics- I	45	10	3 Hrs.
Paper III	PHY-303	Practical	40	-	3 Hrs.

Semester IV

Paper No.	Paper Code	Name of the paper	Max. marks	IA	Time
Paper I	PHY-401	Statistical Mechanics	45	10	3 Hrs.
Paper II	PHY-402	Optics- II	45	10	3 Hrs.
Paper III	PHY-403	Practical	40	-	3 Hrs.

INTERNAL ASSESSMENT :- The Internal Assessment for theory papers comprises of

(i) Attendance-	2.50
(ii) Unscheduled test	2.50
(iii) Assignments-	5.00
Total	10

**B.Sc. PHYSICS
SCHEME OF EXAMINATION**

Semester-I

Paper I- PHY 101 : MECHANICS

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit I

Mechanics of single and system of particles, conservation of laws of linear momentum, angular momentum and mechanical energy, Centre of mass and equation of motion, constrained motion, degrees of freedom.

Unit II

Generalised coordinates, displacement, velocity, acceleration, momentum, force and potential. Hamilton's variational principle, Lagrange's equation of motion from Hamilton's Principle. Linear Harmonic oscillator, simple pendulum, Atwood's machine.

Unit III

Rotation of Rigid body, moment of inertia, torque, angular momentum, kinetic energy of rotation. Theorems of perpendicular and parallel axes with proof. Moment of inertia of solid sphere, hollow sphere, spherical shell, solid cylinder, hollow cylinder and solid bar of rectangular cross-section. Acceleration of a body rolling down on an inclined plane.

References

1. Classical Mechanics by V.K.Jain (Ane 2009)
2. Classical Mechanics by H. Goldstein (2nd Edition)
3. Berkeley Physics Course, Vol. I, Mechanics by E.M. Purcell

B.Sc. PHYSICS

Paper II- PHY 102 : ELECTRICITY AND MAGNETISM

Max. Marks : 45

Internal Assessment : 10

Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit I

Mathematical Background : Scalars and Vectors, dot and cross product, Triple vector product, Scalar and Vector fields, Differentiation of a vector, Gradient of a scalar and its physical significance, Integration of a vector (line, surface and volume integral and their physical significance), Gauss's divergence theorem and Stocks theorem.

Electrostatic Field : Derivation of field E from potential as gradient, derivation of Laplace and Poisson equations. Electric flux, Gauss's Law and its application to spherical shell, uniformly charged infinite plane and uniformity charged straight wire, mechanical force of charged surface, Energy per unit volume.

Unit II

Magnetostatics : Magnetic Induction, magnetic flux, solenoidal nature of Vector field of induction. Properties of B (i) $\nabla \cdot \mathbf{B} = 0$ (ii) $\nabla \times \mathbf{B} = \mu_0 \mathbf{J}$. Electronic theory of dia and para magnetism (Langevin's theory). Domain theory of ferromagnetism. Cycle of Magnetisation - Hysteresis (Energy dissipation, Hysteresis loss and importance of Hysteresis curve).

Unit III

Electromagnetic Theory : Maxwell equation and their derivations, Displacement Current. Vector and scalar potentials, boundary conditions at interface between two different media, Propagation of electromagnetic wave (Basic idea, no derivation). Poynting vector and Poynting theorem.

References :

1. Electricity and Magnetism by Reitz and Milford (Prentice Hall of India)
2. Electricity and Magnetism by A.S. Mahajan and A.A. Rangwala (Tata McGraw Hill).

B.Sc. PHYSICS
Paper III Phy- 103
PRACTICALS

Max. Marks : 40

Time : 3 Hrs.

SPECIAL NOTES

1. Do any eight experiments .
2. The students are required to calculate the error involved in a particular experiment (percentage error).

NOTE

1. Distribution of Marks :

Experiment :	= 20 marks
Viva Voce :	= 10 marks
Lab Record :	= 10 marks
Total	= 40 marks

For giving marks under Lab. Record each college will maintain practical assessment record by using the following procedure :-

1. Each student has to perform a minimum number of experiments prescribed in the syllabus.
2. After the completion of a practical the teacher concerned will check the note-book and conduct the viva-voce of each student to find out how much concepts related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded in their practical note book. These marks will constitute the lab record.
3. To complete the final marks for lab. record a separate register for each class of B.Sc will be maintained. The Student will be assigned a separate page on the register. On this page the marks obtained by the student in different practicals will be recorded. While taking the final average the total marks obtained will be divided by the total no. of required practicals, instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.
4. The lab. record register will be presented to the external practical examiners for lab. record marks. The external examiners will verify the record randomly.

B.Sc. PHYSICS
Paper III- PHY 103
PRACTICALS

Max. Marks : 40

Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Section A

1. Moment of Inertia of a fly-wheel
2. M.I. of an irregular body using a torsion pendulum.
3. Young's modulus by bending of beam.
4. Viscosity of water by its flow through a uniform capillary tube.
5. Mechanical equivalent of Heat by Callender and Barne's method.

Section B

- 1 E.C.E. of hydrogen using voltmeter.
- 2 Calibration of thermocouple by potentiometer.
- 3 Frequency of A.C. mains and capacity by electrical vibrator.
- 4 Inductance (L) by Anderson Bridge (A.C. method)
- 5 To draw forward and reverse bias characteristics of a semiconductor diode.
- 6 Zener Diode voltage regulation characteristics.
- 7 To study the characteristics of a solar cell.

**B.Sc. PHYSICS
SCHEME OF EXAMINATION**

Semester-II

**Paper I- PHY 201 : PROPERTIES OF MATTER, KINETIC THEORY AND
RELATIVITY**

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit - I

Properties of Matter (Elasticity) : Elasticity, Hooke's law, Elastic constants and their relations, Poisson's ratio, torsion of cylinder and twisting couple. Bending of beam (bending moment and its magnitude) cantilevers, Centrally loaded beam.

Unit - II

Kinetic Theory of Gases : Assumptions of Kinetic Theory of gases, Law of equipartition of energy and its applications for specific heats of gases. Maxwell distribution of speeds and velocities (derivation required), Experimental verification of Maxwell's Law of speed distribution : most probable speed, average and r.m.s. speed, mean free path. Transport of energy and momentum, diffusion of gases. Brownian motion (qualitative), Real gases, Van der Waal's equation.

Unit - III

Theory of Relativity : Reference systems, inertial frames, Gallilean invariance and Conservation laws, Newtonian relativity principle, Michelson - Morley experiment : Search for ether. Lorentz transformations length contraction, time dilation, velocity addition theorem, variation of mass with velocity and mass energy equivalence.

References

1. Properties of Matter by D.S. Mathur.
2. Heat and Thermodynamics (Vth Edition) by Mark W. Zemansky.
3. Berkeley Physics Course, Vol.-I Mechanics by E.M. Purcell.

B.Sc. PHYSICS

Paper II- PHY 202 : ELECTRO MAGNETIC INDUCTION AND ELECTRONIC DEVICES

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit I

Electromagnetic Induction : Growth and decay of current in a circuit with (a) Capacitance and resistance (b) resistance and inductance (c) Capacitance and inductance (d) Capacitance resistance and inductance.

AC circuit analysis using complex variables with (a) capacitance and resistance, (b) resistance and inductance (c) capacitance and inductance (d) capacitance, inductance and resistance Series and parallel resonant circuit. Quality factor (Sharpness of resonance).

Unit II

Semiconductor Diodes : Energy bands in solids. Intrinsic and extrinsic semiconductor, Hall effect, P-N junction diode and their V-I characteristics. Zener and avalanche breakdown. Resistance of a diode, Light Emitting diodes (LED). Photo conduction in semiconductors, photodiode, Solar Cell.

Diode Rectifiers : P-N junction half wave and full wave rectifier. Types of filter circuits (L and - with theory). Zener diode as voltage regulator, simple regulated power supply.

Transistors : Junction Transistors, Bipolar transistors, working of NPN and PNP transistors, Transistor connections (C-B, C-E, C-C mode), constants of transistor. Transistor characteristic curves (excluding h parameter analysis), advantage of C-B configuration. C.R. O. (Principle, construction and working in detail).

Unit III

Transistor Amplifiers : Transistor biasing, methods of Transistor biasing and stabilization. D.C. load line. Common-base and common-emitter transistor biasing. Common-base, common-emitter amplifiers. Classification of amplifiers. Resistance-capacitance (R-C) coupled amplifier (two stage; concept of band width, no derivation). Feed-back in amplifiers, advantage of negative feedback Emitter follower.

Oscillators : Oscillators, Principle of Oscillation, Classification of Oscillator. Condition for self sustained oscillation : Barkhausen Criterion for oscillations. Tuned collector common emitter oscillator. Hartley oscillator. Colpitt's oscillator.

References :

1. Electricity and Magnetism by Reitz and Milford (Prentice Hall of India)
2. Electricity and Magnetism by A.S. Mahajan and A.A. Rangwala (Tata McGraw Hill).
3. Basic Electronics and Linear circuits by N.N. Bhargava, D.C. Kulshreshtha and S.C. Gupta (TITI, CHD).
4. Solid State Electronics by J.P. Agarwal, Amit Agarwal (Pragati Prakashan, Meerut).
5. Electronic Fundamentals and Applications by J.D. Ryder (Prentice Hall India).

B.Sc. PHYSICS
Paper III Phy- 203
PRACTICALS

Max. Marks : 40

Time : 3 Hrs.

SPECIAL NOTES

1. Do any eight experiments .
2. The students are required to calculate the error involved in a particular experiment (percentage error).

NOTE

Distribution of Marks :

Experiment :	= 20 marks
Viva Voce :	= 10 marks
Lab Record :	= 10 marks
Total	= 40 marks

For giving marks under Lab. Record each college will maintain practical assessment record by using the following procedure :-

1. Each student has to perform a minimum number of experiments prescribed in the syllabus.
2. After the completion of a practical the teacher concerned will check the note-book and conduct the viva-voce of each student to find out how much concepts related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded in their practical note book. These marks will constitute the lab record.
3. To complete the final marks for lab. record a separate register for each class of B.Sc will be maintained. The Student will be assigned a separate page on the register. On this page the marks obtained by the student in different practicals will be recorded. While taking the final average the total marks obtained will be divided by the total no. of required practicals, instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.
4. The lab. record register will be presented to the external practical examiners for lab. record marks. The external examiners will verify the record randomly.

B.Sc. PHYSICS
Paper III- PHY 203
PRACTICALS

Max. Marks : 40
Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Section A

- 1 Surface Tension by Jeager's method.
- 2 Modulus of rigidity by Maxwell's needle.
- 3 Elastic constants by Searle's method.
- 4 Thermal conductivity of a good conductor by Searle's method.
- 5 'g' by Bar pendulum.

Section B

- 1 Low resistance by Carey Foster's Bridge with calibration.
- 2 Determination of impedance of an A.C. circuit and its verification.
- 3 Frequency of A.C. mains by sonometer using an electromagnet.
- 4 Measurement of angle dip by earth inductor.
- 5 High resistance by substitution method.
- 6 Verification of Inverse square law by photo-cell.

B.Sc. PHYSICS
SCHEME OF EXAMINATION
Semester III

Paper I- PHY 301 : Computer Programming, Thermodynamics

Max. Marks : 45

Internal Assessment : 10

Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Computer Programming : Computer organisation, Binary representation, Algorithm development, flow charts and their interpretation.

Fortran Preliminaries; Integer and floating point arithmetic expression, built in functions executable and non-executable statements, input and output statements, Formats, I.F. DO and GO TO statements, Dimension arrays statement function and function subprogram.

Unit-II

Thermodynamics-I : Second law of thermodynamics, Carnot theorem, Absolute scale of temperature, Absolute Zero, Entropy, show that $dQ/T=O$, T-S diagram Nernst heat law, Joule's free expansion, Joule Thomson (Porous plug) experiment. Joule - Thomson effect. Liquefaction of gases. Air pollution due to internal combustion Engine.

Unit-III

Thermodynamics-II : Derivation of Clausius - Claperyron latent heat equation. Phase diagram and triple point of a substance. Development of Maxwell thermodynamical relations. Application of Maxwell relations in the derivation of relations between entropy, specific heats and thermodynamic variables. Thermodynamic functions : Internal energy (U), Helmholtz function (F), Enthalpy (H), Gibbs function (G) and the relations between them.

References :

1. Rajaraman, Fortran Programming.
2. Schaum Series, Fortran 77.
3. Ram Kumar, Programming with Fortran - 77.
4. S. Lokanathan and R.S., Gambir, Statistical and Thermal Physics (An Introduction), Prentice Hall of India, Pvt., Ltd. (1991, New Delhi).
5. J.K. Sharma and K.K. Sarkar, Thermodynamics and statistical Physics, Himalaya Publishing House (1991, Bombay.)
6. M.W. Zemansky and R. Dittman, Heat and Thermodynamics, McGraw Hill, New York (1981).

B.Sc. PHYSICS
Paper-II PHY 302
Optics – I

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Fourier Analysis and Fourier Transforms : Speed of transverse waves on a uniform string. Speed of longitudinal waves in a fluid, superposition of waves (physical idea), Fourier Analysis of complex waves and its application for the solution of triangular and rectangular waves, half and full wave rectifier out puts. Fourier transforms and its properties. Application of fourier transform to following function.

$$\begin{aligned} \text{(I)} \quad f(x) &= e^{-x^2/2} \\ \text{(II)} \quad f(x) &= \begin{cases} 1 & [x] < a \\ 0 & [x] > a \end{cases} \end{aligned}$$

Unit-II

Geometrical Optics : Matrix methods in paraxial optics, effects of translation and refraction, derivation of thin lens and thick lens formulae, unit plane, nodal planes, system of thin lenses, Chromatic, spherical coma, astigmatism and distortion aberrations and their remedies.

Physical Optics

Unit-III

Interference : Interference by Division of Wavefront : Fresnel's Biprism and its applications to determination of wave length of sodium light and thickness of a mica sheet, Lloyd's mirror, phase change on reflection.

References

1. Mathematical Physics by B.S. Rajput and Yog Prakash Pragati Prakashan.
2. Theory and Problems of Laplace Transforms by Murrari R. spiegel, McGraw Hill Book Company.
3. Optics by Ajay Ghatak, Tata McGraw Hill 1977.
4. Introduction of Optics by Frank L. Pedrotti and Leno S. Pedrotti, Prentice Hall 1987.

B.Sc. PHYSICS

Paper-III Phy- 303 Practicals

Max. Marks : 40

Time : 3 Hrs.

Special Notes

1. Do any eight experiments.
2. The students are required to Calculate the error involved in a particular experiment (Percentage error).

Distribution of Marks :

Experiments :	=	20 Marks
Viva-Voce :	=	10 Marks
Lab. Record :	=	10 marks
Total		40 Marks

For Giving marks under Lab. Record each college will maintain practical assessment record by using the following procedure.

1. After the completion of a practical the teacher concerned will check the note-book and conduct the viva-voce of each student to find out how much concepts related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded on their practical note book. These marks will contribute the lab Record.

2. To complete the final marks for lab. Record a separate register for each class of B.Sc. will be maintained. The students will be assigned a separate page on this register. On this page the marks obtained by the student in different practicals will be recorded. While taking the final average the total marks obtained will be divided by the total no. of required practicals, instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.

3. The Lab. Record register will be presented to the external practical examiners for lab. Record marks. The external examiner will verify the record randomly.

B.Sc. PHYSICS
Paper III- PHY 303
PRACTICALS

Max. Marks : 40

Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Section A

- 1 To measure the (a) area of a window (b) height of an inaccessible object.
- 2 Refractive index and dispersive power of a prism material by spectrometer.
- 3 Resolving power of a telescope.
- 4 Comparison of Illuminating Powers by a Photometer.
- 5 Ordinary and extra ordinary refractive indices for calcite or quartz.

Section B

(i) Electronics

- 1 To draw common base and common emitter characteristics of a transistor and calculate transistor and calculate transistor characteristics parameters.
- 2 To study the ripple factor in a.d.c. power supply.
- 3 Electronic Voltmeter measurement of peak, average & R.M.S. values of signal.
- 4 Study of voltage doubler and tripler circuits.

(ii) Computer Experiments

- 1 To print out all natural (even/odd) number between given limits using computer.
- 2 To find maximum, minimum and range of a given set of numbers using computer.
- 3 To evaluate sum of finite series.

**B.Sc. PHYSICS
SCHEME OF EXAMINATION
Semester IV**

Paper I- PHY 401 : Statistical Mechanics

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Probability, some probability considerations, combinations possessing maximum probability, combinations possessing minimum probability, distribution of molecules in two boxes. Case with weightage (general). Phase space, microstates and macrostates, statistical fluctuations constraints and accessible States Thermodynamical probability.

Unit-II

Postulates of Statistical Physics. Division of Phase space into cells, Condition of equilibrium between two system in thermal contact. β -Parameter. Entropy and Probability, Boltzman's distribution law. Evaluation of A and β . Bose-Einstein statistics, Application of B.E. Statistics to Planck's radiation law, B.E. gas.

Unit-III

Fermi-Dirac statistics, M.B. Law as limiting case of B.E. Degeneracy and B.E., Condensation. F.D. Gas, electron gas in metals. Zero point energy. Specific heat of metals and its solution.

References

1. B.B. Laud, "Introduction to Statistical Mechanics" (Macmillan 1981).
2. F. Reif, "Statistical Physics" (McGraw Hill 1988).
3. K. Huang, "Statistical Physics" (Wiley Eastern 1988).

B.Sc. PHYSICS
Paper-II PHY 402
Optics – II

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Interference by Division of Amplitude : Colour of thin, films, wedge shaped film, Newton's rings. Interferometers: Michelson's interferometer and its application to (I) Standardisation of a meter (II) determination of wave length. Fresnel's Diffraction : Fresnel's half period zones, zone plate, diffraction at a straight edge, rectangular slit and circular aperture.

Unit-II

Fraunhofer diffraction : One slit diffraction, Two slit diffraction N-slit diffraction, Plane transmission grating spectrum, Dispersive power of a grating, Limit of resolution, Rayleigh's criterion, resolving power of telescope and a grating.

Unit-III

Polarization : Polarisation and Double Refraction : Polarisation by reflection, Polarisation by scattering, Malus law, Phenomenon of double refraction, Huygen's wave theory of double refraction (Normal and oblique incidence), Analysis of Polarised light : Nicol prism, Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light, Optical activity, Fresnel's theory of rotation, Specific rotation, Polarimeters (half shade and Biquartz).

References

1. Optics by Ajay Ghatak, Tata McGraw Hill 1977.
2. Introduction of Optics by Frank L. Pedrotti and Leno S. Pedrotti, Prentice Hall 1987.

B.Sc. PHYSICS
Paper-III Phy- 403
Practicals

Max. Marks : 40

Time : 3 Hrs.

Special Notes

1. Do any eight experiments.
2. The students are required to Calculate the error involved in a particular experiment (Percentage error).

Note:-

Distribution of Marks :

Experiments :	=	20 Marks
Viva-Voce :	=	10 Marks
Lab. Record :	=	10 marks
Total		40 Marks

For Giving marks under Lab. Record each college will maintain practical assessment record by using the following procedure.

1. After the completion of a practical the teacher concerned will check the note-book and conduct the viva-voce of each student to find out how much concepts related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded on their practical note book. These marks will contribute the lab Record.

2. To complete the final marks for lab. Record a separate register for each class of B.Sc. will be maintained. The students will be assigned a separate page on this register. On this page the marks obtained by the student in different practicals will be recorded. While taking the final average the total marks obtained will be divided by the total no. of required practicals, instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.

3. The Lab. Record register will be presented to the external practical examiners for lab. Record marks. The external examiner will verify the record randomly.

B.Sc. PHYSICS
Paper III- PHY 403
PRACTICALS

Max. Marks : 40

Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Note:- This course will contain two parts (i) Electronics and (ii) Computer experiments. Students have to perform a minimum of four experiments from each part.

Section A

- 1 To draw a graph between wave length and minimum deviation for various lines from a Mercury discharge source.
- 2 Determination of wave length of Na light and the number of lines per centimeter using a diffraction grating.
- 3 Wave length by Newton's Rings.
- 4 Measurement of (a) Specific rotation (b) concentration of sugar solution using polarimeter.
- 5 To find the equivalent focal length of a lens system by nodal slide assembly.

Section B

(i) Electronics

- 1 To draw frequency response curve of transistorised R.C. coupled amplifier.
- 2 Study of series and parallel resonance circuits.
- 3 To find out the frequency of a tuning fork by Melde's experiment.

(ii) Computer Experiments

- 1 Find the roots of a quadratic equation.
- 2 To find intergration of a definite integral by trapezoidal rule.
- 3 To find the area of a triangle, sphere and cylinder.
- 4 Given value for a,b,c and d and a set of values for the variable x evaluate the function defined by
$$F(x)= ax^2+bx+c \quad \text{if } x < d$$
$$F(x)= 0 \quad \text{if } x = d$$
$$F(x)= ax^2+bx+c \quad \text{if } x > d$$
For each value of x, and print the value of x and (fx). Write a program for an arbitrary number of x values.

Scheme of Examination
B. Sc. (Pass Course) Physics Semester-V & VI for the sessions 2018-19

Semester-V

Paper No.	Title	Time	Total Marks	Internal Assessment	Max. Marks
Phy-501	Solid State Physics	3 Hrs.	55	10	45 (Theory)
Phy-502	Quantum Mechanics	3 Hrs.	55	10	45(Theory)
Phy-503	Practical	3 Hrs.	40		40

Semester-VI

Paper No.	Title	Time	Total Marks	Internal Assessment	Max. Marks
Phy-601	Atomic, Molecular and Laser Physics	3 Hrs.	55	10	45 (Theory)
Phy-602	Nuclear Physics	3 Hrs.	55	10	45 (Theory)
Phy-603	Practical	3 Hrs.	40		40

Internal Assessment :- The Internal Assessment for theory papers comprises of

(i)	Attendance-	2.50
(ii)	Unscheduled test	2.50
(iii)	Assignments-	5.00
	Total	10

B.Sc. PHYSICS
SCHEME OF EXAMINATION
Semester -V

Paper I- PHY 501 : SOLID STATE PHYSICS

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Crystalline and gallssy forms, liquid crystals. Crystal structure, periodicity, lattice and basis, crystal translational vectors and axes. Unit cell and primitive cell, Winger Seitz primitive Cell, symmetry operations for a two dimensional crystal, Bravais tattices in two and three dimensions.

Unit-II

crystal planes and Miller indices, Interplanner spacing, Crystal structures of Zinc sulphide, Sodium Chloride and diamond, X-ray diffraction, Bragg's Law and experimental x-ray diffraction methods, K-space.

Unit-III

Reciprocal lattice and its physical significance, reciprocal lattice vectors, reciprocal lattice to a simple cubic lattice, b.c.c and f.c.c.

Specific heat : Specific heat of solids, Einstein's theory of specific heat, Debye model of specific heat of solids.

References

1. Introduction to solid state Physics (5th Ed.) by kittel, Wiley eastern Limited

B.Sc. PHYSICS
Paper I- PHY 502 : QUANTUM MECHANICS

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Failure of (Classical) E.M. Theory. quantum theory of radiatio (old quantum theory), Photon, photoelectric effect and Einsteins photoelectric equation compton effect (theory and result). Inadequacy of old quantum theory, de-Broglie hypothesis. Davisson and Germer experiment. G.P. Thomson experiment. Phase velocity group velocity, Heisenberg's uncertainty principle. Time-energy and angular momentum, position uncertainty Uncertainty principle from de-Broglie wave, (wave-partice duality). Gamma Ray Maciroscope, Electron diffraction from a slit.

Unit-II

Derivation of time dependent Schrodinger wave equation, eigen values, eigen functions, wave functions and its significance. Normalization of wave function, concept of observable and operator. Solution of Schrodinger equation for harmomic oscillator ground states and excited states.

Unit-III

Application of Schrodinger equation in the solution of the following one-dimensional problems : Free particle in one dimensional box (solution of schrodinger wave equation, eigen function, eigen values, quantization of energy and momentum, nodes and antinodes, zero point energy).

- i) One-dimensional potential barrie $E > V_0$ (Reflection and Transmission coefficient.
- ii) One-dimensional potential barrier, $E > V_0$ (Reflection Coefficient, penetration of leakage coefficient, penetration depth).

References :

1. Quantum Mechanics by L.I. Schiff, McGraw Hill Book Company, Inc.
2. Quantum Mechanics by B. Crasemand and J.D. Powel (Addison Wesley.
3. Quantum Mechanics by A.P. Messiah.

B.Sc. PHYSICS
Paper -III Phy- 503
(Practicals)

Max. Marks : 40
Time : 3 Hrs.

Special Notes

1. Do 4 experiments from section (i) & 4 experiments from Section (ii).
2. The students are required to calculate the error involved in a particular experiment (percentage error).
3. Use of simple non-programmable scientific calculator is allowed.

Note :

1. The practical examinations will be

Experiments	=20 marks
Viva-Voce	=10 marks
Lab Record	= 10 marks
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Total	= 40 marks
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For giving marks under Lab. Record each college maintain practical assessment record by using the following procedure.

- I. Each student has to perform a minimum number of experiments prescribed in the syllabus.
- II. After the completion of a practical the teacher concerned will check the note-book and conduct the Viva-voce of each student to find out how much concept related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded on their practical note-book. These marks will constitute the lab. Record.
- III. To complete the final marks for lab. Record a separate register for each class of B.Sc. will be maintained. The student will be assigned a separate page on this register. On this page the marks obtained by the student in different practicals will be recorded. While taking the final average the total marks obtained will be divided by the total no. of required practicals instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.
- IV. The lab. Record register will be presented to the external practical examiner for lab. Record marks. The external examiner will verify the record randomly.

B.Sc. PHYSICS

Paper III- PHY 503 PRACTICALS

Max. Marks : 40

Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Section A

i) Solid State Electronics

- 1 Transistor as voltage Amplifier in C-B Configuration.
2. Transistor as voltage Amplifier in C-E Configuration.
3. Study of Hartley Oscillator (Calibration of Gang Condenser).
4. a) To Draw the Plateau of G.M. Counter.
b) To Determine the Mass Attention Coefficient by G.M.Counter.

ii) Computer Experiment :

1. Compute the sum of an infinite series upto three significant figures. For example, compute. for different x using Do loops. Calculate factorials through function subprogram.
2. Let there be N(Say=100) students in a class. Arrange their marks in descending or ascending orders.
3. Write a Fortran Program which evaluates v and y as function of varying between and increments of using the relation.

Section B

1. Young's modulus by Newtons rings method.
2. Resolving power of a prism.
3. Thickness of a thin plate using air wedge.
4. Resolving Power of plane transmission grating.
5. Rydberg constant by Hydrogen gas spectrum.

B.Sc. PHYSICS

SCHEME OF EXAMINATION Semester -VI

Paper I- PHY 601 : ATOMIC MOLECULAR AND LASER PHYSICS

Max. Marks : 45
Internal Assessment : 10
Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed

Unit -I

Vector atom model, quantum numbers associated with vector atom model, penetrating and non-penetrating orbits (qualitative description), spectral lines in different series of alkali spectra, spin orbit interaction and doublet term separation LS or Russell-Saunders Coupling jj coupling (expressions for interaction energies for LS and jj coupling required).

Unit-II

Zeeman effect (normal and anomalous) Zeeman pattern of D_1 and D_2 lines of Na-atom, Paschen, Back effect of a single valence electron system. Weak field Stark effect of Hydrogen atom.

Discrete set of electronic energies of molecules. quantisation of Vibrational and rotational energies Raman effect (Qualitative description) Stokes and anti Stokes lines.

Unit-III

Main features of a laser : Directionality, high intensity, high degree of coherence, spatial and temporal coherence, Einstein's coefficients and possibility of amplification, momentum transfer, life time of a level, kinetics of optical absorption. Threshold condition for laser emission, Laser pumping, He-Ne laser and RUBY laser (Principle, Construction and Working). Applications of laser in the field of medicine and industry.

References

1. Introduction to Atomic and Molecular Spectroscopy by V.K.Jain, Narosa (2007)
2. Introduction to Atomic Spectra by H.B. White.
3. Atomic spectra by G. Herzberg.
4. Molecular Spectra and Molecular Structure by G. Herzberg.
5. Fundamentals of molecular spectroscopy by Colin N. Banwell and Elaine M.Mc-Cash.
6. Lasers, Theory and Application (2nd Ed.) by Thagrajan and Ajay Ghatak.
7. Laser and Nonlinear Optics by B.B. Laud (2nd Ed.)
8. Introduction to Optics by Frank L. Pedrotti and Lens S. Pedrotti, Prentice Hall, 1987.

B.Sc. PHYSICS

Paper II- PHY 602 : NUCLEAR PHYSICS

Max. Marks : 45

Internal Assessment : 10

Time : 3 Hrs.

NOTE :

1. The syllabus is divided into 3 units. Eight questions will be set up. At least two questions will be set from each unit and the student will have to attempt at least one question from each unit. A student has to attempt five question in all.
2. 20% numerical problems are to be set.
3. Use of Scientific (non-programmable) calculator is allowed.

Unit-I

Nuclear mass and binding energy, systematics nuclear binding energy, nuclear stability, Nuclear size, spin, parity, statistics magnetic dipole moment, quadrupole moment (shape concept), Determination of mass by Bain-Bridge, Bain-Bride and Jordan mass spectrograph, Determination of charge by Mosley law Determination of size of nuclei by Rutherford Back Scattering.

Unit-II

Interaction of heavy charged particles (Alpha particles), alpha disintegration and its theory Energy loss of heavy charged particle (idea of Bethe formula, no derivation), Energetics of alpha -decay, Range and straggling of alpha particles. Geiger-Nuttal law.

Introduction of light charged particle (Beta-particle), Origin of continuous beta-spectrum (neutrino hypothesis) types of beta decay and energetics of beta decay, Energy loss of beta-particles (ionization), Range of electrons, absorption of beta-particles.

Interaction of Gamma Ray, Nature of gamma rays, Energetics of gamma rays, passage of Gamma radiations through matter (photoelectric, compton and pair production effect) electron position annihilation. Asorption of Gamma rays (Mass attenuation coefficient) and its application.

Unit-III

Nuclear reactions, Elastic scattering, Inelastic scattng, Nuclear disintegration, photoneuclear reaction, Radiative capture, Direct reaction, heavy ion reactions and spallation Reactions, conservation laws. Q-value and reaction threshold.

Nuclear Reactors General aspects of Reactor design. Nuclear fission and fusion reactors (Principles, construction, working and use)

Linear accelerator, Tendem accelerator, Cyclotron and Betatron accelerators.

Ionization chamber, proportional counter, G.M. counter detailed study, scintillation counter and semiconductor detector.

references :

1. Atomic and nuclear Physics, Vol. II by S.N. Ghashal.
2. Nuclear Physics by D.C. Tayal, Umesh Prakashan, 125, Gobind Dev Khurja (UP).
3. Concept of Modern physics by arther Besier, Tata McGraw Hill Publications.
4. Nuclear Physics by W.E. Burcham.
5. Nuclear Radiation Detectors by S.S. Kapoor
6. Experimental Nuclear Physics by M. Singru.

B.Sc. PHYSICS
Paper -III Phy- 603
(Practicals)

Max. Marks : 40
Time : 3 Hrs.

Special Notes

1. Do 8 experiments.
2. The students are required to calculate the error involved in a particular experiment (percentage error).
3. Use of simple non-programmable scientific calculator is allowed.

Note :

1. The practical examinations will be

Experiments	=20 marks
Viva-Voce	=10 marks
Lab Record	= 10 marks

Total	= 40 marks

For giving marks under Lab. Record each college maintain practical assessment record by using the following procedure.

- I. Each student has to perform a minimum number of experiments prescribed in the syllabus.
- II. After the completion of a practical the teacher concerned will check the note-book and conduct the Viva-voce of each student to find out how much concept related to the theoretical and experimental part of the experiment he/she has understood. According to his/her performance marks will be recorded on their practical note-book. These marks will constitute the lab. Record.
- III. To complete the final marks for lab. Record a separate register for each class of B.Sc. will be maintained. The student will be assigned a separate page on this register. On this page the marks obtained by the student in different practicals will be recorded While taking the final average the total marks obtained will be divided by the total no of required practicals instead of the number of practicals performed by the student. This record will be signed by the concerned teacher.
- IV. The lab. Record register will be presented to the external practical examiner for lab. Record marks. The external examiner will verify the record randomly.

B.Sc. PHYSICS
Paper III- PHY 603
PRACTICALS

Max. Marks : 40
Time : 3 Hours

Note: Do eight experiments, selecting four from each section.

Section A

(i) Electronics

- 1 e/m by Thomson method.
- 2 Study of B-H Curve by C.R.O.
- 3 To study Hall effect.
- 4 Measurement of Energy Gap of Four Probe Method.

(ii) Computer Experiments

1. Program of compute product of two matrices A and B of different dimensions. This is an exercise to illustrate the use of subscripted variable and implied Do loops.
2. Evaluate the definite integral $I = \int_a^b f(x) dx$ through Simpson's one. third rule.
3. Use of the least-square curve fitting to fit a straight line to a given set of data.
4. Consider an array X with subscripted variables x; $i = 1, 2, \dots, N$.
It is desired to find the average and the standard deviation using the formulas.

Section B

Optics

1. Wave length of Sodium light by fresnel's biprism.
2. Velocity of ultrasonic waves by grating formation in CC14.
3. Diameter of Lycopodium powder particles by Carona rings.
4. To study double slit interference by He-Ne laser.
5. Diameter of a thin wire by diffraction method (using He-Ne Laser).

Syllabi and Courses of reading for B.Sc. Part-I, Part-II and Part-III (Chemistry) w.e.f. 2016-2017, 2017-2018 and 2018-2019

B.Sc (Ist Semester)

Paper No.	Code No.	Nomenclature	Periods (40 min. each)	Max. Marks Written + I.A.	Time
I	CH-101	Inorganic Chemistry(Theory)	30	30+8	3 Hrs
II	CH-102	Physical Chemistry(Theory)	30	29+7	3 hrs.
III	CH-103	Organic Chemistry (Theory)	30	29+7	3 hrs
IV	CH-104	Practicals	90	40	3½ hrs

B.Sc (IInd Semester)

Paper No.	Code No.	Nomenclature	Periods (40 min. each)	Max. Marks Written + I.A.	Time
V	CH-201	Inorganic Chemistry (theory)	30	30+8	3 hrs.
VI	CH-202	Physical Chemistry (Theory)	30	29+7	3 hrs.
VII	CH-203	Organic Chemistry (theory)	30	29+7	3 hrs.
VIII	CH-204	Practicals	90	40	3½ hrs

B.Sc (IIIrd Semester)

Paper No.	Code No.	Nomenclature	Periods (40 min. each)	Max. Marks Written + I.A.	Time
IX	CH-301	Inorganic Chemistry (Theory)	30	29+7	3 hrs.
X	CH-302	Physical Chemistry (theory)	30	30+8	3 hrs.
XI	CH-303	Organic Chemistry (theory)	30	29+7	3 hrs.
XII	CH-304	Practicals	90	40	3½ hrs

B.Sc (IVth Semester)

Paper No.	Code No.	Nomenclature	Periods (40 min. each)	Max. Marks Written + I.A.	Time
XIII	CH-401	Inorganic Chemistry (theory)	30	29+7	3 hrs.
XIV	CH-402	Physical Chemistry (theory)	30	30+8	3 hrs.
XV	CH-403	Organic Chemistry (theory)	30	29+7	3 hrs.
XVI	CH-404	Practicals	90	40	3½ hrs

B.Sc (Vth) Semester

Paper No.	Code No.	Nomenclature	Periods (40 min. each	Max. Marks Written + I.A.	Time
XVII	CH-501	Inorganic Chemistry (theory)	30	29+7	3 hrs.
XVIII	CH-502	Physical Chemistry (theory)	30	29+7	3 hrs.
XIX	CH-503	Organic Chemistry (theory)	30	30+8	3 hrs.
XX	CH-504	Practicals	90	40	3½ hrs

B.Sc (VIth Semester)

Paper No.	Code No.	Nomenclature	Periods (40 min. each	Max. Marks Written + I.A.	Time
XXI	CH-601	Inorganic Chemistry (theory)	30	29+7	3 hrs.
XXII	CH-602	Physical Chemistry (theory)	30	29+7	3 hrs.
XXIII	CH-603	Organic Chemistry (theory)	30	30+8	3 hrs.
XXIV	CH-604	Practicals	70	40	3½ hrs

B. Sc Ist Semester

Paper I (Theory) Inorganic Chemistry CH-101

Max. Marks: 30
Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section-A

Atomic Structure

Idea of de Broglie matter waves, Heisenberg uncertainty principle, atomic orbitals, , quantum numbers, radial and angular wave functions and probability distribution curves, shapes of s, p, d orbitals.

Section-B

Periodic Properties

General principles of periodic table: Aufbau and Pauli exclusion principles, Hund's multiplicity rule. Electronic configurations of the elements, effective nuclear charge, Slater's rules. Atomic and ionic radii, ionization energy, electron affinity and electronegativity –definition, methods of determination or evaluation, trends in periodic table (in s & p block elements).

Section-C

Covalent Bond

Valence bond theory and its limitations, directional characteristics of covalent bond, various types of hybridization and shapes of simple inorganic molecules and ions (BeF₂, BF₃, CH₄, PF₅, SF₆, IF₇, SO₄²⁻, ClO₄⁻)Valence shell electron pair repulsion (VSEPR) theory to NH₃, H₃O⁺, SF₄, ClF₃, ICl₂⁻ and H₂O. MO theory of heteronuclear (CO and NO) diatomic molecules, , bond strength and bond energy, percentage ionic character from dipole moment and electronegativity difference.

Section-D

Ionic Solids

Ionic structures (NaCl, CsCl, ZnS (Zinc Blende), CaF₂) radius ratio effect and coordination number, limitation of radius ratio rule, lattice defects, semiconductors, lattice energy (mathematical derivation excluded) and Born-Haber cycle, solvation energy and its relation with solubility of ionic solids, polarizing power and polarisability of ions, Fajan's rule.

B. Sc Ist Semester

Paper II (Theory) Physical Chemistry CH-102

Marks: 29

Time: 3 hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section – A

Gaseous States

Maxwell's distribution of velocities and energies (derivation excluded) Calculation of root mean square velocity, average velocity and most probable velocity. Collision diameter, collision number, collision frequency and mean free path. Deviation of Real gases from ideal behaviour. Derivation of Vander Waal's Equation of State, its application in the calculation of Boyle's temperature (compression factor) Explanation of behaviour of real gases using Vander Waal's equation.

Section-B

Critical Phenomenon: Critical temperature, Critical pressure, critical volume and their determination. PV isotherms of real gases, continuity of states, the isotherms of Vander Waal's equation, relationship between critical constants and Vander Waal's constants. Critical compressibility factor. The Law of corresponding states. Liquifaction of gases.

Section-C

Liquid States

Structure of liquids. Properties of liquids – surface tension, viscosity vapour pressure and optical rotations and their determination.

Section-D

Solid State

Classification of solids, Laws of crystallography – (i) Law of constancy of interfacial angles (ii) Law of rationality of indices (iii) Law of symmetry. Symmetry elements of crystals. Definition of unit cell & space lattice. Bravais lattices, crystal system. X-ray diffraction by crystals. Derivation of Bragg equation. Determination of crystal structure of NaCl, KCl. Liquid crystals: Difference between solids, liquids and liquid crystals, types of liquid crystals. Applications of liquid crystals.

B. Sc.Ist Semester**Paper II I (Theory) Organic Chemistry****Max. Marks: 29****CH -103****Time: 3 Hrs.**

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section-A**1. Structure and Bonding**

Localized and delocalized chemical bond, van der Waals interactions, resonance: conditions, resonance effect and its applications, hyperconjugation, inductive effect, Electromeric effect & their comparison.

2. Stereochemistry of Organic Compounds-I

Concept of isomerism. Types of isomerism. Optical isomerism, elements of symmetry, molecular chirality, enantiomers, stereogenic centre, optical activity, properties of enantiomers, chiral and achiral molecules with two stereogenic centres, diastereomers, threo and erythro diastereomers, meso compounds, resolution of enantiomers, inversion, retention and racemization.

Section-B**Stereochemistry of Organic Compounds-II**

Relative and absolute configuration, sequence rules, R & S systems of nomenclature. Geometric isomerism determination of configuration of geometric isomers. E & Z system of nomenclature, Conformational isomerism conformational analysis of ethane and n-butane, conformations of cyclohexane, axial and equatorial bonds, Newman projection and Sawhorse formulae, Difference between configuration and conformation.

Section-C**Mechanism of Organic Reactions**

Curved arrow notation, drawing electron movements with arrows, 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 (formation, structure & stability). Assigning formal charges on intermediates and other ionic species.

Section-D

Alkanes and Cycloalkanes

IUPAC nomenclature of branched and unbranched alkanes, the alkyl group, classification of carbon atoms 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. Cycloalkanes nomenclature, synthesis of cycloalkanes and their derivatives – photochemical (2+2) cycloaddition reactions, dehalogenation of -dihalides, pyrolysis of calcium or barium salts of dicarboxylic acids, Baeyer's strain theory and its limitations., theory of strainless rings.

B.Sc. (Ist Semester)**Paper IV (Practicals)****Max. Marks: 40****CH-104****Time: 3½ hrs****(Inorganic)****Volumetric Analysis**

- 1. Redox titrations:** Determination of Fe^{2+} , $\text{C}_2\text{O}_4^{2-}$ (using KMnO_4 , $\text{K}_2\text{Cr}_2\text{O}_7$)
- 2. Iodometric titrations:** Determination of Cu^{2+} (using standard hypo solution).
- 3. Complexometric titrations:** Determination of Mg^{2+} , Zn^{2+} by EDTA.

(Physical)

1. To determine the specific reaction rate of the hydrolysis of methyl acetate/ethyl acetate catalyzed by hydrogen ions at room temperature.
2. To prepare arsenious sulphide sol and compare the precipitating power of mono-, bi – and trivalent anions.
3. To determine the surface tension of a given liquid by drop number method.
4. To determine the viscosity of a given liquid.
5. To determine the specific refractivity of a given liquid

Distribution of marks

- | | |
|------------------------|----------|
| 1. Volumetric Analysis | 14 marks |
| 2. Physical | 12 marks |
| 3. Copy | 08 marks |
| 4. Viva-Voce | 06 marks |

B. Sc IIInd Semester

Paper V (Theory) Inorganic Chemistry
CH-201

Max. Marks: 30
Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A

.Hydrogen Bonding & Vander Waals Forces

Hydrogen Bonding – Definition, Types, effects of hydrogen bonding on properties of substances, application Brief discussion of various types of Vander Waals Forces

. Metallic Bond and Semiconductors

Metallic Bond- Brief introduction to metallic bond, band theory of metallic bond
Semiconductors- Introduction, types and applications.

Section-B

. s-Block Elements

Comparative study of the elements including , diagonal relationships, salient features of hydrides (methods of preparation excluded), solvation and complexation tendencies including their function in biosystems.

Chemistry of Noble Gases Chemical properties of the noble gases with emphasis on their low chemical reactivity, chemistry of xenon, structure and bonding of fluorides, oxides & oxyfluorides of xenon.

SECTION – C

p-Block Elements

Emphasis on comparative study of properties of p-block elements (including diagonal relationship and excluding methods of preparation).

Boron family (13th gp):-

Diborane – properties and structure (as an example of electron – deficient compound and multicentre bonding), Borazene – chemical properties and structure Trihalides of Boron – Trends in Lewis acid character structure of aluminium (III) chloride.

Carbon Family (14th group)

Catenation, p π – d π bonding (an idea), carbides, fluorocarbons, silicates structural aspects), silicon – general methods of preparations, properties and uses.

SECTION-D

Nitrogen Family (15th group)

Oxides – structures of oxides of N,P. oxyacids – structure and relative acid strengths of oxyacids of Nitrogen and phosphorus. Structure of white, yellow and red phosphorus.

Oxygen Family (16th group)

Oxyacids of sulphur – structures and acidic strength H_2O_2 – structure, properties and uses.

Halogen Family (17th group)

Basic properties of halogen, interhalogens types properties, hydro and oxyacids of chlorine – structure and comparison of acid strength.

B. Sc. IInd Semester

Paper VI (Theory) Physical Chemistry

Marks: 29

CH-202

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section – A

Kinetics-I

Rate of reaction, rate equation, factors influencing the rate of a reaction – concentration, temperature, pressure, solvent, light, catalyst. Order of a reaction, integrated rate expression for zero order, first order, second and third order reaction. Half life period of a reaction. Methods of determination of order of reaction.

Section – B

Kinetics-II

Effect of temperature on the rate of reaction – Arrhenius equation. Theories of reaction rate – Simple collision theory for unimolecular and bimolecular collision. Transition state theory of Bimolecular reactions.

Section-C

Electrochemistry-I

Electrolytic conduction, factors affecting electrolytic conduction, specific, conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration. Arrhenius theory of ionization, Ostwald's Dilution Law. Debye-Huckel – Onsager's equation for strong electrolytes (elementary treatment only) Transport number, definition and determination by Hittorf's methods, (numerical included)

Section-D

Electrochemistry-II

Kohlrausch's Law, calculation of molar ionic conductance and effect of viscosity temperature & pressure on it. Application of Kohlrausch's Law in calculation of conductance of weak electrolytes at infinite dilution. Applications of conductivity measurements: determination of degree of dissociation, determination of K_a of acids determination of solubility product of sparingly soluble salts, conductometric titrations. Definition of pH and pK_a , Buffer solution, Buffer action, Henderson – Hazel equation, Buffer mechanism of buffer action.

B. Sc IIInd Semester

Paper VII (Theory) Organic Chemistry

Max. Marks: 29

CH-203

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A

Alkenes

Nomenclature of alkenes, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides. The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes. Chemical reactions of alkenes
 □ mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration-oxidation, oxymercuration-reduction, ozonolysis, hydration, hydroxylation and oxidation with $KMnO_4$,

Section-B

Arenes and Aromaticity

Nomenclature of benzene derivatives: Aromatic nucleus and side chain. Aromaticity: the Huckel rule, aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non - aromatic compounds. Aromatic electrophilic substitution □ general pattern of the mechanism, mechanism of nitration, halogenation, sulphonation, and Friedel-Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation.

Section-C

Dienes and Alkynes

Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of butadiene. Chemical reactions □ 1,2 and 1,4 additions (Electrophilic & free radical mechanism), 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 of alkynes

Section-D

Alkyl and Aryl Halides

Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms and stereochemistry of nucleophilic substitution reactions of alkyl halides, S_N2 and S_N1 reactions with energy profile diagrams. Methods of formation and reactions of aryl halides, The addition-elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.

B.Sc IInd Semester**Paper VIII (Practicals)****Max. Marks: 40****CH-204****Time: 3½ hrs****Inorganic****Paper Chromatography**

Qualitative Analysis of the any one of the following Inorganic cations and anions by paper chromatography (Pb^{2+} , Cu^{2+} , Ca^{2+} , Ni^{2+} , Cl^- , Br^- , I^- and PO_4^{3-} and NO_3^-).

(Organic)

1. Preparation and purification through crystallization or distillation and ascertaining their purity through melting point or boiling point
 - (i) Iodoform from ethanol (or acetone)
 - (ii) *m*-Dinitrobenzene from nitrobenzene (use 1:2 conc. HNO_3 - H_2SO_4 mixture if fuming HNO_3 is not available)
 - iii) *p*-Bromoacetanilide from acetanilide
 - iv) Dibenzalacetone from acetone and benzaldehyde
 - v) Aspirin from salicylic acid
2. To study the process of) sublimation of camphor and phthalic acid.

Distribution of marks

1. Paper Chromatography	10 marks
2. Organic Preparation	16 marks
3. Copy	08 marks
4. Viva-Voce	06 marks

B. Sc IIIrd Semester

Paper IX (Theory) Inorganic Chemistry

Max. Marks: 29

CH-301

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A

Chemistry of Elements of Ist transition series:

Definition of transition elements, position in the periodic table, General characteristics & properties of Ist transition elements, Structures & properties of some compounds of transition elements – TiO_2 , VOCl_2 , FeCl_3 , CuCl_2 and $\text{Ni}(\text{CO})_4$

Section-B

Chemistry of Elements of IInd & IIId transition series

General characteristics and properties of the IInd and IIId transition elements
Comparison of properties of 3d elements with 4d & 5d elements with reference only to ionic radii, oxidation state, magnetic and Spectral properties and stereochemistry

Section-C

Coordination Compounds

Werner's coordination theory, effective atomic number concept, chelates, nomenclature of coordination compounds, isomerism in coordination compounds, valence bond theory of transition metal complexes

Section-D

Non-aqueous Solvents

Physical properties of a solvent, types of solvents and their general characteristics, reactions in non-aqueous solvents with reference to liquid NH_3 and liquid SO_2

B. Sc. IIIrd Semester

Paper X (Theory) Physical Chemistry

Marks: 30

CH-302

Time: 3 Hrs

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further,

examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

SECTION – A

Thermodynamics-I

Definition of thermodynamic terms: system, surrounding etc. Types of systems, intensive and extensive properties. State and path functions and their differentials. Thermodynamic process. Concept of heat and work. Zeroth Law of thermodynamics, 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 for ideal gas and real gas: and inversion temperature.

SECTION – B

Thermodynamics-II

Calculation of w.q. dU & dH for the expansion of ideal gases under isothermal and adiabatic conditions for reversible process, Temperature dependence of enthalpy, Kirchhoff's equation. Bond energies and applications of bond energies.

SECTION – C

Chemical Equilibrium

Equilibrium constant and free energy, concept of chemical potential, Thermodynamic derivation of law of chemical equilibrium. Temperature dependence of equilibrium constant; Van't Hoff reaction isochore, Van't Hoff reaction isotherm. Le-Chatelier's principle and its applications Clapeyron equation and Clausius – Clapeyron equation its applications.

SECTION – D

Distribution Law

Nernst distribution law – its thermodynamic derivation, Modification of distribution law when solute undergoes dissociation, association and chemical combination. Applications of distribution law: (i) Determination of degree of hydrolysis and hydrolysis constant of aniline hydrochloride. (ii) Determination of equilibrium constant of potassium tri-iodide complex and process of extraction.

B. Sc. IIIrd Semester**Paper XI (Theory) Organic Chemistry****Max. Marks: 29****CH-303****Time: 3 Hrs.**

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A**1. Alcohols**

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 HIO_4] and pinacol-pinacolone rearrangement.

2. Epoxides

Synthesis of epoxides. Acid and base-catalyzed ring opening of epoxides, orientation of epoxide ring opening, reactions of Grignard and organolithium reagents with epoxides

Section-B**. 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, Mechanisms of Fries rearrangement, Claisen rearrangement, Reimer-Tiemann reaction, Kolbe's reaction and Schotten and Baumann reactions.

23

Section-C**. 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. UV spectra of conjugated enes and enones, Woodward-Fieser rules, calculation of ϵ_{max} of simple conjugated dienes and ϵ_{max} of α,β -unsaturated ketones. Applications of UV Spectroscopy in structure elucidation of simple organic compounds.

Section-D

Carboxylic Acids & Acid Derivatives

Nomenclature of Carboxylic acids, 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. Reduction of carboxylic acids. Mechanism of decarboxylation. Structure, nomenclature and preparation of acid chlorides, esters, amides and acid anhydrides. Relative stability of acyl derivatives. Physical properties, interconversion of acid derivatives by nucleophilic acyl substitution. Mechanisms of esterification and hydrolysis (acidic and basic).

B.Sc (IIIrd Semester)

Paper XII (Practical)

CH-304

Max. Marks: 40

Time: 3½ hrs

(Inorganic)

1. Gravimetric Analysis

Quantitative estimations of, Cu^{2+} as copper thiocyanate and Ni^{2+} as Ni – dimethylglyoxime.

(Organic)

Systematic identification (detection of extra elements, functional groups, determination of melting point or boiling point and preparation of at least one pure solid derivative) of the following simple mono and bifunctional organic compounds: Naphthalene,

anthracene, acenaphthene, benzyl chloride, *p*-dichlorobenzene, *m*-dinitrobenzene, *p*-nitrotoluene, resorcinol, hydroquinone, α -naphthol, β -naphthol, benzophenone, ethyl methyl ketone, benzaldehyde, vanillin, oxalic acid, succinic acid, benzoic acid, salicylic acid, aspirin, phthalic acid, cinnamic acid, benzamide, urea, acetanilide, benzanilide, aniline hydrochloride, *p*-toluidine, phenyl salicylate (salol), glucose, fructose, sucrose, *o*-, *m*-, *p*-nitroanilines, thiourea.

Distribution of marks

1.	Gravimetric Analysis	10 marks
2.	Organic Analysis	16 marks
3.	Copy	08 marks
4.	Viva-voce	06 marks

B. Sc. IVth Semester**Paper XIII (Theory) Inorganic Chemistry****Max. Marks: 29****CH-401****Time: 3 Hrs.**

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A**Chemistry of f – block elements****Lanthanides**

Electronic structure, oxidation states and ionic radii and lanthanide contraction, complex formation, occurrence and isolation, lanthanide compounds.

Section-B**Chemistry of f – block elements****Actinides**

General features and chemistry of actinides, chemistry of separation of Np, Pu and Am from U, Comparison of properties of Lanthanides and Actinides and with transition elements.

Section-C**Theory of Qualitative and Quantitative Inorganic Analysis-I**

Chemistry of analysis of various acidic radicals, Chemistry of identification of acid radicals in typical combinations, Chemistry of interference of acid radicals including their removal in the analysis of basic radicals.

Section-D**Theory of Qualitative and Quantitative Inorganic Analysis-II**

Chemistry of analysis of various groups of basic radicals, Theory of precipitation, co-precipitation, Post-precipitation, purification of precipitates.

B. Sc. IVth Semester**Paper XIV (Theory) Physical Chemistry****Marks: 30****CH-402****Time: 3 Hrs.**

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section-A**Thermodynamics-III**

Second law of thermodynamics, need for the law, different statements of the law, Carnot's cycles and its efficiency, Carnot's theorem, Thermodynamics 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, entropy as a criteria of spontaneity and equilibrium. Entropy change in ideal gases and mixing of gases.

Section-B**Thermodynamics-IV**

Third law of thermodynamics: Nernst heat theorem, statement of concept of residual entropy, evaluation of absolute entropy from heat capacity data. 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.

Section-C**Electrochemistry-III**

Electrolytic and Galvanic cells – reversible & Irreversible cells, conventional representation of electrochemical cells. EMF of cell and its measurement, Weston standard cell, activity and activity coefficients. Calculation of thermodynamic quantities of cell reaction (ΔG , ΔH & K). Types of reversible electrodes – metal-metal ion gas electrode, metal –insoluble salt- anion and redox electrodes. Electrode reactions, Nernst equations, derivation of cell EMF and single electrode potential. Standard Hydrogen electrode, reference electrodes, standard electrodes potential, sign conventions, electrochemical series and its applications.

Section-D**Electrochemistry-IV**

Concentration cells with and without transference, liquid junction potential, application of EMF measurement i.e. valency of ions, solubility product activity

coefficient, potentiometric titration (acid- base and redox). Determination of pH using Hydrogen electrode, Quinhydrone electrode and glass electrode by potentiometric methods.

B. Sc. IVth Semester

Paper XV (Theory) Organic Chemistry

Marks: 29

CH-403

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A

. Infrared (IR) absorption spectroscopy

Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands, measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and interpretation of IR spectra of simple organic compounds. Applications of IR spectroscopy in structure elucidation of simple organic compounds.

Section-B

. Amines

Structure and nomenclature of amines, physical properties. Separation of a mixture of primary, secondary and tertiary amines. Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles, reductive amination of aldehydic and ketonic compounds. Gabriel phthalimide reaction, Hofmann bromamide reaction. electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid.

Section-C

1. Diazonium Salts

Mechanism of diazotisation, structure of benzene diazonium chloride, Replacement of diazo group by H, OH, F, Cl, Br, I, NO₂ and CN groups, reduction of diazonium salts to hydrazines, coupling reaction and its synthetic application.

2. Nitro Compounds

Preparation of nitro alkanes and nitro arenes and their chemical reactions. Mechanism of electrophilic substitution reactions in nitro arenes and their reductions in acidic, neutral and alkaline medium.

Section-D

. Aldehydes and Ketones

Nomenclature and structure of the carbonyl group. Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides, advantage of oxidation of alcohols with chromium trioxide (Sarett reagent) pyridinium chlorochromate (PCC) and pyridinium dichromate., Physical properties. Comparison of reactivities of aldehydes and ketones. 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. Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones, Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH_4 and NaBH_4 reductions.

B.Sc. (IVth Semester)**Paper XVI (Practical)****Max. Marks: 40****CH-404****Time: 3½ hrs****Inorganic****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 $\text{KMnO}_4/\text{K}_2\text{Cr}_2\text{O}_7$ solution.

3. Preparations: Preparation of Cuprous chloride, prussion blue from iron fillings, tetraammine cupric sulphate, chrome alum, potassium trioxalatochromate(III).

(Physical)

1. To determine the CST of phenol – water system.
2. To determine the solubility of benzoic acid at various temperatures and to determine the ΔH of the dissolution process
3. To determine the enthalpy of neutralisation of a weak acid/weak base vs. strong base/strong acid and determine the enthalpy of ionisation of the weak acid/weak base.
4. To determine the enthalpy of solution of solid calcium chloride
- 5 .To study the distribution of iodine between water and CCl_4 .

Distribution of marks

1. Colorimetry	12 marks
2. Physical	14 marks
3. Copy	08 marks
4. Viva-Voce	06 marks

B. Sc Vth Semester

Paper XVII (Theory) Inorganic Chemistry

Max. Marks: 29

CH-501

Time: 3Hrs .

Note : Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

SECTION-A

Metal-ligand Bonding in Transition Metal Complexes

Limitations 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.

SECTION-B

Thermodynamic and Kinetic Aspects of Metal Complexes

A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes of Pt(II).

SECTION-C

Magnetic Properties of Transition Metal Complexes

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. L-S coupling, correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for 3d metal complexes.

3

SECTION-D

Electron 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 $[Ti(H_2O)_6]^{3+}$ complex ion.

B. Sc. Vth Semester

Paper XVIII (Theory) Physical Chemistry

Marks: 29

CH-502

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A

Quantum Mechanic s-I

Black-body radiation, Plank's radiation law, photoelectric effect, heat capacity of solids, Compton effect, wave function and its significance of Postulates of quantum mechanics, quantum mechanical operator, commutation relations, Hamiltonian operator, Hermitian operator, average value of square of Hermitian as a positive quantity, Role of operators in quantum mechanics, To show quantum mechanically that position and momentum cannot be predicated simultaneously, Determination of wave function & energy of a particle in one dimensional box, Pictorial representation and its significance.

Section-B

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 permeability, magnetic susceptibility and its determination. Application of magnetic susceptibility, magnetic properties – paramagnetism, diamagnetism and ferromagnetism.

Section-C

Spectroscopy-I

Introduction: Electromagnetic radiation, regions of spectrum, basic features of spectroscopy, statement of Born-Oppenheimer approximation, Degrees of freedom.

Rotational Spectrum

Diatomic molecules. Energy levels of rigid rotator (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.

Section-D

Spectroscopy-II

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, effects of anharmonic motion and isotopic effect on the spectra., 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, Quantum theory of Raman spectra.

B. Sc Vth Semester

Paper XIX (Theory) Organic Chemistry

Marks: 30

CH-503

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section-A

NMR Spectroscopy-I

Principle of nuclear magnetic resonance, the PMR spectrum, number of signals, peak areas, equivalent and nonequivalent protons positions of signals and chemical shift, shielding and deshielding of protons, proton counting, splitting of signals and coupling constants, magnetic equivalence of protons.

Section-B

NMR Spectroscopy-II

Discuss ion of PMR spectra of the molecules: ethyl bromide, npropyl bromide, isopropyl bromide, 1,1-dibromoethane, 1,1,2-tribromoethane, ethanol, acetaldehyde, ethyl acetate, toluene, benzaldehyde and acetophenone..Simple problems on PMR spectroscopy for structure determination of organic compounds.

SECTION – C

Carbohydrates-I

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 glucose and fructose. Open chain and cyclic structure of D(+)-glucose & D(-) fructose. Mechanism of mutarotation. Structures of ribose and deoxyribose.

SECTION – D

1. Carbohydrates-II

An introduction to disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose) without involving structure determination.

2. Organometallic Compounds

Organomagnesium compounds: the Grignard reagents-formation, structure and chemical reactions. Organozinc compounds: formation and chemical reactions. Organolithium compounds: formation and chemical reactions.

B.Sc (Vth Semester)**Paper XX (Practical)****Max. Marks: 40****CH-504****Time: 3½ hrs****(Inorganic)****Salt Analysis**

Semimicro qualitative analysis of mixture containing not more than four radicals (including interfering, Combinations and excluding insolubles):

Pb^{2+} , Hg^{2+} , Hg_2^{2+} , Ag^+ , Bi^{3+} , Cu^{2+} , Cd^{2+} , As^{3+} , Sb^{3+} , Sn^{2+} , Fe^{3+} , Cr^{3+} , Al^{3+} , Co^{2+} , Ni^{2+} , Mn^{2+} , Zn^{2+} , Ba^{2+} , Sr^{2+} , Ca^{2+} , Mg^{2+} , NH_4^+ , CO_3^{2-} , S^{2-} , SO_3^{2-} , $\text{S}_2\text{O}_3^{2-}$, NO_2^- , CH_3COO^- , Cl^- , Br^- , I^- , NO_3^- , SO_4^{2-} , $\text{C}_2\text{O}_4^{2-}$, PO_4^{3-} , BO_3^{3-}

(Organic)**1. Laboratory Techniques****(a) Steam distillation (non evaluative)**

Naphthalene from its suspension in water

Separation of *o*- and *p*-nitrophenols

(b) Column chromatography (non evaluative)

Separation of fluorescein and methylene blue

Separation of leaf pigments from spinach leaves

2. 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) Separation of a mixture of colored organic compounds using common organic solvents.

Distribution of marks

1. Salt Analysis	16 marks
2. Organic	10 marks
3. Copy	08 marks
4. Viva-Voce	06 marks

B. Sc. VIth Semester**Paper XXI (Theory) Inorganic Chemistry****Max. Marks: 29****CH-601****Time: 3 Hrs.**

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each

Section-A**Organometallic Chemistry**

Definition, nomenclature and classification of organometallic compounds.
Preparation, properties, and bonding of alkyls of Li, Al, Hg, and Sn a brief account of metal-ethylenic complexes, mononuclear carbonyls and the nature of bonding in metal carbonyls.

Section-B**Acids and Bases, HSAB Concept**

Arrhenius, Bronsted – Lowry, the Lux – Flood, Solvent system and Lewis concepts of acids & bases, relative strength of acids & bases, Concept of Hard and Soft Acids & Bases. Symbiosis, electronegativity and hardness and softness

Section—C**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 Ca^{2+} . Nitrogen fixation.

Section—D**Silicones and Phosphazenes**

Silicones and phosphazenes, their preparation, properties, structure and uses

B. Sc. VIth Semester

Paper XXII (Theory) Physical Chemistry

Marks: 29

CH-602

Time: 3 Hrs

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing five short answer type questions covering the entire syllabus and will be of five marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

Section-A

Spectroscopy-III

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 and pie and n molecular orbital (MO) their energy level and respective transitions.

Section-B

Photochemistry

Interaction of radiation with matter, difference between thermal and photochemical processes. Laws of photochemistry: Grotthus-Draper law, Stark- Einstein law (law of photochemical equivalence) Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield, photosensitized reactions-energy transfer processes (simple examples).

Section-C

Solutions:

Dilute Solutions and Colligative Properties

Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. 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 point, 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.

Section-D

Phase Equilibrium

Statement and meaning of the terms – phase component and degree of freedom, thermodynamic derivation of Gibbs phase rule, phase equilibria of one component system –Example – water and Sulphur systems.

Phase equilibria of two component systems solid-liquid equilibria, simple eutectic Example Pb-Ag system, desilverisation of lead

B. Sc VIth Semester

Paper XXIII (Theory) Organic Chemistry

Marks: 30

CH-603

Time: 3 Hrs.

Note: Examiner will set nine questions and the candidates will be required to attempt five questions in all. Question number one will be compulsory containing six short answer type questions covering the entire syllabus and will be of six marks. Further, examiner will set two questions from each section and the candidates will be required to attempt one question from each section which will be of six marks each.

SECTION – A

Heterocyclic Compounds-I

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 reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole

SECTION – B

1. Heterocyclic Compounds-II

Introduction to condensed five and six- membered heterocycles. Preparation and reactions of indole, quinoline and isoquinoline with special reference to Fischer indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis. Mechanism of electrophilic substitution reactions of, quinoline and isoquinoline

2. Organosulphur Compounds

Nomenclature, structural features, Methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. Synthetic detergents alkyl and aryl sulphonates.

SECTION – C

1. Organic Synthesis *via* Enolates

Acidity of α -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate.

2. 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.

Section – D

Amino Acids, Peptides & Proteins

Classification, of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Preparation of α -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: Primary & Secondary structure.

B.Sc (VIth Semester)

Paper XXIV (Practical)

Max. Marks: 40

CH-604

Time: 3½ hrs

(Physical)

1. To determine the strength of the given acid solution (mono and dibasic acid) conductometrically.
2. To determine the solubility and solubility product of a sparingly soluble electrolyte conductometrically
3. To determine the strength of given acid solution (mono and dibasic acid) potentiometrically.
4. To determine the molecular weight of a non-volatile solute by Rast method.
5. To standardize the given acid solution (mono and dibasic acid) pH metrically.

(Organic)

Synthesis of the following organic compounds:

- (a) To prepare o-chlorobenzoic acid from anthranilic acid.
- (b) To prepare p-bromoaniline from p-bromoacetanilide.
- (c) To prepare m-nitroaniline from m-dinitrobenzene.
- (d) To prepare S-Benzyl-iso-thiuronium chloride from thiourea.

Distribution of marks

- | | | |
|----|---------------------|----------|
| 1. | Physical | 12 marks |
| 2. | Organic Preparation | 14 marks |
| 3. | Copy | 08 marks |
| 4. | Viva-Voce | 06 marks |

MAHARSHI DAYANAND UNIVERSITY, ROHTAK
Scheme of Examination (Semester System)

B.Sc. Part-I/II/III with Computer Science as a Subject

With effect from : 2016-2017

Year	Semester	Paper	Name of the Paper	Max. Marks	Internal Marks	Exam Hours	
First	1 st	1.1	Computer Fundamentals & MS-Office	40	10	3	
		1.2	Computer Architecture	40	10	3	
		1.3	Practical & Viva-voce <i>(Based on Paper 1.1)</i>	50	---	4	
	2 nd	2.1	Programming in C	40	10	3	
		2.2	Structured Systems Analysis and Design	40	10	3	
		2.3	Practical & Viva-voce <i>(Based on Paper 2.1)</i>	50	---	4	
	Second	3 rd	3.1	Data Communication and Networking	40	10	3
			3.2	Object-Oriented Design and C++	40	10	3
			3.3	Practical & Viva-voce <i>(Based on Paper 3.2)</i>	50	---	4
		4 th	4.1	Data Structures with C/C++	40	10	3
			4.2	Operating Systems	40	10	3
			4.3	Practical & Viva-voce <i>(Based on Paper 4.1)</i>	50	---	4
Third		5 th	5.1	Database Management System	40	10	3
			5.2	Introduction to Internet & Web Technologies	40	10	3
			5.3	Practical & Viva-voce <i>(Based on Papers 5.1 & 5.2)</i>	50	---	4
	6 th	6.1	Visual Basic Programming	40	10	3	
		6.2	Software Engineering	40	10	3	
		6.3	Practical & Viva-Voce <i>(Based on paper 6.1)</i>	50	---	4	

FIRST YEAR

First Semester

Paper-1.1: Computer Fundamentals & MS-Office

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Introduction : Historical evolution of computers, Classification of computers, Block Diagram along its components and characteristics, Usefulness of Computers. Human being Vs computer, Computer as a tool, Applications of computers. **Number Systems**: Definition of Number system, necessity of binary number system, binary, decimal, octal and hexadecimal number system, inter-conversion of numbers, Representation of integers, fixed and floating points, BCD codes, Error detecting and correcting codes, character Representation-ASCII, EBCDIC, Binary arithmetic.

Unit-II

Input/Output Devices: Keyboards, mouse, joysticks, trackballs, digitizer, voice-recognition, optical-recognition, scanners, terminals, point-of-sale terminals, machine-vision systems. Hard-copy devices: Impact printers - DMPs, Daisy-wheel printers, Line-printers. Non-impact printers - Inkjet, Laser, Thermal, LED; Plotters. Soft-copy devices: Monitors, video-standards (VGA and SVGA).

Memory & Mass Storage Devices: Characteristics of memory systems, types of memory, RAM, ROM, magnetic disks - floppy disk, hard-disk; optical disks - CD, CD-I, CD-ROM; Magnetic tapes; Concepts of Virtual and Cache memory

Unit-III

Software Concepts: Introduction, types of software - System & Application software; Language translators - Compiler, Interpreter, Assembler; Operating system - Characteristics, bootstrapping, types of operating, operating system as a resource manager; BIOS; System utilities - Editor, Loader, Linker, File Manager. Concept of GUI, GUI standards. Introduction to Algorithm & Flowcharts, Advantages & Disadvantages.

UNIT-IV

MS-OFFICE:MS-Word :- Creating a document, font operation, bullet and numbering, find & replace, hyper linking, mathematical operation, Create table and flow chart, Macro, Mail merge, Correcting grammar, protect files, difference between doc and docx.**MS-PowerPoint** :- Creating single and multiple slide, Animation, manual and automatic slide show, hyper linking, DFD, shape and style.**MS-Excel**:- Create sheet and rename sheet, table and operation, cells operation, hyper linking, Function(mathematic, logical), sort and data tools, protection(sheet, workbook).

Suggested Readings:

1. Gill, Nasib S.: Essentials of Computer and Network Technology, Khanna Book Publishing Co., New Delhi.
2. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
3. Chhillar, Rajender S.: Application of IT in Business, Ramesh Publishers, Jaipur.

4. Donald Sanders: Computers Today, McGraw-Hill Publishers.
5. Davis: Introduction to Computers, McGraw-Hill Publishers.
6. V. Rajaraman : Fundamental of Computers, Prentice-Hall India Ltd., New Delhi.
7. Learning MS-Office2000 by R Bangia (Khanna Book Pub)
8. Teach yourself MS-Office by Sandlers (BPB Pub).
9. Using MS-Office by Bott(PHI).

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper 1.2: Computer Architecture

Time: 3 Hrs.

Max. Marks: 40

Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Basic building blocks and Circuit Design: OR, AND , NOT, XOR Gates; De Morgan's theorem, laws and theorem of Boolean algebra, Simplifying logic circuits—sum of product and product of sum form, algebraic simplification, Karnaugh simplification

Unit-II

Arithmetic Circuits: Adder, Subtractor, parallel Binary-adder/Subtractor, Binary Multiplier and Divider. **Combinational Circuits:** Decoders and Encoder, Multiplexer and De-multiplexer circuits, Design of code Converters.

Unit-III

Sequential Circuits: Flip-flop-S-R, D, J-K, T, Clocked Flip-flop, Race Around condition, Master-Slave Flip-Flop, Realization of One Flip-Flop using other Flip-Flop, Shift-Registers, Counters-Ripple, Modular Synchronous, Ring & Twisted-Ring Counter.

Unit-IV

Register transfer and Micro-operations: Register transfer Language, Bus and Memory Transfer, Arithmetic, Logic Micro-operations, Shift Micro-operations.

Basic computer organization and Design: Instruction and instructions codes, computer instructions, timing and control, instruction cycle, memory references instructions, input- output reference instructions and interrupts;

Suggested Readings:

1. M. Mano: Computer System Architecture, Prentice-Hall of India Ltd., New Delhi.
2. Gill N.S. and Dixit J.B.: Digital Design and Computer Organization, University Science Press (An Imprint of Laxmi Publications), N. Delhi)
3. William Stallings: Computer Architecture and Organization, Maxell Publication.
4. Mano, M.M.: Digital Design, 2nd ed., Prentice-Hall of India.
5. Salivahanan and Arivazhagan: Digital Circuits and Design, Vikas Publ. House Pvt. Ltd.,
6. J.P. Hayes: Computer Architecture and Organization by J.P. Hayes, Tata McGraw-Hill, New Delhi.
7. Gear C.W.: Computer Organization and Architecture, Prentice Hall of India Ltd., New Delhi.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper-1.3: Practical based on Paper-1.1

Note:

- i) Practical (based on paper 1.1) : 40 Marks**
- ii) Viva-voce : 10 Marks**

Second Semester

Paper-2.1: Programming in C

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Basic concepts of programming, techniques of problem solving, algorithm designing and flowcharting, concept of structured programming-Top-Down design, Development of efficient program; Program correctness; Debugging and testing of programs, Algorithm for searching, sorting(Insertion, Exchange), Merging of Order-List.

Unit-II

Overview of C: History of C, Importance of C, Structure of a C Program Elements of C: C character set, identifiers and keywords, Data types: declaration and definition. Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators and their hierarchy & associativity, input/output statements, Arithmetic Expression, Evaluation of Arithmetic Expression, Type-casting and Conversion.

Unit-III

Decision making & branching: Decision making with if statement, if-else statement, nested if, else-if ladder, switch statement, goto statement. Decision making & looping: for, while, and do-while loop; Jumps in loop, break, continue. Functions: Definition, prototype, passing parameters, Recursion.

Unit-IV

Pointers: Declaration, operations on pointers, array of pointers, pointers to arrays. Data Structures: Arrays: One Dimensional, Multidimensional, Pointers and arrays. Strings: String Constants, Input & Output, String Functions. Structure & Unions. File Handling: Standard I/O text File, Writing to File, Reading a File.

Suggested Readings:

1. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
2. Gottfried: C Programming (Schaum's Outline Series), Tata McGraw-Hill Publishers.
3. Kanetkar: Let Us C, BPB Publications, New Delhi.
4. E. Balagurusamy: C Programming (Tata McGraw-Hill Publishers)
5. Donald Sanders: Computers Today, McGraw-Hill Publishers.
6. Davis: Introduction to Computers, McGraw-Hill Publishers.

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper 2.2: Structured Systems Analysis and Design

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT-I

Introduction to system, Definition and characteristics of a system, Elements of system, Types of system, System development life cycle, Role of system analyst, Analyst/user interface, System planning and initial investigation: Introduction, Bases for planning in system analysis, Sources of project requests, Initial investigation, Fact finding, Information gathering, information gathering tools.

UNIT-II

Structured analysis, Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool, Feasibility study: Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation, Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits, Methods of determining costs and benefits, Interpret results of analysis and take final action.

UNIT-III

System Design: System design objective, Logical and physical design, Design Methodologies, structured design, Form-Driven methodology(IPO charts), structured walkthrough, Input/Output and form design: Input design, Objectives of input design, Output design, Objectives of output design, Form design, Classification of forms, requirements of form design, Types of forms, Layout considerations, Form control.

UNIT-IV

System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests, Quality assurance goals in system life cycle, System implementation, Process of implementation, System evaluation, System maintenance and its types, System documentation, Forms of documentation.

SUGGESTED READINGS:

1. System Analysis and Design by Elias Awad (Galgotia Publications).
2. Introductory System analysis and Design by Lee Vol. I
3. System Analysis & design by Award, E Homewood(Irwin press).
4. System analysis & Design (Joint Volume) by LEE (Ga;gotia Publications)
5. Analysis of Design of Information System by James(Mc Graw Hill).

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper-2.3: Practical based on Paper-2.1

Note:

- i) Practical (based on paper 2.1) : 40 Marks
- ii) Viva-voce : 10 Marks

SECOND YEAR

Third Semester

Paper 3.1: Data Communication and Networking

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT – I

Introduction to Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices, Nodes, and Hosts; Types of Computer Networks and their Topologies; Network Architecture and the OSI Reference Model, TCP/IP reference model.

UNIT – II

Analog and Digital Communications: Concept of data, signal, channel, bit-rate, maximum data-rate of channel, Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate; Asynchronous and synchronous transmission, data encoding techniques, Modulation techniques, Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Dialup Networking; Analog Modem Concepts.

UNIT - III

Data Link Layer: Framing, Flow Control, Error Control; Error Detection and Correction; Media Access Control: Random Access Protocols, Token Passing Protocols; Token Ring; Introduction to Ethernet, FDDI, Wireless LANs. Network Layer and Routing Concepts: Virtual Circuits and Datagram's; Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Internetworking.

UNIT – IV

Transport layer: Elements of Transport protocol: Addressing, Connection Establishment, Flow Control, Buffering, Crash recovery. Internet Transport protocol: UDP: Introduction, Real time Transport protocol, Remote Procedure Call. Application Layer: Domain Name System, Electronic Mail, World Wide Web.

Suggested Readings:

1. Michael A. Gallo, William M. Hancock, "Computer Communications and Networking Technologies", CENGAGE Learning.
2. Andrew S. Tanenbaum, "Computer Networks", Pearson Education.
3. James F. Kurose, Keith W. Ross, "Computer Networking", Pearson Education.
4. Behrouz A Forouzan, "Data Communications and Networking", McGraw Hill.
5. Gill, Nasib S.: Essentials of Computer and Network Technology, Khanna Book Publishing Co., New Delhi

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper-3.2: Object-Oriented Design and C++

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Object oriented concepts: Class, Object, Methods, Message Passing, Abstraction, Inheritance, Polymorphism, Generosity, Overriding, Abstract Class & methods. Generalization, Aggregation, Associations. Object modeling techniques: Introduction to object model, Dynamic model, Functional Model. Strengths & Weakness of all models.

Unit-II

Introduction to Programming C++: Object-Oriented Features of C++, data types in C++, variables, operators, flow control, recursion, array, Pointers and their manipulation, strings, structures, Class and Objects, Data Hiding & Encapsulation, Data members and Member functions, Inline Functions, Static Data Members and Member Functions, Friend Functions, Preprocessor Directives, Namespace, Comparing C with C++.

Unit-III

Constructors & Destructors: Roles and types of Constructors, Constructor Overloading, Roles of Destructors, Dynamic Memory Allocation: Pointers and their Manipulation, new and delete Operators 'this' Pointer. Console I/O: Formatted and Unformatted I/O, Manipulators.

Unit-IV

Compile-Time Polymorphism: Unary and Binary Operators overloading through Member Functions and Friend Functions, Function Overloading, virtual functions, abstract class, virtual class Inheritance: Types of Derivations, Forms of Inheritance, Roles of Constructors and Destructors in Inheritance.

Suggested Readings:

1. Balagurusamy, E.: Object-Oriented Programming With C++, Tata McGraw-Hill.
2. Subburaj, R.: Object-Oriented Programming With C++, Vikas Pub. House, New Delhi.
3. Rumbaugh, J. et. al.: Object-Oriented Modelling and Design, Prentice Hall of India.
4. Booch, Grady: Object-Oriented Analysis & Design, Addison Wesley.
5. Chndra, B.: Object Oriented Programming Using C++, Narosa Pub. House, New Delhi.
6. Stroustrup, B.: The C++ Programming Language, Addison-Wesley.
7. Lippman: C++ Primer, 3/e, Addison-Wesley.
8. Schildt, Herbert: C++: The Complete Reference, 2/e, Tata McGraw-Hill

Note: Latest and additional good books may be suggested and added from time to time, covering the syllabus.

Paper-3.3: Practical based on Paper-3.2

Note:

- i) Practical (based on Paper 3.2) : 40 Marks
- ii) Viva-voce : 10 Marks

Fourth Semester

Paper-4.1: Data Structures with C /C++

Max. Marks: 40
Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Data-Structure: Data-Structure operations, Algorithm, Complexity, Data structure and its essence, Introduction to Arrays, Array operations, Multi- dimensional arrays, sequential allocation, address calculations, sparse arrays, Stacks-Introduction to Stacks, primitive operations on stacks, representation of stacks as an array and stack-applications.

Unit-II

Queues:-Introduction to queues, operations on queue, circular queue, priority queue, Applications of queue. Linked List-introduction and basic operations, Header nodes, doubly linked list, circular linked list, Applications of linked list, Representation of linked list as an array, stacks and queues.

Unit-III

Tree structures: Basic terminology, binary trees and binary search trees, implementing binary trees, Tree traversal algorithms, threaded trees, trees in search algorithms, AVL Trees, Polish notation and expression trees, applications of binary trees.

Unit-IV

Graph data structure and their applications. Graph traversals, shortest paths, spanning trees and related algorithms. Sorting: Internal and external sorting. Various sorting algorithms, Time and Space complexity of algorithms. Searching techniques. Applications of Sorting and Searching in computer science.

Suggested Readings:

1. Lipschutz: Data Structures (Schaum's Outline Series), Tata McGraw-Hill.
2. Adam Drozdek: Data Structures and Algorithms in C++, Vikas Pub. House (Thmpson), New Delhi.
3. Gupta Amit: Data Structures Through C, Galgotia Booksource Pvt. Ltd., New Delhi.
4. Sofat S.: Data Structures With C and C++, Khanna Book Pub. Co.(P) Ltd, N. Delhi.
5. Dromey R.G: How to Solve it by Computer ?, Prentice Hall India.
6. Loomis: Data Structure and File Management, Prentice-Hall India Ltd.
7. Tannenbaum: Data Structure Using C, Tata McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-4.2: Operating Systems

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT – I

Introductory Concepts: Operating system functions and characteristics, historical evolution of operating systems, types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing, Methodologies for implementation of O/S service system calls, system programs.

UNIT – II

Process management: Process concepts, operations on processes, Process states and Process Control Block. CPU Scheduling: Scheduling criteria, Levels of Scheduling, Scheduling algorithms, Multiple processor scheduling. Deadlocks: Deadlock characterization, Deadlock prevention and avoidance.

UNIT – III

Concurrent Processes: Critical section problem, Semaphores, Classical process co-ordination problems and their solutions, Inter-process Communications. Storage Management: memory management of single-user and multi-user operating system, partitioning, swapping, paging and segmentation, Thrashing.

UNIT – IV

File management: File Systems: Functions of the system, File access methods, allocation methods: Contiguous, allocation, linked, indexed allocation, Directory Systems: Structured Organizations, directory and file protection mechanisms.

Suggested Readings:

1. Silberschatz A., Galvin P.B., and Gagne G., “Operating System Concepts”, John Wiley & Sons, Inc., New York.
2. Godbole, A.S., “Operating Systems”, Tata McGraw-Hill Publishing Company, New Delhi.
3. Deitel, H.M., “Operating Systems”, Addison- Wesley Publishing Company, New York.
4. Tanenbaum, A.S., “Operating System- Design and Implementation”, Prentice Hall of India, New Delhi.

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-4.3: Practical based on Paper-4.1

Note:

- i) Practical (based on Paper 4.1) : 40 Marks
- ii) Viva-voce : 10 Marks

Third Year

Fifth Semester

Paper-5.1: Database Management System

Time: 3 Hrs.

Max. Marks: 40

Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT-I

Basic Concepts – Data, Information, Records and files. Traditional file – based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions, Advantages and Disadvantages of DBMS. Classification of Database Management System. Roles in the Database Environment - Data and Database Administrator.

UNIT – II

Centralized and Client Server architecture to DBMS. Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances. Data Independence – Logical and Physical Data Independence. Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling. Hierarchical, network and relational model

UNIT – III

Entity-Relationship Model – Entity Types, Entity Sets, Attributes and keys, Relationship, relationship sets, Role name & recursive relationship and structural constraints, Conceptual design using E-R Diagrams. Relational Data Model:-Introduction, Properties of Relations, Keys, Integrity Constraints over Relations, Views. Relational Database Design: Functional Dependencies, Normalization:1st to 3rd Normal Form, BCNF, Lossless Join and Dependency preserving decomposition.

UNIT – IV

SQL: Types & components of SQL, Data Definition and data types, Data definition commands, Data manipulation commands, Data Control Commands Specifying Constraints(Primary Constraint, Foreign key, Unique, Not Null) in SQL, Schema, Basic Queries in SQL, Insert, Delete and Update operations.

Inbuilt Date, String functions. Commit, Rollback, Save points. **Views:** Introduction, Advantages of creating views, Features, Destroying/ Altering table & Views.

Suggested Readings:

1. Elmasri & Navathe, “Fundamentals of Database Systems”, 5th edition, Pearson Education.
2. Thomas Connolly Carolyn Begg, “Database Systems”, 3/e, Pearson Education
3. C. J. Date, “An Introduction to Database Systems”, 8th edition, Addison Wesley N. Delhi.
4. Raghurama Krishnan:Database Management Systems, Johannes Gehrke, TMH.
5. Siberschatz,Korth: Database System Concepts, McGRaw Hill, latest Edition

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-5.2: Introduction to Internet and Web Technologies

Time: 3 Hrs.

Max. Marks: 40

Internal Marks: 10

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT I

Introduction to Internet, Benefits of Internet, WWW, Hardware and software requirement for internet, internet protocols, applications of internet, Internet Tools- Telnet, FTP, Gopher, Archie, Veronica, Mosaic, WAIS, IRC, Online Chatting, Messaging, and Conferencing Concepts, resources of internet.

UNIT-II

E-Mail mailing lists, Internet addressing, internet service provider (ISP), internet in India- Shell account, TCP/IP account, Home page and Web Site, internet accessing, internet terminology, internet security problems and solutions. Overview of Intranet and its applications, Web Browsers, Search Engines, Categories of Search Engines, Searching Criterion, Surfing the Net, Hypertext Transfer Protocol (HTTP), URL.

UNIT III

HTML: Internet Language, Understanding HTML, Create a Web Page, Linking to other Web Pages, Publishing HTML Pages, Text Alignment and Lists, Text Formatting Fonts Control, E-mail Links and link within a Page, Creating HTML Forms.

UNIT IV

Creating Web Page Graphics, Putting Graphics on a Web Page, Custom Backgrounds and Colors, Creating Animated Graphics., Web Page Design and layout, Advanced Layout with Tables, Using Style Sheets.

Suggested Readings:

1. Dick Oliver: Tech Yourself HTML 4 in 24 Hours, Tec media.
2. Satish Jain: "O" – Level Information Technology,
3. Craig Zacker: 10 minutes Guide to HTML Style Sheets, PHI.
4. V.K. Jain: "O" – Level Information Technology, BPB Publications.
5. Chhillar, Rajender S.: Application of IT in Business, Ramesh Publishers, Jaipur.
6. Gill, Nasib Singh: Essentials of Computer and Network Technology, Khanna Books Publishing Co., New Delhi.
7. Margaret Levine Young: Internet – The Complete Reference
8. Harley Hahn: The Internet – Complete Reference, TMH.

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-5.3: Practical based on Paper-5.1 and 5.2

Note:

- i) Practical (based on Paper 5.1 and 5.2) : 40 Marks
- ii) Viva-voce : 10 Marks

Sixth Semester

Paper-6.1: Visual Basic Programming

Max. Marks: 40

Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

UNIT – I

Introduction to VB: Visual & Non-visual programming, Procedural, Object-oriented and event-driven programming languages, The VB environment: Menu bar, Toolbar, Project explorer, Toolbox, Properties window, Form designer, Form layout, Immediate window. Event driven programming.

UNIT – II

Basics of Programming: Variables: Declaration, Types of variables, Converting variables types, User-defined data types, Scope & lifetime of variables. Constants: Named & intrinsic. Operators: Arithmetic, Relational & Logical operators. I/O in VB: Various controls for I/O in VB, Message box, Input Box, Print statement.

UNIT – III

Programming with VB: Decisions and conditions: If statement, If-then-else, Select-case. Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures. Arrays: Declaring and using arrays, one-dimensional and multi-dimensional arrays, Static & dynamic arrays, Arrays of array.

UNIT – IV

Programming with VB: Procedures: General & event procedures, Subroutines, Functions, Calling procedures, Arguments- passing mechanisms, Optional arguments, Named arguments, Functions returning custom data types. Working with forms: Adding multiple forms in VB, Hiding & showing forms, Load & unload statements, Activate & deactivate events, Form-load event, menu designing in VB, Database Programming using DAO & ADO, Simple Active X controls.

Suggested Readings:

1. Using Visual Basic 6 by Reselman & Other (Prentice-Hall of India)
2. Visual Basic 6 from Scratch by Donald & Oancea (Prentice-Hall of India)
3. Using Oracle-8 by Austin (Prentice-Hall of India)
4. Special Edition Using Oracle 8/8i by Jr. Page (Prentice-Hall of India)
5. Teach Yourself More VB in 21 days by Days Maver (Techmedia)

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-6.2: Software Engineering

Max. Marks: 40
Internal Marks: 10

Time: 3 Hrs.

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 4 parts (short-answer type questions) covering the entire syllabus and will carry 8 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 8 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit

Unit-I

Software and software engineering: Software characteristics, Software Processes, software crisis, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models, software engineering paradigms, goals and principles of software engineering.

Unit-II

Software requirement analysis – Structured analysis, object-oriented analysis and data modeling, software requirement specification, validation.

Software requirements Analysis and Specifications: Requirement engineering, requirements analysis using DFD, Data Dictionaries and E-R Diagram, requirement documentation, nature of SRS, characteristics and organization of SRS.

Unit-III

Software project management: Planning a software project, Software cost estimation, project scheduling, personnel planning, team structure

Software configuration management, software quality and quality assurance, project monitoring, risk management.

Unit-IV

Design and implementation of software- Software design fundamentals, software design principles, Cohesion and Coupling, Classification of Cohesion and Coupling, Function oriented design, object-oriented Design, design verification, monitoring and control..

Suggested Readings:

1. Gill, Nasib S.: Software Engineering, Khanna Book Pub. Co.(P) Ltd, N. Delhi.
2. Chhillar, Rajender S.: Software Engineering, Excel Books, New Delhi.
3. Jalote, Pankaj: An Integrated Approach to Software Engineering, Narosa Publications, New Delhi.
4. Pressman: Software Engineering, TMH.
5. Ghezzi Carlo: Fundaments of Software Engineering, PHI.
6. Fairley, R.E. : Software Engineering Concepts, McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time , covering the syllabus.

Paper-6.3: Practical based on Paper-6.1

Note:

- i) Practical (based on Paper 6.1) : 40 Marks
ii) Viva-voce : 10 Marks

NEW SCHEME

Scheme of Examination of B.Sc. 1st Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
12BSM 111	Algebra	6 periods/ 4 hours per week	40	10	150
12BSM 112	Calculus	6 periods/ 4 hours per week	40	10	
12BSM 113	Solid Geometry	6 periods/ 4 hours per week	40	10	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Algebra**Paper: 12BSM 111****Max. Marks:**

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Symmetric, Skew symmetric, Hermitian and skew Hermitian matrices. Elementary Operations on matrices. Rank of a matrices. Inverse of a matrix. Linear dependence and independence of rows and columns of matrices. Row rank and column rank of a matrix. Eigenvalues, eigenvectors and the characteristic equation of a matrix. Minimal polynomial of a matrix. Cayley Hamilton theorem and its use in finding the inverse of a matrix.

Section – II

Applications of matrices to a system of linear (both homogeneous and non-homogeneous) equations. Theorems on consistency of a system of linear equations. Unitary and Orthogonal Matrices, Bilinear and Quadratic forms.

Section – III

Relations between the roots and coefficients of general polynomial equation in one variable. Solutions of polynomial equations having conditions on roots. Common roots and multiple roots. Transformation of equations.

Section – IV :

Nature of the roots of an equation Descarte's rule of signs. Solutions of cubic equations (Cardon's method). Biquadratic equations and their solutions.

Books Recommended :

1. H.S. Hall and S.R. Knight : Higher Algebra, H.M. Publications 1994.
2. Shanti Narayan : A Text Books of Matrices.
3. Chandrika Prasad : Text Book on Algebra and Theory of Equations.
Pothishala Private Ltd., Allahabad.

(w.e.f. 2018-19)

Calculus**Paper: 12BSM 112****Max. Marks:**

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Definition of the limit of a function. Basic properties of limits, Continuous functions and classification of discontinuities. Differentiability. Successive differentiation. Leibnitz theorem. Maclaurin and Taylor series expansions.

Section – II

Asymptotes in Cartesian coordinates, intersection of curve and its asymptotes, asymptotes in polar coordinates. Curvature, radius of curvature for Cartesian curves, parametric curves, polar curves. Newton's method. Radius of curvature for pedal curves. Tangential polar equations. Centre of curvature. Circle of curvature. Chord of curvature, evolutes. Tests for concavity and convexity. Points of inflexion. Multiple points. Cusps, nodes & conjugate points. Type of cusps.

Section – III :

Tracing of curves in Cartesian, parametric and polar co-ordinates. Reduction formulae. Rectification, intrinsic equations of curve.

Section – IV :

Quadrature (area) Sectorial area. Area bounded by closed curves. Volumes and surfaces of solids of revolution. Theorems of Pappu's and Guilden.

Books Recommended :

1. Differential and Integral Calculus : Shanti Narayan.
2. Murray R. Spiegel : Theory and Problems of Advanced Calculus. Schaun's Outline series. Schaum Publishing Co., New York.
3. N. Piskunov : Differential and integral Calculus. Peace Publishers, Moscow.
4. Gorakh Prasad : Differential Calculus. Pothishasla Pvt. Ltd., Allahabad.
5. Gorakh Prasad : Integral Calculus. Pothishala Pvt. Ltd., Allahabad.

(w.e.f. 2018-19)

Solid Geometry**Paper: 12BSM 113****Max. Marks:**

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections (**I-IV**) will contain two questions (each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

General equation of second degree. Tracing of conics. Tangent at any point to the conic, chord of contact, pole of line to the conic, director circle of conic. System of conics. Confocal conics. Polar equation of a conic, tangent and normal to the conic.

Section – II :

Sphere: Plane section of a sphere. Sphere through a given circle. Intersection of two spheres, radical plane of two spheres. Co-axial system of spheres

Cones. Right circular cone, enveloping cone and reciprocal cone.

Cylinder: Right circular cylinder and enveloping cylinder.

Section – III :

Central Conicoids: Equation of tangent plane. Director sphere. Normal to the conicoids. Polar plane of a point. Enveloping cone of a coinoid. Enveloping cylinder of a coinoid.

Section – IV :

Paraboloids: Circular section, Plane sections of conicoids.

Generating lines. Confocal conicoid. Reduction of second degree equations.

Books Recommended

1. R.J.T. Bill, Elementary Treatise on Coördinary Geometry of Three Dimensions, MacMillan India Ltd. 1994.
2. P.K. Jain and Khalil Ahmad : A Textbook of Analytical Geometry of Three Dimensions, Wiley Eastern Ltd. 1999.

NEW SCHEME

Scheme of Examination of B.Sc 2nd Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
12BSM 121	Number Theory and Trigonometry	6 periods/ 4 hours per week	40	10	150
12BSM 122	Ordinary Differential Equations	6 periods/ 4 hours per week	40	10	
12BSM 123	Vector Calculus	6 periods/ 4 hours per week	40	10	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Number Theory and Trigonometry**Paper: 12BSM 121****Max. Marks:**

$7 \times 4 = 28$
$2 \times 6 = 12$
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

Divisibility, G.C.D.(greatest common divisors), L.C.M.(least common multiple)

Primes, Fundamental Theorem of Arithmetic. Linear Congruences, Fermat's theorem. Wilson's theorem and its converse. Linear Diophantine equations in two variables

Section – II :

Complete residue system and reduced residue system modulo m . Euler's ϕ function Euler's generalization of Fermat's theorem. Chinese Remainder Theorem. Quadratic residues. Legendre symbols. Lemma of Gauss; Gauss reciprocity law. Greatest integer function $[x]$. The number of divisors and the sum of divisors of a natural number n (The functions $d(n)$ and $\sigma(n)$). Moebius function and Moebius inversion formula.

Section - III :

De Moivre's Theorem and its Applications. Expansion of trigonometrical functions. Direct circular and hyperbolic functions and their properties.

Section – IV :

Inverse circular and hyperbolic functions and their properties. Logarithm of a complex quantity. Gregory's series. Summation of Trigonometry series.

Books Recommended :

1. S.L. Loney : Plane Trigonometry Part – II, Macmillan and Company, London.
2. R.S. Verma and K.S. Sukla : Text Book on Trigonometry, Pothishala Pvt. Ltd. Allahabad.
3. Ivan Niven and H.S. Zuckerman. An Introduction to the Theory of Numbers.

(w.e.f. 2018-19)

Ordinary Differential Equations**Paper: 12BSM 122****Max. Marks:**

$7 \times 4 = 28$
$2 \times 6 = 12$
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I :

Geometrical meaning of a differential equation. Exact differential equations, integrating factors. First order higher degree equations solvable for x,y,p Lagrange's equations, Clairaut's equations. Equation reducible to Clairaut's form. Singular solutions.

Section – II :

Orthogonal trajectories: in Cartesian coordinates and polar coordinates. Self orthogonal family of curves.. Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous linear ordinary differential equations.

Section – III :

Linear differential equations of second order: Reduction to normal form. Transformation of the equation by changing the dependent variable/ the independent variable. Solution by operators of non-homogeneous linear differential equations. Reduction of order of a differential equation. Method of variations of parameters. Method of undetermined coefficients.

Section – IV :

Ordinary simultaneous differential equations. Solution of simultaneous differential equations involving operators x (d/dx) or t (d/dt) etc. Simultaneous equation of the form $dx/P = dy/Q = dz/R$. Total differential equations. Condition for $Pdx + Qdy + Rdz = 0$ to be exact. General method of solving $Pdx + Qdy + Rdz = 0$ by taking one variable constant. Method of auxiliary equations.

Books Recommended :

1. D.A. Murray : Introductory Course in Differential Equations. Orient Longman (India) . 1967
2. A.R.Forsyth : A Treatise on Differential Equations, Machmillan and Co. Ltd. London
3. E.A. Coddington : Introduction to Differential Equations.
4. S.L.Ross: Differential Equations, John Wiley & Sons
5. B.Rai & D.P. Chaudhary : Ordinary Differential Equations; Narosa, Publishing House Pvt. Ltd.

(w.e.f. 2018-19)

Vector Calculus**Paper: 12BSM 123****Max. Marks:**

$7 \times 4 = 28$
$2 \times 6 = 12$
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions (each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Scalar and vector product of three vectors, product of four vectors. Reciprocal vectors. Vector differentiation. Scalar Valued point functions, vector valued point functions, derivative along a curve, directional derivatives.

Section – II

Gradient of a scalar point function, geometrical interpretation of grad Φ , character of gradient as a point function. Divergence and curl of vector point function, characters of Div \vec{f} and Curl \vec{f} as point function, examples. Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator.

Section – III

Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors. Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates and Spherical co-ordinates.

Section – IV

Vector integration; Line integral, Surface integral, Volume integral.
Theorems of Gauss, Green & Stokes and problems based on these theorems.

Books Recommended:

1. Murraray R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing Company, New York.
2. Murraray R. Spiegel : Vector Analysis, Schaum Publisghing Company, New York.
3. N. Saran and S.N. Nigam. Introduction to Vector Analysis, Pothishala Pvt. Ltd., Allahabad.
4. Shanti Narayna : A Text Book of Vector Calculus. S. Chand & Co., New Delhi.

NEW SCHEME

Scheme of Examination of B.Sc. 3rd Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
12BSM 231	Advanced Calculus	6 periods/ 4 hours per week	40	10	150
12BSM 232	Partial Differential Equations	6 periods/ 4 hours per week	40	10	
12BSM 233	Statics	6 periods/ 4 hours per week	40	10	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Advanced Calculus**Paper: 12BSM 231****Max. Marks:****7 x 4 = 28****2 x 6 = 12****Total = 40****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Continuity, Sequential Continuity, properties of continuous functions, Uniform continuity, chain rule of differentiability. Mean value theorems; Rolle's Theorem and Lagrange's mean value theorem and their geometrical interpretations. Taylor's Theorem with various forms of remainders, Darboux intermediate value theorem for derivatives, Indeterminate forms.

Section – II

Limit and continuity of real valued functions of two variables. Partial differentiation. Total Differentials; Composite functions & implicit functions. Change of variables. Homogenous functions & Euler's theorem on homogeneous functions. Taylor's theorem for functions of two variables.

Section – III

Differentiability of real valued functions of two variables. Schwarz and Young's theorem. Implicit function theorem. Maxima, Minima and saddle points of two variables. Lagrange's method of multipliers.

Section – IV

Curves: Tangents, Principal normals, Binormals, Serret-Frenet formulae. Locus of the centre of curvature, Spherical curvature, Locus of centre of Spherical curvature, Involutives, evolutes, Bertrand Curves. Surfaces: Tangent planes, one parameter family of surfaces, Envelopes.

Books Recommended:

1. C.E. Weatherburn : Differential Geometry of three dimensions, Radhe Publishing House, Calcutta
2. Gabriel Klaumber : Mathematical analysis, Mrcel Dekkar, Inc., New York, 1975
3. R.R. Goldberg : Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970
4. Gorakh Prasad : Differential Calculus, Pothishala Pvt. Ltd., Allahabad
5. S.C. Malik : Mathematical Analysis, Wiley Eastern Ltd., Allahabad.
6. Shanti Narayan : A Course in Mathemtical Analysis, S.Chand and company, New Delhi
7. Murray, R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing co., New York

(w.e.f. 2018-19)
Partial Differential Equations

Paper: 12BSM 232

Max. Marks:

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Partial differential equations: Formation, order and degree, Linear and Non-Linear Partial differential equations of the first order: Complete solution, singular solution, General solution, Solution of Lagrange's linear equations, Charpit's general method of solution. Compatible systems of first order equations, Jacobi's method.

Section – II

Linear partial differential equations of second and higher orders, Linear and non-linear homogenous and non-homogenous equations with constant co-efficients, Partial differential equation with variable co-efficients reducible to equations with constant coefficients, their complimentary functions and particular Integrals, Equations reducible to linear equations with constant co-efficients.

Section – III

Classification of linear partial differential equations of second order, Hyperbolic, parabolic and elliptic types, Reduction of second order linear partial differential equations to Canonical (Normal) forms and their solutions, Solution of linear hyperbolic equations, Monge's method for partial differential equations of second order.

Section – IV

Cauchy's problem for second order partial differential equations, Characteristic equations and characteristic curves of second order partial differential equation, Method of separation of variables: Solution of Laplace's equation, Wave equation (one and two dimensions), Diffusion (Heat) equation (one and two dimension) in Cartesian Co-ordinate system.

Books Recommended:

1. D.A.Murray: Introductory Course on Differential Equations, Orient Longman, (India), 1967
2. Erwin Kreyszing : Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999
3. A.R. Forsyth : A Treatise on Differential Equations, Macmillan and Co. Ltd.
4. Ian N.Sneddon : Elements of Partial Differential Equations, McGraw Hill Book Company, 1988
5. Frank Ayres : Theory and Problems of Differential Equations, McGraw Hill Book Company, 1972
6. J.N. Sharma & Kehar Singh : Partial Differential Equations

(w.e.f. 2018-19)

Statics**Paper: 12BSM 233****Max. Marks:**

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions (each carrying 7 marks.) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Composition and resolution of forces. Parallel forces. Moments and Couples.

Section – II

Analytical conditions of equilibrium of coplanar forces. Friction. Centre of Gravity.

Section – III

Virtual work. Forces in three dimensions. Poinsots central axis.

Section – IV

Wrenches. Null lines and planes. Stable and unstable equilibrium.

Books Recommended:

1. S.L. Loney : Statics, Macmillan Company, London
2. R.S. Verma : A Text Book on Statics, Pothishala Pvt. Ltd., Allahabad

NEW SCHEME

Scheme of Examination of B.Sc 4th Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks			
			Theory	Internal Assessment	Practical	Total
12BSM 241	Sequences and Series	6 periods/ 4 hours per week	40	10		150
12BSM 242	Special Functions and Integral transforms	6 periods/ 4 hours per week	40	10		
12BSM 243	Programming in C and Numerical Methods	6 periods/ 4 hours per week	30	--	20	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)
Sequences and Series

Paper: 12BSM 241

Max. Marks:

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods, interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. Bolzano-Weierstrass theorem, Open covers, Compact sets and Heine-Borel Theorem.

Section – II

Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence, Subsequences, Subsequential limits.

Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series, Cauchy's general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series.

Section – III

Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.

Section – IV

Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: Abel's lemma, Abel's test, Dirichlet's test, Insertion and removal of parenthesis, re-arrangement of terms in a series, Dirichlet's theorem, Riemann's Re-arrangement theorem, Pringsheim's theorem (statement only), Multiplication of series, Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products.

Books Recommended:

1. R.R. Goldberg : Real Analysis, Oxford & I.B.H. Publishing Co., New Delhi, 1970
2. S.C. Malik : Mathematical Analysis, Wiley Eastern Ltd., Allahabad.
3. Shanti Narayan : A Course in Mathematical Analysis, S.Chand and company, New Delhi
4. Murray, R. Spiegel : Theory and Problems of Advanced Calculus, Schaum Publishing co., New York
5. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
6. Earl D. Rainville, Infinite Series, The Macmillan Co., New York

(w.e.f. 2018-19)

Special Functions and Integral Transforms**Paper: 12BSM 242****Max. Marks:****7 x 4 = 28****2 x 6 = 12****Total = 40****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions. Bessel equation and its solution: Bessel functions and their properties-Convergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions.

Section – II

Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties-Recurrence Relations and generating functions. Orthogonality of Legendre and Hermite polynomials. Rodrigues' Formula for Legendre & Hermite Polynomials, Laplace Integral Representation of Legendre polynomial.

Section – III

Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms, Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform.

Section – IV

Fourier transforms: Linearity property, Shifting, Modulation, Convolution Theorem, Fourier Transform of Derivatives, Relations between Fourier transform and Laplace transform, Parseval's identity for Fourier transforms, solution of differential Equations using Fourier Transforms.

Books Recommended:

1. Erwin Kreyszing : Advanced Engineering Mathematics, John Wiley & Sons, Inc., New York, 1999
2. A.R. Forsyth : A Treatise on Differential Equations, Macmillan and Co. Ltd.
3. I.N. Sneddon : Special Functions on mathematics, Physics & Chemistry.
4. W.W. Bell : Special Functions for Scientists & Engineers.
5. I.N. Sneddon: the use of integral transform, McGraw Hill, 1972
6. Murray R. Spiegel: Laplace transform, Schaum's Series.

(w.e.f. 2018-19)

Programming in C and Numerical Methods**Part-A (Theory)****Paper:12BSM 243****Max. Marks:**

5.5 x 2 = 11
5 x 2 = 10
1.5 x 6 = 9
Total = 30

Time: 3 Hours

Note:- The question paper will consist of **five** sections. Each of the first two sections (**I-II**) will contains two questions (each carrying 5.5 marks). Each of the **IIIrd** and **IVth** sections will contain two questions (each carrying 5 marks). The students shall be asked to attempt **one** question from each section (**I-IV**). **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Programmer's model of a computer, Algorithms, Flow charts, Data types, Operators and expressions, Input / outputs functions.

Section – II

Decisions control structure: Decision statements, Logical and conditional statements, Implementation of Loops, Switch Statement & Case control structures. Functions, Preprocessors and Arrays.

Section – III

Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters. Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures. Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions.

Solution of Algebraic and Transcendental equations: Bisection method, Regula-Falsi method, Secant method, Newton-Raphson's method. Newton's iterative method for finding pth root of a number, Order of convergence of above methods.

Section – IV

Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method, Triangularization method (LU decomposition method). Crout's method, Cholesky Decomposition method. Iterative method, Jacobi's method, Gauss-Seidal's method, Relaxation method.

Books Recommended:

1. B.W. Kernighan and D.M. Ritchie : The C Programming Language, 2nd Edition
2. V. Rajaraman : Programming in C, Prentice Hall of India, 1994
3. Byron S. Gottfried : Theory and Problems of Programming with C, Tata McGraw-Hill Publishing Co. Ltd., 1998
4. M.K. Jain, S.R.K. Lyengar, R.K. Jain : Numerical Method, Problems and Solutions, New Age International (P) Ltd., 1996
5. M.K. Jain, S.R.K. Lyengar, R.K. Jain : Numerical Method for Scientific and Engineering Computation, New Age International (P) Ltd., 1999
6. Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd.
7. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill Publishing Co. Ltd.
8. Programming in ANSI C, E. Balagurusamy, Tata McGraw-Hill Publishing Co. Ltd.

9. Babu Ram: Numerical Methods, Pearson Publication.
10. R.S. Gupta, Elements of Numerical Analysis, Macmillan's India 2010.

Part-B (Practical)**Max. Marks: 20****Time: 3 Hours**

There will be a separate practical paper which will consist simple programs in C and the implementation of Numerical Methods, studied in the paper 12BSM 243 (Part-A).

NEW SCHEME

Scheme of Examination of B.Sc. 5th Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks			
			Theory	Internal Assessment	Practical	Total
12BSM 351	Real Analysis	6 periods/ 4 hours per week	40	10	--	150
12BSM 352	Groups and Rings	6 periods/ 4 hours per week	40	10	--	
12BSM 363	Numerical Analysis	6 periods/ 4 hours per week	30	--	20	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)
Real Analysis

Paper: 12BSM 351

Max. Marks:

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Riemann integral, Integrability of continuous and monotonic functions, The Fundamental theorem of integral calculus. Mean value theorems of integral calculus.

Section – II

Improper integrals and their convergence, Comparison tests, Abel's and Dirichlet's tests, Frullani's integral, Integral as a function of a parameter. Continuity, Differentiability and integrability of an integral of a function of a parameter.

Section – III

Definition and examples of metric spaces, neighborhoods, limit points, interior points, open and closed sets, closure and interior, boundary points, subspace of a metric space, equivalent metrics, Cauchy sequences, completeness, Cantor's intersection theorem, Baire's category theorem, contraction Principle

Section – IV

Continuous functions, uniform continuity, compactness for metric spaces, sequential compactness, Bolzano-Weierstrass property, total boundedness, finite intersection property, continuity in relation with compactness, connectedness, components, continuity in relation with connectedness.

Books Recommended:

1. P.K. Jain and Khalil Ahmad: Metric Spaces, 2nd Ed., Narosa, 2004
2. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
3. R.R. Goldberg : Real analysis, Oxford & IBH publishing Co., New Delhi, 1970
4. D. Somasundaram and B. Choudhary : A First Course in Mathematical Analysis, Narosa Publishing House, New Delhi, 1997
5. Shanti Narayan : A Course of Mathematical Analysis, S. Chand & Co., New Delhi
6. E.T. Copson, Metric Spaces, Cambridge University Press, 1968.
7. G.F. Simmons : Introduction to Topology and Modern Analysis, McGraw Hill, 1963.

(w.e.f. 2018-19)
Groups and Rings

Paper: 12BSM 352

Max. Marks:

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Definition of a group with example and simple properties of groups, Subgroups and Subgroup criteria, Generation of groups, cyclic groups, Cosets, Left and right cosets, Index of a sub-group Coset decomposition, Lagrange's theorem and its consequences, Normal subgroups, Quotient groups,

Section – II

Homomorphisms, isomorphisms, automorphisms and inner automorphisms of a group. Automorphisms of cyclic groups, Permutations groups. Even and odd permutations. Alternating groups, Cayley's theorem, Center of a group and derived group of a group.

Section – III

Introduction to rings, subrings, integral domains and fields, Characteristics of a ring. Ring homomorphisms, ideals (principal, prime and Maximal) and Quotient rings, Field of quotients of an integral domain.

Section – IV

Euclidean rings, Polynomial rings, Polynomials over the rational field, The Eisenstein's criterion, Polynomial rings over commutative rings, Unique factorization domain, R unique factorization domain implies so is $R[X_1, X_2, \dots, X_n]$

Books Recommended:

1. I.N. Herstein : Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal : Basic Abstract Algebra (2nd edition).
3. Vivek Sahai and Vikas Bist : Algebra, NKarosa Publishing House.
4. I.S. Luther and I.B.S. Passi : Algebra, Vol.-II, Norsa Publishing House.
5. J.B. Gallian: Abstract Algebra, Narosa Publishing House.

(w.e.f. 2018-19)

Numerical Analysis**Part-A (Theory)****Paper: 12BSM 363****Max. Marks:**

5.5 x 2 = 11

5 x 2 = 10

1.5 x 6 = 9

Total = 30

Time: 3 Hours

Note:- The question paper will consist of **five** sections. Each of the first two sections (**I-II**) will contain two questions (each carrying 5.5 marks). Each of the **IIIrd** and **IVth** sections will contain two questions (each carrying 5 marks). The students shall be asked to attempt **one** question from each section (**I-IV**). **Section-V** will contain **six** short answer type questions (each carrying 1.5 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values, Interpolation with equal intervals: Newton's forward and Newton's backward interpolation formulae. Interpolation with unequal intervals: Newton's divided difference, Lagrange's Interpolation formulae, Hermite Formula.

Section – II

Central Differences: Gauss forward and Gauss's backward interpolation formulae, Sterling, Bessel Formula.

Probability distribution of random variables, Binomial distribution, Poisson's distribution, Normal distribution: Mean, Variance and Fitting.

Section – III

Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II.

Eigen Value Problems: Power method, Jacobi's method, Given's method, House-Holder's method, QR method, Lanczos method.

Section – IV

Numerical Integration: Newton-Cote's Quadrature formula, Trapezoidal rule, Simpson's one-third and three-eighth rule, Chebychev formula, Gauss Quadrature formula.

Numerical solution of ordinary differential equations: Single step methods-Picard's method. Taylor's series method, Euler's method, Runge-Kutta Methods. Multiple step methods; Predictor-corrector method, Modified Euler's method, Milne-Simpson's method.

Books Recommended:

1. Babu Ram: Numerical Methods, Pearson Publication.
2. R.S. Gupta, Elements of Numerical Analysis, Macmillan's India 2010.

3. M.K. Jain, S.R.K.Iyengar, R.K. Jain : Numerical Method, Problems and Solutions, New Age International (P) Ltd., 1996
4. M.K. Jain, S.R.K. Iyengar, R.K. Jain : Numerical Method for Scientific and Engineering Computation, New Age International (P) Ltd., 1999
5. C.E. Froberg : Introduction to Numerical Analysis (2nd Edition).
6. Melvin J. Maaron : Numerical Analysis-A Practical Approach, Macmillan Publishing Co., Inc., New York
7. R.Y. Rubnistein : Simulation and the Monte Carlo Methods, John Wiley, 1981
8. Radhey S. Gupta: Elements of Numerical Analysis, Macmillan Publishing Co.

Part-B (Practical)**Max. Marks: 12****Time: 3 Hours**

There will be a separate practical paper which will consist simple programs in C and the implementation of Numerical Methods, studied in the paper 12BSM 363 (Part-A).

NEW SCHEME

Scheme of Examination of B.Sc 6th Semester Mathematics (w.e.f. 2018-2019)

Paper Code	Title of the Paper	Allocation of Periods	Maximum Marks		
			Theory	Internal Assessment	Total
12BSM 361	Real and Complex Analysis	6 periods/ 4 hours per week	40	10	150
12BSM 362	Linear Algebra	6 periods/ 4 hours per week	40	10	
12BSM 353	Dynamics	6 periods/ 4 hours per week	40	10	

Note:- The other conditions will remain the same as per relevant ordinance and rules and regulations of the University.

(w.e.f. 2018-19)

Real and Complex Analysis**Paper: 12BSM 361****Max. Marks:****7 x 4 = 28****2 x 6 = 12****Total = 40****Time: 3 Hours**

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Jacobians, Beta and Gamma functions, Double and Triple integrals, Dirichlet's integrals, change of order of integration in double integrals.

Section – II

Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Coefficients, Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals.

Section – III

Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions, Analytic functions, Cauchy-Riemann equations. Harmonic functions.

Section – IV

Mappings by elementary functions: Translation, rotation, Magnification and Inversion. Conformal Mappings, Mobius transformations. Fixed points, Cross ratio, Inverse Points and critical mappings.

Books Recommended:

1. T.M. Apostol: Mathematical Analysis, Narosa Publishing House, New Delhi, 1985
2. R.R. Goldberg : Real analysis, Oxford & IBH publishing Co., New Delhi, 1970
3. D. Somasundaram and B. Choudhary : A First Course in Mathematical, Analysis, Narosa Publishing House, New Delhi, 1997
4. Shanti Narayan : A Course of Mathematical Analysis, S. Chand & Co., New Delhi
5. R.V. Churchill & J.W. Brown: Complex Variables and Applications, 5th Edition, McGraw-Hill, New York, 1990
6. Shanti Narayan : Theory of Functions of a Complex Variable, S. Chand & Co., New Delhi.

(w.e.f. 2018-19)
Linear Algebra

Paper: 12BSM 362

Max. Marks:

7 x 4 = 28
2 x 6 = 12
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions(each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions(each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space, Existence theorem for basis of a finitely generated vector space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.

Section – II

Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vector spaces, Vector space of all the linear transformations Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimensional vector spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem,

Section – III

Algebra of Linear Transformation, Minimal Polynomial of a linear transformation, Singular and non-singular linear transformations, Matrix of a linear Transformation, Change of basis, Eigen values and Eigen vectors of linear transformations.

Section – IV

Inner product spaces, Cauchy-Schwarz inequality, Orthogonal vectors, Orthogonal complements, Orthogonal sets and Basis, Bessel's inequality for finite dimensional vector spaces, Gram-Schmidt, Orthogonalization process, Adjoint of a linear transformation and its properties, Unitary linear transformations.

Books Recommended:

1. I.N. Herstein : Topics in Algebra, Wiley Eastern Ltd., New Delhi, 1975
2. P.B. Bhattacharya, S.K. Jain and S.R. Nagpal : Basic Abstract Algebra (2nd edition).
3. Vivek Sahai and Vikas Bist : Algebra, Narosa Publishing House.
 I.S. Luther and I.B.S. Passi : Algebra, Vol.-II, Narosa Publishing House.

(w.e.f. 2018-19)

Dynamics**Paper: 12BSM 353****Max. Marks:**

$7 \times 4 = 28$
$2 \times 6 = 12$
Total = 40

Time: 3 Hours

Note: The question paper will consist of **five** sections. Each of the first four sections(**I-IV**) will contain two questions (each carrying 7 marks) and the students shall be asked to attempt **one** question from each section. **Section-V** will contain **six** short answer type questions (each carrying 2 marks) without any internal choice covering the entire syllabus and shall be **compulsory**.

Section – I

Velocity and acceleration along radial, transverse, tangential and normal directions. Relative velocity and acceleration. Simple harmonic motion. Elastic strings.

Section – II

Mass, Momentum and Force. Newton's laws of motion. Work, Power and Energy. Definitions of Conservative forces and Impulsive forces.

Section – III

Motion on smooth and rough plane curves. Projectile motion of a particle in a plane. Vector angular velocity.

Section – IV

General motion of a rigid body. Central Orbits, Kepler laws of motion. Motion of a particle in three dimensions. Acceleration in terms of different co-ordinate systems.

Books Recommended:

1. S.L.Loney : An Elementary Treatise on the Dynamics of a Particle and a Rigid Bodies, Cambridge University Press, 1956
2. F. Chorlton : Dynamics, CBS Publishers, New Delhi
3. A.S. Ramsey: Dynamics Part-1&2, CBS Publisher & Distributors.

पाठ्यक्रम

महर्षि दयानन्द विश्वविद्यालय, रोहतक

विषय: संस्कृत (अनिवार्य)

बी. एस. सी. (द्वितीय वर्ष- तृतीय सामिसत्र)

समय- 3 घण्टे

पूर्णांक- 40

यूनिट- 1. संस्कृत चयनिका (कुरुक्षेत्र विश्वविद्यालय प्रकाशन)

10

पद्य भाग- पाठ 1 से पाठ 6 तक

यूनिट- 2. संस्कृत चयनिका (कुरुक्षेत्र विश्वविद्यालय प्रकाशन)

10

गद्य भाग- पाठ 1 से पाठ 5 तक

यूनिट- 3. (क) शब्द रूपाणि- बालक, कवि, साधु, फल, मातृ, पितृ,

5

सर्व तीनों लिंगों में।

(ख) धातु रूपाणि- भू, अस्, वद्, गम्, पठ्, स्था,

5

ल , लृट्, लोट्, ल , विधिलिङ् लकारों में

यूनिट- 4. सन्धि:- स्वर सन्धिः, व्यंजन सन्धिः, विसर्ग सन्धिः,

10

परिभाषा रहित, प्रयोगमात्र।

यूनिट- 1. चार में से किन्हीं दो पद्यों का सरलार्थ

2X5=10

यूनिट- 2. चार में से किन्हीं दो गद्यों का सरलार्थ

$$2 \times 5 = 10$$

यूनिट-3. (क) दो में से किसी एक शब्द के सम्पूर्ण रूप

$$1 \times 5 = 5$$

(ख) दो में से किसी एक धातु के पूछे गये लकारों में सम्पूर्ण रूप

$$1 \times 5 = 5$$

यूनिट- 4. दस में से किन्हीं पांच पदों में सन्धि अथवा विच्छेद प्रदर्शन

$$5 \times 2 = 10$$

पाठ्यक्रम

महर्षि दयानन्द विश्वविद्यालय, रोहतक

विषय: संस्कृत (अनिवार्य)

बी. एस. सी. (द्वितीय वर्ष- चतुर्थ सामिसत्र)

समय- 3 घण्टे

पूर्णांक- 40

यूनिट- 1. संस्कृत चयनिका (कुरुक्षेत्र विश्वविद्यालय प्रकाशन)

10

पर भाग- पाठ 7 से पाठ 10 तक

यूनिट- 2. संस्कृत चयनिका (कुरुक्षेत्र विश्वविद्यालय प्रकाशः)

10

गद्य - 6 5

- 3. () शब्द रूपाणि- , विद्वस्, अस्मद्, युष्मद्,

5

तद् तीनों लिंगों में।

लट्, लृट्, लोट्, लङ्, विधिलिङ् लकारों में

- 4. - हिन्दी वाक्यों व संस्कृत में 3
10

परिभाषा : हित, प्रयोगमात्र।

- 1. में से किन्हीं दो पद्यों सरलार्थ
2X5=10

- 2. में से किन्हीं दो गद्यों सरलार्थ
2X5=10

- 3. () में से किसी 1 शब्द : सम्पूर्ण रूप
1X5=5

- () में से किसी 1 लकारों व सम्पूर्ण रूप
1X5=5

- 4. हिन्दी वाक्यों में से किन्हीं पां संस्कृत में 3
5X2=10

BACHELOR OF COMPUTER APPLICATIONS (BCA) Regular
Syllabus and SCHEME OF EXAMINATION – Ist , IInd, IIIrd YEAR(6 semesters)

w.e.f. 2012-13

Period per week: 6 for each theory paper and 6 for each practical group in each semester.

Paper No.	Title of Paper	Max. Marks		Pass Marks	Exam Duration
		External	Internal		
Semester – I w.e.f. 2012-13					
BCA-101	Computer & Programming Fundamentals	80	20	35	3hrs
BCA-102	PC Software	80	20	35	3hrs
BCA-103	Mathematics	80	20	35	3hrs
BCA-104	Logical Organization of Computer-I	80	20	35	3hrs
BCA-105	Practical software Lab – Based on paper BCA-102 i.e Word, Excel and Power point	80	20	35	3hrs
Semester – II					
BCA-106	‘C’ Programming	80	20	35	3hrs
BCA-107	Logical Organization of Computer-II	80	20	35	3hrs
BCA-108	Mathematical Foundations of Computer Science	80	20	35	3hrs
BCA-109	Structured System Analysis and Design	80	20	35	3hrs
BCA-110	Practical software Lab – Based on paper BCA-106, i.e.‘C’ Programming	80	20	35	3hrs
Semester – III w.e.f. 2013-14					
BCA-201	Introduction to Operating System	80	20	35	3hrs
BCA-202	DATA STRUCTURES – I	80	20	35	3hrs
BCA-203	Introduction to database system	80	20	35	3hrs
BCA-204	Communication skills (English)	80	20	35	3hrs
BCA-205	Practical software Lab – Based on paper BCA-202 & 203 using C Language and SQL	80	20	35	3hrs
Semester – IV					
BCA-206	WEB DESIGNING	80	20	35	3hrs
BCA-207	DATA STRUCTURES – II	80	20	35	3hrs
BCA-208	Object Oriented Programming Using C++	80	20	35	3hrs
BCA-209	Software Engineering	80	20	35	3hrs
BCA-210	Practical software Lab– Based on paper BCA-206 & 208, i.e.HTML and C++ Programming	80	20	35	3hrs
Semester – V w.e.f. 2014-15					
BCA-301	Management information system	80	20	35	3hrs
BCA-302	Computer Graphics	80	20	35	3hrs
BCA-303	Data Communication and Networking	80	20	35	3hrs
BCA-304	Visual Basic	80	20	35	3hrs
BCA-305	Practical software Lab– Based on paper BCA-304 i.e. Visual Basic	80	20	35	3hrs
Semester – VI					
BCA-306	E-Commerce	80	20	35	3hrs
BCA-307	Object Technologies & Programming using Java	80	20	35	3hrs
BCA-308	Artificial Intelligence	80	20	35	3hrs
BCA-309	Introduction to .net	80	20	35	3hrs
BCA-310	Practical software Lab– Based on paper BCA-307 & 309 using java & .net	80	20	35	3hrs

Syllabus of BCA I and II semester effective from 2012-13

BCA-101 : COMPUTER & PROGRAMMING FUNDAMENTALS

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Computer Fundamentals: Generations of Computers, Definition, Block Diagram along with its components, characteristics & classification of computers, Limitations of Computers, Human-Being VS Computer, Applications of computers in various fields.

Memory: Concept of primary & secondary memory, RAM, ROM, types of ROM, Cache Memory, flash memory, Secondary storage devices: Sequential & direct access devices viz. magnetic tape, magnetic disk, optical disks i.e. CD, DVD, virtual memory.

UNIT-II

Computer hardware & software: I/O devices, definition of software, relationship between hardware and software, types of software.

Overview of operating system: Definition, functions of operating system, concept of multiprogramming, multitasking, multithreading, multiprocessing, time-sharing, real time, single-user & multi-user operating system.

Computer Virus: Definition, types of viruses, Characteristics of viruses, anti-virus software.

UNIT-III

Computer Languages: Analogy with natural language, machine language, assembly language, high-level languages, forth generation languages, compiler, interpreter, assembler, Linker, Loader, characteristics of a good programming language, Planning the Computer Program: Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation.

Structured programming concepts, Programming methodologies viz. top-down and bottom-up programming, Advantages and disadvantages of Structured programming.

UNIT-IV

Overview of Networking: An introduction to computer networking, Network types (LAN, WAN, MAN), Network topologies, Modes of data transmission, Forms of data transmission, Transmission channels(media), Introduction to internet and its uses, Applications of internet, Hardware and Software requirements for internet, Intranet, Applications of intranet.

SUGGESTED READINGS

1. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
2. Balagurusamy E, Computing Fundamentals and C Programming, Tata McGraw Hill.
3. Norton, Peter, Introduction to Computer, McGraw-Hill
4. Leon, Alexis & Leon, Mathews, Introduction to Computers, Leon Tech World
5. Rajaraman, V., Fundamentals of Computers, PHI
6. Ram, B., Computer Fundamentals, Architecture & Organization, New Age International (P) Ltd.
7. Chhillar, Rajender Singh: Application of IT to Business, Ramesh Publishers, Jaipur.

8. Gill, Nasib Singh: Essentials of Computer and Network Technology, Khanna Books Publishing Co., New Delhi

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT - I

MS-Windows: Operating system-Definition & functions, basics of Windows. Basic components of windows, icons, types of icons, taskbar, activating windows, using desktop, title bar, running applications, exploring computer, managing files and folders, copying and moving files and folders. Control panel – display properties, adding and removing software and hardware, setting date and time, screensaver and appearance. Using windows accessories.

UNIT - II

Documentation Using MS-Word - Introduction to word processing interface, Toolbars, Menus, Creating & Editing Document, Formatting Document, Finding and replacing text, Format painter, Header and footer, Drop cap, Auto-text, Autocorrect, Spelling and Grammar Tool, Document Dictionary, Page Formatting, Bookmark, Previewing and printing document, Advance Features of MS-Word-Mail Merge, Macros, Tables, File Management, Printing, Styles, linking and embedding object, Template.

UNIT - III

Electronic Spread Sheet using MS-Excel - Introduction to MS-Excel, Cell, cell address, Creating & Editing Worksheet, Formatting and Essential Operations, Moving and copying data in excel, Header and footer, Formulas and Functions, Charts, Cell referencing, Page setup, Macros, Advance features of MS-Excel-Pivot table & Pivot Chart, Linking and Consolidation, Database Management using Excel-Sorting, Filtering, Validation, What if analysis with Goal Seek, Conditional formatting.

UNIT - IV

Presentation using MS-PowerPoint: Presentations, Creating, Manipulating & Enhancing Slides, Organizational Charts, Excel Charts, Word Art, Layering art Objects, Animations and Sounds, Inserting Animated Pictures or Accessing through Object, Inserting Recorded Sound Effect or In-Built Sound Effect.

SUGGESTED READINGS

1. Microsoft Office – Complete Reference – BPB Publication
2. Learn Microsoft Office – Russell A. Stultz – BPB Publication
3. Courter, G Marquis (1999). Microsoft Office 2000: Professional Edition. BPB.
4. Koers, D (2001). Microsoft Office XP Fast and Easy. PHI.
5. Nelson, S L and Kelly, J (2002). Office XP: The Complete Reference. Tata McGraw-Hill.

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT I

SETS: Sets, Subsets, Equal Sets Universal Sets, Finite and Infinite Sets, Operation on Sets, Union, Intersection and Complements of Sets, Cartesian Product, Cardinality of Set, Simple Applications.

DETERMINANTS: Definition, Minors, Cofactors, Properties of Determinants, Applications of determinants in finding area of triangle, Solving a system of linear equations.

MATRICES: Definition, Types of Matrices, Addition, Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, solving system of linear equation Cramer's Rule.

UNIT II

RELATIONS AND FUNCTIONS: Properties of Relations, Equivalence Relation, Partial Order Relation Function: Domain and Range, Onto, Into and One to One Functions, Composite and Inverse Functions.

LIMITS & CONTINUITY: Limit at a Point, Properties of Limit, Computation of Limits of Various Types of Functions, Continuity of a function at a Point, Continuity Over an Interval, Sum, product and quotient of continuous functions, Intermediate Value Theorem, Type of Discontinuities.

UNIT III

DIFFERENTIATION: Derivative of a function, Derivatives of Sum, Differences, Product & Quotient of functions, Derivatives of polynomial, trigonometric, exponential, logarithmic, inverse trigonometric and implicit functions, Logarithmic Differentiation, Chain Rule and differentiation by substitution.

UNIT IV

INTEGRATION: Indefinite Integrals, Methods of Integration by Substitution, By Parts, Partial Fractions, Integration of Algebraic and Transcendental Functions, Reduction Formulae for simple and Trigonometric Functions, Definite Integral as Limit of Sum, Fundamental Theorem of Integral Calculus, Evaluation of definite integrals by substitution, using properties of definite integral,

SUGGESTED READINGS

1. C.L.Liu: Elements of Discrete Mathematics, McGraw Hill.
2. Lipschutz, Seymour: Discrete Mathematics, Schaum's Series
3. Babu Ram: Discrete Mathematics, Vinayek Publishers, New Delhi.
4. Trembley, J.P & R. Manohar: Discrete Mathematical Structure with Application to Computer Science, TMH.
5. Kenneth H. Rosen: Discrete Mathematics and its applications, TMH.
6. Doerr Alan & Levasseur Kenneth: Applied Discrete Structures for Computer Science, Galgotia Pub. Pvt. Ltd.
7. Gersting: Mathematical Structure for Computer Science, WH Freeman & Macmillan.
8. Hopcroft J.E, Ullman J.D.: Introduction to Automata theory, Languages and Computation, Narosa Publishing House, New Delhi.

Note: Latest and additional good books may be suggested and added from time to time.

BCA-104 : LOGICAL ORGANIZATION OF COMPUTER-I

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT - I

Information Representation: Number Systems, Binary Arithmetic, Fixed-point and Floating-point representation of numbers, BCD Codes, Error detecting and correcting codes, Character Representation – ASCII, EBCDIC, Unicode

UNIT - II

Binary Logic: Boolean Algebra, Boolean Theorems, Boolean Functions and Truth Tables, Canonical and Standard forms of Boolean functions, Simplification of Boolean Functions – Venn Diagram, Karnaugh Maps.

UNIT - III

Digital Logic: Introduction to digital signals, Basic Gates – AND, OR, NOT, Universal Gates and their implementation – NAND, NOR, Other Gates – XOR, XNOR etc. NAND, NOR, AND-OR-INVERT and OR-AND-INVERT implementations of digital circuits, Combinational Logic – Characteristics, Design Procedures, analysis procedures, Multilevel NAND and NOR circuits.

UNIT - IV

Combinational Circuits: Half-Adder, Full-Adder, Half-Subtractor, Full-Subtractor, Parallel binary adder/subtractor, Encoders, Decoders, Multiplexers, Demultiplexers, Comparators, Code Converters, BCD to Seven-Segment Decoder.

SUGGESTED READINGS

1. Gill, Nasib Singh and Dixit J.B.: Digital Design and Computer Organisation, University Science Press (Laxmi Publications), New Delhi.
2. M. Morris Mano, Digital Logic and Computer Design, Prentice Hall of India Pvt. Ltd.
3. V. Rajaraman, T. Radhakrishnan, An Introduction to Digital Computer Design, Prentice Hall of India Pvt. Ltd.
4. Andrew S. Tanenbaum, Structured Computer Organization, Prentice Hall of India Pvt. Ltd.
5. Nicholas Carter, Schaum's Outlines Computer Architecture, Tata McGraw-Hill

Note: Latest and additional good books may be suggested and added from time to time.

BCA-105 : Practical- Software lab

(Based on paper BCA-102, PC Software)

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Overview of C: History of C, Importance of C, Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables, Assignment statement, Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression: Arithmetic, relational, logical, bitwise, unary, assignment, shorthand assignment operators, conditional operators and increment and decrement operators, Arithmetic expressions, evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity.

UNIT-II

Decision making & branching: Decision making with IF statement, IF-ELSE statement, Nested IF statement, ELSE-IF ladder, switch statement, goto statement.

Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue statement, Nested loops.

UNIT-III

Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions viz. getch(), getche(), getchar(), gets(), output functions viz., putch(), putchar(), puts(), string manipulation functions.

User defined functions: Introduction/Definition, prototype, Local and global variables, passing parameters, recursion.

UNIT-IV

Arrays, strings and pointers: Definition, types, initialization, processing an array, passing arrays to functions, Array of Strings. String constant and variables, Declaration and initialization of string, Input/output of string data, Introduction to pointers.

Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime.

Algorithm development, Flowcharting and Development of efficient program in C.

SUGGESTED READINGS

1. Gottfried, Byron S., Programming with C, Tata McGraw Hill
2. Gill Nasib Singh: Computing Fundamentals and Programming in C, Khanna Books Publishing Co., New Delhi.
3. Balagurusamy, E., Programming in ANSI C, 4E, Tata McGraw-Hill
4. Jeri R. Hanly & Elliot P. Koffman, Problem Solving and Program Design in C, Addison Wesley.
5. Yashwant Kanetker, Let us C, BPB.
6. Rajaraman, V., Computer Programming in C, PHI.
7. Yashwant Kanetker, Working with C, BPB.

Note: Latest and additional good books may be suggested and added from time to time.

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT - I

Sequential Logic: Characteristics, Flip-Flops, Clocked RS, D type, JK, T type and Master-Slave flip-flops. State table, state diagram and state equations. Flip-flop excitation tables

UNIT - II

Sequential Circuits: Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO) and shift registers. Designing counters – Asynchronous and Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters

UNIT - III

Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM, Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers.

UNIT - IV

Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program-controlled, Interrupt-controlled & DMA transfer, I/O Channels, IOP.

SUGGESTED READINGS

1. Gill, Nasib Singh and Dixit J.B.: Digital Design and Computer Organisation, University Science Press (Laxmi Publications), New Delhi.
2. M. Morris Mano, Digital Logic and Computer Design, Prentice Hall of India Pvt. Ltd.
3. V. Rajaraman, T. Radhakrishnan, An Introduction to Digital Computer Design, Prentice Hall of India Pvt. Ltd.
4. Andrew S. Tanenbaum, Structured Computer Organization, Prentice Hall of India Pvt. Ltd.
5. Nicholas Carter, Schaum's Outlines Computer Architecture, Tata McGraw-Hill

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Basic Statistics: Measure of Central Tendency, Preparing frequency distribution table, Mean, Mode, Median, Measure of Dispersion: Range, Variance and Standard Deviations, Correlation and Regression.

UNIT-II

Algorithm: Algorithms, merits and demerits, Exponentiation, How to compute fast exponentiation. Linear Search, Binary Search, "Big Oh" notation, Worst case, Advantage of logarithmic algorithms over linear algorithms, complexity.

Graph Theory: Graphs, Types of graphs, degree of vertex, sub graph, isomorphic and homeomorphic graphs, Adjacent and incidence matrices, Path Circuit ; Eulerian, Hamiltonian path circuit.

UNIT-III

Tree: Trees, Minimum distance trees, Minimum weight and Minimum distance spanning trees.

Recursion: Recursively defined function.

Merge sort, Insertion sort, Bubble sort, and Decimal to Binary.

UNIT-IV

Recurrence Relations: LHRR, LHRRWCCs, DCRR. Recursive procedures.

Number Theory: Principle of Mathematical induction, GCD, Euclidean algorithm, Fibonacci numbers, congruences and equivalence relations, public key encryption schemes.

SUGGESTED READINGS

1. Gupta S.P. and Kapoor, V.K., Fundamentals of Applied statistics, Sultan Chand & Sons, 1996.
2. Gupta S.P. and Kapoor, V.K., Fundamentals of Mathematical statistics, Sultan Chand and Sons, 1995.
3. Graybill, Introduction to Statistics, McGraw.
4. Anderson, Statistical Modelling, McGraw.
5. Babu Ram : Discrete Mathematics

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Introduction to system, Definition and characteristics of a system, Elements of system, Types of system, System development life cycle, Role of system analyst, Analyst/user interface, System planning and initial investigation: Introduction, Bases for planning in system analysis, Sources of project requests, Initial investigation, Fact finding, Information gathering, information gathering tools, Fact analysis, Determination of feasibility.

UNIT-II

Structured analysis, Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool, Feasibility study: Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation, Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits, Methods of determining costs and benefits, Interpret results of analysis and take final action.

UNIT-III

System Design: System design objective, Logical and physical design, Design Methodologies, structured design, Form-Driven methodology(IPO charts), structured walkthrough, Input/Output and form design: Input design, Objectives of input design, Output design, Objectives of output design, Form design, Classification of forms, requirements of form design, Types of forms, Layout considerations, Form control.

UNIT-IV

System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests, Quality assurance goals in system life cycle, System implementation, Process of implementation, System evaluation, System maintenance and its types, System documentation, Forms of documentation.

SUGGESTED READINGS

1. Systems Analysis and design BY e.m. aWAD Galgotia Pub.(P) Ltd.
2. Data Management and Data Structures by Loomis (PHI)
3. System Analysis and Design by Elias Awad.
4. Introductory System analysis and Design by Lee Vol. I & II

Note: Latest and additional good books may be suggested and added from time to time.

BCA-110: Practical- Software lab

(Based on paper BCA-106, C Programming)

BCA-201 : Introduction to Operating System

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Fundamentals of Operating system: Introduction to Operating System, its need and operating System services, Early systems, Structures - Simple Batch, Multi programmed, timeshared, Personal Computer, Parallel, Distributed Systems, Real-Time Systems.

Process Management: Process concept, Operation on processes, Cooperating Processes, Threads, and Inter-process Communication.

UNIT-II

CPU Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms : FCFS, SJF, Round Robin & Queue Algorithms.

Deadlocks: Deadlock characterization, Methods for handling deadlocks, Banker's Algorithm.

UNIT-III

Memory Management: Logical versus Physical address space, Swapping, Contiguous allocation, Paging, Segmentation.

Virtual Memory: Demand paging, Performance of demand paging, Page replacement, Page replacement algorithms, Thrashing.

UNIT-IV

File management: File system Structure, Allocation methods: Contiguous allocation, Linked allocation, Indexed allocation, Free space management: Bit vector, Linked list, Grouping, Counting.

Device Management: Disk structure, Disk scheduling: FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK.

Suggested Readings

1. Abraham Silberschatz, Peter B. Galvin, " Operating System Concepts", Addison-Wesley publishing. Co., 7th. Ed., 2004.
2. Nutt Gary, "Operating Systems", Addison Wesley Publication, 2000.
3. Andrew S. Tannenbaum, "Modern Operating Systems", Pearson Education Asia, Second Edition, 2001.
4. William Stallings, "Operating Systems, "Internals and Design Principles", 4th Edition, PH, 2001.
5. Ekta Walia, "Operating Systems Concepts", Khanna Publishes, New Delhi, 2002.

Note: Latest and additional good books may be suggested and added from time to time.

BCA – 202 : DATA STRUCTURES – I

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction: Elementary data organization, Data Structure definition, Data type vs. data structure, Categories of data structures, Data structure operations, Applications of data structures, Algorithms complexity and time-space tradeoff, Big-O notation.

Strings: Introduction, Storing strings, String operations, Pattern matching algorithms.

UNIT – II

Arrays: Introduction, Linear arrays, Representation of linear array in memory, address calculations, Traversal, Insertions, Deletion in an array, Multidimensional arrays, Parallel arrays, Sparse arrays.

Linked List: Introduction, Array vs. linked list, Representation of linked lists in memory, Traversal, Insertion, Deletion, Searching in a linked list, Header linked list, Circular linked list, Two-way linked list, Threaded lists, Garbage collection, Applications of linked lists.

UNIT – III

Stack: Introduction, Array and linked representation of stacks, Operations on stacks, Applications of stacks: Polish notation, Recursion.

Queues: Introduction, Array and linked representation of queues, Operations on queues, Deques, Priority Queues, Applications of queues.

UNIT – IV

Tree: Introduction, Definition, Representing Binary tree in memory, Traversing binary trees, Traversal algorithms using stacks.

Graph: Introduction, Graph theory terminology, Sequential and linked representation of graphs.

SUGGESTED READINGS

1. Seymour Lipschutz, "Data Structure", Tata-McGraw-Hill
2. Horowitz, Sahni & Anderson-Freed, "Fundamentals of Data Structures in C", Orient Longman.
3. Trembley, J.P. And Sorenson P.G., "An Introduction to Data Structures With Applications", McGraw- Hill International Student Edition, New York.
4. Mark Allen Weiss Data Structures and Algorithm Analysis In C, Addison- Wesley, (An Imprint Of Pearson Education), Mexico City. Prentice- Hall Of India Pvt. Ltd., New Delhi.
5. Yedidyan Langsam, Moshe J. Augenstein, and Aaron M. Tenenbaum, "Data Structures Using C", Prentice- Hall of India Pvt. Ltd., New Delhi.

Note: Latest and additional good books may be suggested and added from time to time.

BCA – 203 : INTRODUCTION TO DATABASE SYSTEM

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Basic Concepts – Data, Information, Records and files. Traditional file –based Systems-File Based Approach-Limitations of File Based Approach, Database Approach-Characteristics of Database Approach, advantages and disadvantages of database system, components of database system, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, DBMS users, Advantages and Disadvantages of DBMS, DBMS languages.

Roles in the Database Environment - Data and Database Administrator, Database Designers, Applications Developers and Users .

UNIT – II

Database System Architecture – Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mappings and Instances .

Data Independence – Logical and Physical Data Independence .

Classification of Database Management System, Centralized and Client Server architecture to DBMS .

Data Models: Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Modeling.

UNIT – III

Entity-Relationship Model – Entity Types, Entity Sets, Attributes Relationship Types, Relationship Instances and ER Diagrams, abstraction and integration.

Basic Concepts of Hierarchical and Network Data Model, Relational Data Model:-Brief History, Relational Model Terminology-Relational Data Structure, Database Relations, Properties of Relations, Keys, Domains, Integrity Constraints over Relations, .

UNIT – IV

Relational algebra, Relational calculus, Relational database design: Functional dependencies, Modification anomalies, 1st to 3rd NFs, BCNF, 4th and 5th NFs, computing closures of set FDs, SQL: Data types, Basic Queries in SQL, Insert, Delete and Update Statements, Views, Query processing: General strategies of query processing, query optimization, query processor, concept of security, concurrency and recovery.

SUGGESTED READINGS

1. Elmasri & Navathe, "Fundamentals of Database Systems", 5th edition, Pearson Education.
2. Thomas Connolly Carolyn Begg, "Database Systems", 3/e, Pearson Education
3. C. J. Date, "An Introduction to Database Systems", 8th edition, Addison Wesley N. Delhi.

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Introduction to Basics of Communication: Communication and its various definition, features/characteristics of the communication, process of communication, communication model and theories, barrier to effective communication.

UNIT-II

Improving LSRW: introduction, verbal and nonverbal communication, listening process, group discussion, forms of oral presentation, self-presentation, dyadic communication, 5C's of communication, Developing dialogues, soft skill.

UNIT-III

Basic vocabulary: how to improve vocabulary, prefix/suffix, synonyms/antonyms, one word substitution, spellings

Developing fluency: grammar (conjunction, auxiliaries, prepositions, articles, tenses.....), language games.

UNIT-IV

Proper use of Language: The Communication Skills, The effective Speech.

Effective self-presentation & facing interview: The interview process & preparing for it, The presentation skills.

SUGGESTED READINGS

1. Vik, Gilsdorf, "Business Communication", Irwin
2. K K Sinha, "Business Communication", Himalaya Publishing House / Galgoria Publication
3. Bovee, "Business Communication", Pearson ' PHI
4. Mohan, Banerjee, Business Communication, Mac millon
5. Raman, Singh – Business communication – Oxford Press

Note: Latest and additional good books may be suggested and added from time to time.

BCA-205 : PRACTICAL- SOFTWARE LAB
PRACTICAL BASED ON PAPER BCA-202 & 203 USING C LANGUAGE AND SQL.

SYLLABUS OF BCA IVTH SEMESTER

BCA – 206 : WEB DESIGNING

External Marks:80

Internal Marks:20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic features; Web Browsers; Web Servers; Hypertext Transfer Protocol, Overview of TCP/IP and its services; URLs; Searching and Web-Casting Techniques; Search Engines and Search Tools;

UNIT – II

Web Publishing: Hosting your Site; Internet Service Provider; Web terminologies, Phases of Planning and designing your Web Site; Steps for developing your Site; Choosing the contents; Home Page; Domain Names, Front page views, Adding pictures, Links, Backgrounds, Relating Front Page to DHTML.

Creating a Website and the Markup Languages (HTML, DHTML);

UNIT – III

Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts;

UNIT – IV

Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes;

DHTML: Dynamic HTML, Features of DHTML, CSSP(cascading style sheet positioning) and JSSS(JavaScript assisted style sheet), Layers of netscape, The ID attributes, DHTML events.

SUGGESTED READINGS

1. Raj Kamal, "Internet and Web Technologies", Tata McGraw-Hill.
2. Ramesh Bangia, "Multimedia and Web Technology", Firewall Media.
3. Thomas A. Powell, "Web Design: The Complete Reference" , 4/e, Tata McGraw-Hill
4. Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill.
5. Deitel and Goldberg, "Internet and World Wide Web, How to Program", PHI.

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Tree: Header nodes, Threads, Binary search trees, Searching, Insertion and deletion in a Binary search tree, AVL search trees, Insertion and deletion in AVL search tree, m-way search tree, Searching, Insertion and deletion in an m-way search tree, B-trees, Searching, Insertion and deletion in a B-tree, B+tree, Huffman's algorithm, General trees.

UNIT – II

Graphs: Warshall's algorithm for shortest path, Dijkstra algorithm for shortest path, Operations on graphs, Traversal of graph, Topological sorting.

UNIT – III

Sorting: Internal & external sorting, Radix sort, Quick sort, Heap sort, Merge sort, Tournament sort, Searching: Linear search, binary search, merging, Comparison of various sorting and searching algorithms on the basis of their complexity.

UNIT – IV

Files: Physical storage devices and their characteristics, Attributes of a file viz fields, records, Fixed and variable length records, Primary and secondary keys, Classification of files, File operations, Comparison of various types of files, File organization: Serial, Sequential, Indexed-sequential, Random-access/Direct, Inverted, Multilist file organization.

Hashing: Introduction, Hashing functions and Collision resolution methods .

SUGGESTED READINGS

1. Seymour Lipschutz, "Data Structure", Tata-McGraw-Hill
2. Horowitz, Sahni & Anderson-Freed, "Fundamentals of Data Structures in C", Orientlongman.
3. Trembley, J.P. And Sorenson P.G., "An Introduction to Data Structures With Applications", Mcgrraw- Hill International Student Edition, New York.
4. Mark Allen Weiss, "Data Structures and Algorithm Analysis in C", Addison- Wesley, (An Imprint Of Pearson Education), Mexico City.Prentice- Hall Of India Pvt. Ltd., New Delhi.

Note: Latest and additional good books may be suggested and added from time to time.

BCA-208: Object Oriented Programming Using C++

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Object Oriented Programming Concepts : Procedural Language and Object Oriented approach, Characteristics of OOP, user defined types, polymorphism and encapsulation. Getting started with C++: syntax, data types, variables, string, function, namespace and exception, operators, flow control, recursion, array and pointer, structure .

UNIT-II

Abstracting Mechanism: classes, private and public, Constructor and Destructor , member function, static members, references;

Memory Management: new, delete, object copying, copy constructor, assignment operator, this input/output

UNIT-III

Inheritance and Polymorphism: Derived Class and Base Class, Different types of Inheritance,

Overriding member function, Abstract Class, Public and Private Inheritance, Ambiguity in Multiple inheritance , Virtual function, Friend function, Static function.

UNIT-IV

Exception Handling: Exception and derived class, function exception declaration, unexpected exception, exception when handling exception, resource capture and release.

Template and Standard Template Library: Template classes, declaration, template functions, namespace, string, iterators, hashes, iostreams and other types.

SUGGESTED READINGS

1. Herbert Schildts : C++ - The Complete Reference, Tata McGraw Hill Publications.
2. Balaguru Swamy : C++, Tata McGraw Hill Publications.
3. Balaguruswamy : Object Oriented Programming and C++, TMH.
4. Shah & Thakker : Programming in C++, ISTE/EXCEL.
5. Johnston : C++ Programming Today, PHI.
6. Object Oriented Programming and C++, Rajaram, New Age International.
7. Samanta : Object Oriented Programming with C++ & JAVA, PHI.

Note : Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction: Software Crisis, Software Processes & Characteristics, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models.

Software Requirements Analysis & Specifications: Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS .

UNIT – II

Software Project Management Concepts: The Management spectrum, The People The Problem, The Process, The Project.

Software Project Planning: Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO, Risk Management.

UNIT - III

Software Design: Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, Software Metrics: Software measurements: What & Why, Token Count, Halstead Software Science Measures, Design Metrics, Data Structure Metrics

Software Implementation: Relationship between design and implementation, Implementation issues and programming support environment, Coding the procedural design, Good coding style.

UNIT - IV

Software Testing: Testing Process, Design of Test Cases, Types of Testing, Functional Testing, Structural Testing, Test Activities, Unit Testing, Integration Testing and System Testing, Debugging Activities.

Software Maintenance: Management of Maintenance, Maintenance Process, Reverse Engineering, Software Re-engineering, Configuration Management, Documentation.

Suggested Readings

1. Gill, Nasib Singh : Software Engineering, Khanna Book Publishing Co. (P) Ltd. N. Delhi.
2. Pressman : Software Engineering, TMH.
3. Jalote, Pankaj : An Integrated Approach to Software Engineering, Narosa Publications.
4. Chhillar Rajender Singh : Software Engineering : Testing, Faults, Metrics, Excel Books, New Delhi.
5. Ghezzi, Carlo : Fundamentals of Software Engineering, PHI.
6. Fairly, R.E. : Software Engineering Concepts, McGraw-Hill.
7. Lewis, T.G.: Software Engineering, McGraw-Hill.
8. Shere : Software Engineering & Management, Prentice Hall.

Note : Latest and additional good books may be suggested and added from time to time.

BCA-210 : PRACTICAL- SOFTWARE LAB
PRACTICAL BASED ON PAPER BCA-206 & BCA-208 USING HTML AND C++
LANGUAGE

w.e.f. 2014-15

BCA – 301: MANAGEMENT INFORMATION SYSTEM

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction to system and Basic System Concepts, Types of Systems, The Systems Approach, Information System: Definition & Characteristics, Types of information, Role of Information in Decision-Making, Sub-Systems of an Information system: EDP and MIS management levels, EDP/MIS/DSS.

UNIT – II

An overview of Management Information System: Definition & Characteristics, Components of MIS, Frame Work for Understanding MIS: Information requirements & Levels of Management, Simon's Model of decision-Making, Structured Vs Un-structured decisions, Formal vs. Informal systems.

UNIT – III

Developing Information Systems: Analysis & Design of Information Systems: Implementation & Evaluation, Pitfalls in MIS Development.

UNIT – IV

Functional MIS: A Study of Personnel, Financial and production MIS, Introduction to e-business systems, ecommerce – technologies, applications, Decision support systems – support systems for planning, control and decision-making

SUGGESTED READINGS

1. J. Kanter, "Management/Information Systems", PHI.
2. Gordon B. Davis, M. H. Olson, "Management Information Systems – Conceptual foundations, structure and Development", McGraw Hill.
3. James A. O'Brien, "Management Information Systems", Tata McGraw-Hill.
4. James A. Senn, "Analysis & Design of Information Systems", Second edition, McGraw Hill.
5. Robert G. Murdick & Joel E. Ross & James R. Claggett, "Information Systems for Modern Management", PHI.
6. Lucas, "Analysis, Design & Implementation of Information System", McGraw Hill.

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Graphics Primitives: Introduction to computer graphics, Basics of Graphics systems, Application areas of Computer Graphics, overview of graphics systems, video-display devices, and raster-scan systems, random scan systems, graphics monitors and workstations and input devices.

Output Primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary fill and flood-fill algorithms .

UNIT-II

2-D Geometrical Transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

2-D Viewing: The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

UNIT-III

3-D Object Representation: Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon-rendering methods.

UNIT-IV

3-D Geometric Transformations: Translation, rotation, scaling, reflection and shear transformations, composite transformations.

3-D Viewing: Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping.

SUGGESTED READINGS

1. Donald Hearn and M. Pauline Baker : Computer Graphics, PHI Publications.
2. Plastock : Theory & Problem of Computer Gaphics, Schaum Series.
3. Foley & Van Dam : Fundamentals of Interactive Computer Graphics, Addison-Wesley.
4. Newman : Principles of Interactive Computer Graphics, McGraw Hill.
5. Tosijasu, L.K. : Computer Graphics, Springer-Verleg.

Note : Latest and additional good books may be suggested and added from time to time.

BCA – 303 : Data Communication and Networking

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction to Computer Communications and Networking Technologies; Uses of Computer Networks; Network Devices, Nodes, and Hosts; Types of Computer Networks and their Topologies; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; Network Applications and Application Protocols; Computer Communications and Networking Models: Decentralized and Centralized Systems, Distributed Systems, Client/Server Model, Peer-to-Peer Model, Web-Based Model, Network Architecture and the OSI Reference Model, TCP/IP reference model, Example Networks: The Internet, X.25, Frame Relay, ATM.

UNIT – II

Analog and Digital Communications Concepts: Concept of data, signal, channel, bit-rate, maximum data-rate of channel, Representing Data as Analog Signals, Representing Data as Digital Signals, Data Rate and Bandwidth, Capacity, Baud Rate; Asynchronous and synchronous transmission, data encoding techniques, Modulation techniques, Digital Carrier Systems; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Dialup Networking; Analog Modem Concepts; DSL Service.

UNIT - III

Data Link Layer: Framing, Flow Control, Error Control; Error Detection and Correction; Sliding Window Protocols; Media Access Control: Random Access Protocols, Token Passing Protocols; Token Ring; Introduction to LAN technologies: Ethernet, switched Ethernet, VLAN, fast Ethernet, gigabit Ethernet, token ring, FDDI, Wireless LANs; Bluetooth; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways.

UNIT – IV

Network Layer and Routing Concepts: Virtual Circuits and Datagrams; Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control Algorithms; Internetworking; Network Security Issues: Security threats; Encryption Methods; Authentication; Symmetric – Key Algorithms; Public-Key Algorithms.

SUGGESTED READINGS

1. Michael A. Gallo, William M. Hancock, "Computer Communications and Networking Technologies", CENGAGE Learning.
2. Andrew S. Tanenbaum, "Computer Networks", Pearson Education.
3. James F. Kurose, Keith W. Ross, "Computer Networking", Pearson Education.
4. Behrouz A Forouzan, "Data Communications and Networking", McGraw Hill.

Note: Latest and additional good books may be suggested and added from time to time.

BCA – 304 : Visual Basic

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Introduction to VB: Visual & non-visual programming, Procedural, Object-oriented and eventdriven programming languages, The VB environment: Menu bar, Toolbar, Project explorer, Toolbox, Properties window, Form designer, Form layout, Immediate window. Visual Development and Event Driven programming.

UNIT – II

Basics of Programming: Variables: Declaring variables, Types of variables, Converting variables types, User-defined data types, Forcing variable declaration, Scope & lifetime of variables. Constants: Named & intrinsic. Operators: Arithmetic, Relational & Logical operators. I/O in VB: Various controls for I/O in VB, Message box, Input Box, Print statement.

UNIT – III

Programming with VB: Decisions and conditions: If statement, If-then-else, Select-case. Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures. Arrays: Declaring and using arrays, one-dimensional and multi-dimensional arrays, Static & dynamic arrays, Arrays of array. Collections: Adding, Removing, Counting, Returning items in a collection, Processing a collection.

UNIT – IV

Programming with VB: Procedures: General & event procedures, Subroutines, Functions, Calling procedures, Arguments- passing mechanisms, Optional arguments, Named arguments, Functions returning custom data types, Functions returning arrays. Working with forms and menus : Adding multiple forms in VB, Hiding & showing forms, Load & unload statements, creating menu, submenu, popup menus, Activate & deactivate events, Form-load event, menu designing in VB Simple programs in VB.

SUGGESTED READINGS

1. Steven Holzner, "Visual Basic 6 Programming: Black Book", Dreamtech Press.
2. Evangelos Petroutsos. "Mastering Visual Basic 6", BPB Publications.
3. Julia Case Bradley & Anita C. Millsbaugh, "Programming in Visual Basic 6.0", Tata McGraw-Hill Edition
4. Michael Halvorson, "Step by Step Microsoft Visual Basic 6.0 Professional", PHI
5. "Visual basic 6 Complete", BPB Publications.
6. Scott Warner, "Teach Yourself Visual basic 6", Tata McGraw-Hill Edition
7. Brian Siler and Jeff Spotts, "Using Visual Basic 6", Special Edition, PHI.

Note: Latest and additional good books may be suggested and added from time to time.

BCA-305 : PRACTICAL- SOFTWARE LAB
PRACTICAL BASED ON PAPER BCA-304 (VB LANGUAGE) AND BCA-302

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Electronic Commerce: Overview of Electronic Commerce, Scope of Electronic Commerce, Traditional Commerce vs. Electronic Commerce, Impact of E-Commerce, Electronic Markets, Internet Commerce, e-commerce in perspective, Application of E Commerce in Direct Marketing and Selling, Obstacles in adopting E-Commerce Applications; Future of E-Commerce.

Unit-II

Value Chains in electronic Commerce, Supply chain, Porter's value chain Model, Inter Organizational value chains, Strategic Business unit chains, Industry value chains.

Security Threats to E-commerce: Security Overview, Computer Security Classification, Copyright and Intellectual Property, security Policy and Integrated Security, Intellectual Property Threats, electronic Commerce Threats, Clients Threats, Communication Channel Threats, server Threats.

Unit-III

Implementing security for E-Commerce: Protecting E-Commerce Assets, Protecting Intellectual Property, Protecting Client Computers, Protecting E-commerce Channels, Insuring Transaction Integrity, Protecting the Commerce Server.

Electronic Payment System: Electronic Cash, Electronic Wallets, Smart Card, Credit and Change Card.

Unit – IV

Business to Business E-Commerce: Inter-organizational Transitions, Credit Transaction Trade Cycle, a variety of transactions. Electronic Data Interchange (EDI): Introduction to EDI, Benefits of EDI, EDI Technology, EDI standards, EDI Communication, EDI Implementation, EDI agreement, EDI security.

Suggested Readings:

1. R.Kalakota and A.B.Whinston, Readings in Electronic Commerce, Addison Wesley,
2. David Kosiur, Understanding E- Commerce, Microsoft Press, 1997. 3) Soka, From EDI to Electronic Commerce , McGraw Hill, 1995.
3. David whitely, E-commerce Strategy, Technology and application, Tata McGraw Hill.
4. Gary P. Schneider and Jame Perry, Electronic Commerce Thomson Publication.
5. Doing Business on the Internet E-COMMERCE S. Jaiswal; Galgotia Publications.
6. E-Commerce An Indian Perspective; P.T.Joseph; S.J.; PHI.
7. E-Commerce; S.Jaiswal – Glgotia.
8. E-Commerce; Efrain Turbon; Jae Lee; David King; H.Michael Chang.

Note: Latest and additional good books may be suggested and added from time to time.

BCA-307 : Object Technologies & Programming using Java

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT-I

Object Oriented Methodology-1: Paradigms of Programming Languages, Evolution of OO Methodology, Basic Concepts of OO Approach, Comparison of Object Oriented and Procedure Oriented Approaches, Benefits of OOPs, Introduction to Common OO Language, Applications of OOPs .

Object Oriented Methodology-2: Classes and Objects, Abstraction and Encapsulation, Inheritance, Method Overriding and Polymorphism.

UNIT-II

Java Language Basics: Introduction To Java, Basic Features, Java Virtual Machine Concepts, Primitive Data Type And Variables, Java Operators, Expressions, Statements and Arrays.

Object Oriented Concepts: Class and Objects-- Class Fundamentals, Creating objects , Assigning object reference variables; Introducing Methods, Static methods, Constructors , Overloading constructors; This Keyword; Using Objects as Parameters, Argument passing, Returning objects , Method overloading, Garbage Collection, The Finalize () Method.

Inheritance and Polymorphism: Inheritance Basics, Access Control, Multilevel Inheritance, Method Overriding, Abstract Classes, Polymorphism, Final Keyword.

UNIT-III

Packages : Defining Package, CLASSPATH, Package naming, Accessibility of Packages , using Package Members.

Interfaces: Implementing Interfaces, Interface and Abstract Classes, Extends and Implements together .

Exceptions Handling : Exception , Handling of Exception, Using try-catch , Catching Multiple Exceptions , Using finally clause , Types of Exceptions, Throwing Exceptions, Writing Exception Subclasses.

UNIT-IV

Multithreading : Introduction , The Main Thread, Java Thread Model, Thread Priorities, Synchronization in Java, Inter thread Communication.

I/O in Java : I/O Basics, Streams and Stream Classes ,The Predefined Streams, Reading from, and Writing to, Console, Reading and Writing Files , The Transient and Volatile Modifiers , Using Instance of Native Methods.

Strings and Characters : Fundamentals of Characters and Strings, The String Class , String Operations , Data Conversion using Value Of () Methods , String Buffer Class and Methods.

Suggested Readings

1. Programming in Java, E Balagurusamy .
2. The Complete Reference JAVA, TMH Publication.
3. Beginning JAVA, Ivor Horton, WROX Public.
4. JAVA 2 UNLEASHED, Tech Media Publications.
5. Patrick Naughton and Herbertz Schildt, "Java-2 The Complete Reference", 1999, TMH.

Note: Latest and additional good books may be suggested and added from time to time.

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

Overview of A.I: Introduction to AI, Importance of AI, AI and its related field, AI techniques, Criteria for success.

Problems, problem space and search: Defining the problem as a state space search, Production system and its characteristics, Issues in the design of the search problem

Heuristic search techniques : Generate and test, hill climbing, best first search technique, problem reduction, constraint satisfaction

UNIT - II

Knowledge Representation: Definition and importance of knowledge, Knowledge representation, Various approaches used in knowledge representation, Issues in knowledge representation.

Using Predicate Logic : Representing Simple Facts in logic, Representing instances and is_a relationship, Computable function and predicate.

UNIT - III

Natural language processing : Introduction syntactic processing, Semantic processing, Discourse and pragmatic processing.

Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, Learning from example-induction, Explanation based learning.

UNIT - IV

Expert System: Introduction, Representing using domain specific knowledge, Expert system shells.

Suggested Readings

1. David W. Rolston : Principles of Artificial Intelligence and Expert System Development, McGraw Hill Book Company.
2. Elaine Rich, Kevin Knight : Artificial Intelligence, Tata McGraw Hill.
3. D.W. Patterson, "Introduction to AI and Expert Systems", PHI, 1999 .
4. Nils J Nilsson , "Artificial Intelligence -A new Synthesis" 2nd Edition (2000), Harcourt Asia Ltd.

Note: Latest and additional good books may be suggested and added from time to time.

External Marks: 80

Internal Marks: 20

Time: 3 hours

Note: Examiner will be required to set NINE questions in all. Question Number 1 will consist of total 8 parts (short-answer type questions) covering the entire syllabus and will carry 16 marks. In addition to the compulsory question there will be four units i.e. Unit-I to Unit-IV. Examiner will set two questions from each Unit of the syllabus and each question will carry 16 marks. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit.

UNIT – I

The Framework of .Net: Building blocks of .Net Platform (the CLR, CTS and CLS), Features of .Net, Deploying the .Net Runtime, Architecture of .Net platform, Introduction to namespaces & type distinction. Types & Object in .Net, the evolution of Web development .

UNIT – II

Class Libraries in .Net, Introduction to Assemblies & Manifest in .Net, Metadata & attributes . Introduction to C#: Characteristics of C#, Data types: Value types, reference types, default value, constants, variables, scope of variables, boxing and unboxing.

UNIT – III

Operators and expressions: Arithmetic, relational, logical, bitwise, special operators, evolution of expressions, operator precedence & associativity, Control constructs in C#: Decision making, loops, Classes & methods: Class, methods, constructors, destructors, overloading of operators & functions.

UNIT – IV

Inheritance & polymorphism: visibility control, overriding, abstract class & methods, sealed classes & methods, interfaces.

Advanced features of C#: Exception handling & error handling, automatic memory management, Input and output (Directories, Files, and streams).

SUGGESTED READINGS

1. Introduction to C# using .NET By Robert J. Oberg, PHI, 2002.
2. Programming in C# By E. Balaguruswamy, Tata McGraw Hill.
3. The Complete Guide to C# Programming by V. P. Jain.
4. C# : A Beginner's Guide, Herbert Schildt, Tata McGraw Hill.
5. C# and .NET Platform by Andrew Troelsen, Apress, 1st edition, 2001.

Note: Latest and additional good books may be suggested and added from time to time.

B.Com (Pass Course)
Scheme of Examinations & Syllabi w.e.f session 2018-19

B.Com-I (1st Semester)

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
1.01	Financial Accounting-I	80	20	100	3 Hrs.
1.02	Business Mathematics-I	80	20	100	3 Hrs.
1.03	Business Economics-I	80	20	100	3 Hrs.
1.04	Business Management –I	80	20	100	3 Hrs.
1.05	Business Communication Skills	80	20	100	3 Hrs.
1.06	Basics of computers-I	50	50 (Practical)	100	3 Hrs.
				Total Marks =	600

B.Com-I (IInd Semester)

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
2.01	Financial Accounting -II	80	20	100	3 Hrs.
2.02	Business Mathematics-II	80	20	100	3 Hrs.
2.03	Business Economics-II	80	20	100	3 Hrs.
2.04	Business Management –II	80	20	100	3 Hrs.
2.05	Business Environment	80	20	100	3 Hrs.
2.06	Basics of computers-II	50	50 (Practical)	100	3 Hrs.
				Total Marks =	600

Environmental Studies (Qualifying Paper)

Total marks of Ist Year (1st and 2nd Semester) = 600 + 600 =1200

B.Com-II (Pass Course)
Scheme of Examinations & Syllabi w.e.f. session 2018-19

B.Com-II -IIIrd Semester

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
3.01	Corporate Accounting-I	80	20	100	3 Hrs.
3.02	Business Statistics-I	80	20	100	3 Hrs.
3.03	Business Regulatory Framework-I	80	20	100	3 Hrs.
3.04	Corporate Law-I	80	20	100	3 Hrs.
3.05	Human Resource Management	80	20	100	3 Hrs.
3.06	Optional (Any one from the followings)	80	20	100	3 Hrs.
	i. Fundamental of Insurance				
	ii. Basics of Retailing				
	iii. Production Management				
	iv. Computer: Application of Information Technology in Business –I				

Total Marks = 600

B.Com-II –IVth Semester

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
4.01	Corporate Accounting-II	80	20	100	3 Hrs.
4.02	Business Statistics-II	80	20	100	3 Hrs.
4.03	Business Regulatory Framework-II	80	20	100	3 Hrs.
4.04	Corporate Law-II	80	20	100	3 Hrs.
4.05	Marketing Management	80	20	100	3 Hrs.
4.06	Optional (Any one from the followings)	80	20	100	3 Hrs.
	i. Business Ethics				
	ii. Banking and Banking Law				
	iii. Secretarial Practices				
	iv. Computer: Application of Information Technology in Business –II				

Total Marks = 600

Total Marks of IInd Year (3rd and 4th Semester) = 600 + 600 = 1200

B.Com (Pass Course)
Scheme of Examinations w.e.f session 2018-19

B.Com-III –Vth Semester

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
5.01	Taxation Law -I	80	20	100	3 Hrs.
5.02	Cost Accounting-I	80	20	100	3 Hrs.
5.03	Accounting for Management	80	20	100	3 Hrs.
5.04	Financial Market Operations	80	20	100	3 Hrs.
5.05	Entrepreneurship and Small Scale Business	80	20	100	3Hrs.
5.06	Optional (Any one out of followings)	80	20	100	3 Hrs.
	i. International Trade				
	ii. Investment Management				
	iii. Computer: Essentials of E-Commerce-I				
	iv. International Business Environment				

Total Marks = 600

B.Com-III –VIth Semester

S.No.	Nomenclature of the Paper	Theory Marks	Internal Assessment	Total Marks	Time
6.01	Taxation Law-II	80	20	100	3 Hrs.
6.02	Cost Accounting -II	80	20	100	3 Hrs.
6.03	Financial Management	80	20	100	3 Hrs.
6.04	Auditing	80	20	100	3 Hrs.
6.05	Goods and Services Tax & Customs Law	80	20	100	3 Hrs.
6.06	Optional (any one out of the followings)	80	20	100	3 Hrs.
	i. International Marketing				
	ii. Fundamentals of Operations Research				
	iii. Computer: Essentials of E-Commerce-II				
	iv. Tax Planning and Management				

Total Marks = 600

Total Marks of IIIrd Year(5th & 6th Semester) = 600 + 600 = 1200

Grand Total of B.Com. (Pass Course) = 1200+1200+1200 = 3600 Marks

B.Com I First Semester w.e.f session 2018-19

Financial Accounting –I

Code: 1.01

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note: The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper. .*

Unit-I

Introduction: meaning, objectives, process, limitations and basic terms of Accounting; Generally accepted Accounting Principles; Journalizing, Posting and Preparation of trial balance.

Unit-II

Capital and revenue items; Reserves and Provisions; Depreciation: Meaning, causes, accounting procedure, methods of computing depreciation – straight line method and diminishing balance method, change of method.

Unit-III

Final Accounts with adjustments; Rectification of errors

Unit-IV

Accounting for non-profit organizations; Consignment accounts.

Suggested Readings:

1. Gupta R.L. and Radha Swami M., *Financial Accounting*, Sultan Chand and Sons., New Delhi.
2. Monga J.R., Ahuja Girish and Sehgal Ashok: *Financial Accounting*, Mayur Paper Back, Noida.
3. Shukla M.C., Grewal T.S. and Gupta S.C.; *Advanced Accounts*, S. Chand and Company, New Delhi.
4. Goel, D.K., *Financial Accounting*, Arya Publications, New Delhi

B.Com I First Semester w.e.f session 2018-19
Business Mathematics-I
Code: 1.02

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper. .*

Unit-I

Indices and Logarithms; Theory of Sets: Meaning, elements, types, presentation and equality of Sets, Union, Intersection, Complement and Difference of Sets, Venn Diagram, Cartesian Product of two Sets, Applications of Set Theory.

Unit-II

Elementary idea of Permutations and Combinations.

Unit-III

Sequence and Series, A.P, G.P.

Unit-IV

Data interpretation- Introduction, approaches to data interpretation, tabulation, Bar graphs, Pie charts, Line graphs, Mix graphs

Suggested Readings:

Allen B.G.D: Basic Mathematics; Mcmillan, New Delhi.

Volra. N. D. Quantitative Techniques in Management, Tata McGraw Hill, New Delhi. Kapoor V.K. Business Mathematics: Sultan chand and sons, Delhi.

B.Com I First Semester w.e.f session 2018-19
Business Economics-I
Code: 1.03

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Introduction: Basic problem of an economy: working of price mechanism, concept of Elasticity of demand; measurement, **importance, determinants of elasticity of demand**, Average revenue; marginal revenue and elasticity of demand and **elasticity of supply**

Unit-II

Production Function: Law of variable proportions; Isoquants; Economic regions and optimum factor combination; expansion path; returns to scale; Internal and external economies and diseconomies; Ridge lines; Theory of costs: concepts of cost; Short run and Long run cost curves- Traditional and Modern approaches.

Unit- III

Theory of consumer behaviour, utility and indifference curve analysis

Unit-IV

Market, classification and structure.

Suggested Readings:

1. Dr. Raj Kumar, Prof. Kuldeep Gupta, *Business Economics*, UDH Publishing and Distributors P(Ltd.), New Delhi.
2. R.K Lekhi, *Business Economics*, Kalyani Publishers.
3. V.G.Mankar, *Business Economics*, Himalaya Publishing House.
- 4.H.L.Ahuja, *Business Economics*, S. Chand and Company Ltd.

B.Com I First Semester w.e.f session 2018-19

Business Management-I

Code: 1.04

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Business: concept, nature and spectrum of business activities, business system, business objectives.

Unit-II

Management: Introduction, concept, nature, process and significance; Development of Management Thought; Classical and Neo-Classical systems, Contingency approaches.

Unit-III

Planning: concept, types and process, Decision Making: concept and process, Management by Objectives, Corporate Planning and Strategic Formulation.

Unit-IV

Organizing: concept, nature, process and significance; Authority and Responsibility relationship; Centralization and Decentralization; Departmentation; Firms of Organizing structure.

Suggested Readings:

1. *Druker. Peter F. Management Challenges for the 21st century; Butter worth Heinemann Oxford.*
2. *Wehrich and Koontz, O. Donnel: Essential of Management Tata Mc Graw Hill, New Delhi.*
3. *Parsad L. M., Principles and Practice of Management.: Sultan Chand and Sons.*

B.Com I First Semester w.e.f session 2018-19
Business Communication Skills
Code: 1.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Introduction: Basics of communication, Seven C's of effective communication, barriers to communication, ethical context of communication.

Unit-II

Business Communication at workplace: Letter writing- component, layout and process, E- mail communication, bad news messages, persuasive written communication, memos, notice, agenda and minutes of meeting.

Unit-III

Report Writing: Types of business reports, structure of reports, short reports, long reports, abstracts and summaries, proposals.

Unit-IV

Communication Skills: Reading skills, listening skills, note making, persuasive speaking. Body language, Gestures.

Suggested Readings:

1. Murphy, Herta A., Herbert W. Hildebrandj and Jane P. Thomas, *Effective Business Communication*, Tata McGraw Hill, New Delhi.
2. Konera Arun, *Professional Communication*, Tata McGraw Hill, New Delhi.
3. McGrath, E. H., *Basic Managerial Skills for All*, PHI, New Delhi.
4. Meenakshi Raman and Parkash Singh, *Business Communication*, Oxford University Press, New Delhi.

B.Com I First Semester w.e.f session 2018-19
Basics of Computer-I
Code: 1.06

Time : 3 Hrs

Theory Paper Max Marks-50
Practical Marks = 50

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 5 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 10 marks each.

Unit-1

Introduction to Computers: Definition of Computer; Components of Computer; Characteristics of Computers; History evolution of Computers; Generation of computers; Classification of Computers- According to Purpose, According to Technology, According to Size and Storage Capacity; Human being VS Computer; Difference between Computer and Calculator.

Unit-2

Input Devices: Mouse, Keyboard, Light pen, Track Ball, Joystick, MICR, Optical Mark reader and Optical Character Reader Scanners, Voice system, Web Camera.

Output Devices: Hard Copy Output Devices; Line Printers, Character Printers, Chain Printers, Dot-matrix Printers, Daisy Wheel Printer, Laser Printers, Ink Jet Printers; Plotters, Soft Copy device –Monitor, Sound Cards and speakers.

Unit-3

Memory and Mass Storage Devices: Characteristics of Memory Systems; Memory Hierarchy; Types of Primary Memory; RAM and ROM; Secondary and Back-up; Magnetic Disks, Characteristics and classification of Magnetic Disks; Optical Disks; Magnetic Tapes.

Unit-4

MS- Word: Fundamentals of MS-Word, Features of MS-Word, Menus, Formatting and Standard Toolbars, Ruler, Scroll Bar, Creating, Editing, Saving, export and import files, inserting and copying the files, Working with frames, Paragraph formatting, Columns, Pictures, Tables, Macros and Mail Merge.

Suggested Readings:

1. *Introduction of Information System ALEXISLEON,*
2. *Computer Fundamentals-Nasib Singh Gill.*

B.Com I Second Semester w.e.f session 2018-19
Financial Accounting-II
Code: 2.01

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper. .*

Unit-I

Hire Purchase System and Installment Payment Systems.

Unit-II

Branch Accounts (including foreign branch) and Departmental Accounts.

Unit-III

Amalgamation and sale of partnership firms, Dissolution of Partnership Firm- Insolvency of Partners (including Garner v/s Murrey Rule), Gradual Realisation and Piecemeal Distribution.

Unit-IV

Joint-Venture Account; Royalty Account.

Suggested Readings:

1. Gupta R.L. and Radha Swami M., *Financial Accounting*, Sultan Chand and Sons., New Delhi.
2. Monga J.R., Ahuja Girish and Sehgal Ashok: *Financial Accounting*, Mayur Paper Back, Noida.
3. Shukla M.C., Grewal T.S. and Gupta S.C.; *Advanced Accounts*, S. Chand and Company, New Delhi.
4. Goel, D.K., *Financial Accounting*, Arya Publications, New Delhi

B.Com I Second Semester w.e.f session 2018-19
Business Mathematics-II
Code: 2.02

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and theoretical questions in the question paper.*

Unit-I

Matrices and Determinants: Definition of a Matrix ; Types of Matrices, Algebra of Matrices; Calculation of values of Determinants up to third order; adjoint of a Matrix, elementary row and column operations; Finding inverse matrix through adjoint and elementary row or column operations; Solution of a system of Linear equations having unique Solution and involving not more than three variables

Unit-II

Differentiation (only algebraic problem) ; Application of differentiation

Unit-III

Compound Interest and Annuities: Certain different types of interest rate; 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

Unit-IV

Ratio, Proportion and Percentage; Profit and Loss

Suggested Readings:

1. Allen B.G.D: *Basic Mathematics*; Mcmillan, New Delhi.
2. Vohra. N. D. *Quantitative Techniques in Management*, Tata McGraw Hill, New Delhi.
3. Kapoor V.K. *Business Mathematics*: Sultan chand and sons, Delhi.

B.Com I Second Semester w.e.f session 2018-19
Business Economics-II
Code: 2.03

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Perfect Competition: Profit Maximization and equilibrium of firm and industry; Short run and Long run Supply Curves; Price and output determination, Practical Applications.

Monopoly: Determination of price under Monopoly; Equilibrium of a firm; comparison between Monopoly and Perfect Competition; Price Discrimination; Multi-Plant Monopoly, Practical Applications.

Unit-II

Monopolistic Competition: Meaning and Characteristics; price and output determination under monopolistic Competition; Product differentiation; Selling cost; comparison with Perfect Competition; Excess capacity under Monopolistic Competition, **Oligopoly : features, price rigidity model, duopoly model, price leadership.**

Unit-III

Marginal Productivity Theory and demand for factors; nature of supply of factor inputs, Determination of wage rates under perfect competition and monopoly. Exploitation of labour; Rent- Concept, Ricardian concept and Modern Theories of rent; Quasi Rent.

Unit-IV

Interest- concept and Theories of interest; Profit- nature, concept and theories of profit, **break-even point analysis.**

Suggested Readings:

1. Dr. Raj Kumar, Prof. Kuldeep Gupta, *Business Economics*, UDH publishing and distributors p (Ltd.), New Delhi.
2. R.K Lekhi, *Business Economics*, Kalyani Publishers.
3. V.G.Mankar, *Business Economics*, Himalaya Publishing House.
4. H.L.Ahuja, *Business Economics*, S. Chand and Company Ltd.

B.Com I Second Semester w.e.f session 2018-19
Business Management-II
Code: 2.04

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Staffing: concept, nature and scope, Matching job and people; Recruitment; Selection and Training of employees.

Unit-II

Motivation and Leadership: Motivation-concept, Theories-Maslow, Herzberg, Megregor and Quchi; Financial and Non-Financial Incentives.

Leadership: concept and Leadership styles, Leadership Theories.

Unit-III

Communication and Control: Communication Concept, Nature, Types and Process, Barriers and Remedies.

Control: Concept, Process and Techniques, Effective Control System.

Unit-IV

Management of Change: Concept, Nature and Process of Planned Change: Resistance to Change; Emerging Horizons of management in a changing environment.

Suggested Readings:

1. *Druker. Peter F. Management challenges for the 21st century; Butter worth Heinemann Oxford.*
2. *Weihrich and Koontz, O. Donnel: Essential of Management. Tata McGraw Hill, New Delhi.*
3. *Parsad L. M., Principles and Practice of Management.: Sultan Chand and Sons.*

B.Com I Second Semester w.e.f session 2018-19
Business Environment
Code: 2.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Business Environment: concept; components and importance; SWOT Analysis.

Unit-II

Economic Trends (overview): income; savings and investment; industry; Trade and balance of payments.

Unit-III

Problems of Growth: Unemployment, regional imbalances, inflation, parallel economy and industrial sickness.

Unit-IV

Role of Govt. in Indian Economy: Monetary and Fiscal Policy; Industrial Policy; Privatization.

Suggested Readings:

1. Agarwal A.N. , *Indian Economy*, Vikas Publishing House, New Delhi.
2. Mirsra and Puri; *Indian Economy*; Himalaya Publishing House, New Delhi.
3. Hedge Lanl, *Environmental Economics*; McMillan Hampshire.

B.Com I Second Semester w.e.f session 2018-19
Basics of Computer-II
Code: 2.06

Time : 3 Hrs

Theory Paper Max Marks-50
Practical Marks = 50

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 5 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 10 marks each.

Unit-1

Fundamental of computers: Model of a digital computer; Functioning of a digital computer; Types of a digital computer; Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce, Marketing, Education and Management.

Unit-2

Software concepts: Types of Software and their role, Different System Software types- Operating systems, Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S. Operating System as a resource Manager, concept of GUI and CUI.

Unit-3

Introduction to Windows: Components of a Application Window; Types of Windows, Windows as an Operating System, Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar, My Computer, Recycle Bin, My Documents and Internet Explorer icons.

Unit-4

MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel; Rows, Columns, Cell, Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs, Macros, Using Built-in-functions.

Suggested Readings:

1. *Introduction of Information System ALEXISLEON*
2. *Introduction to essential tools. Sushila Madan.*

B.Com II - IIIrd Semester w.e.f. session 2018-19
Paper: Corporate Accounting-I
Code: 3.01

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit- I

Share Capital: Meaning, types, Accounting Treatment of issue, forfeiture and reissue of Share; Buy-back of equity shares & **Sweat shares**; Redemption of preference share; Issue of Bonus Share.

Unit- II

Debenture: Meaning, Types. Issue and Redemption of Debentures.

Unit-III

Valuation of Goodwill: Meaning, objectives, determinates and main methods. Valuation of Shares: Meaning, objectives, determinates and main methods.

Unit- IV

Profit or loss before and after incorporation. Final accounts of companies.

Suggested Readings:

1. Shukla M.C, Grewal T.S and Gupta S.C. **Advance Accounts:** S.Chand & comp., New Delhi.
2. Gupta R.L & Radha Swami M. **Company Account:** Sultan Chand, New Delhi.
3. Monga J.R, Ahuja Girish and sehgal Ashok **Financial Accounting:** Mayur paper backs, Noida
4. Goel, D.K., **Corporate Accounting.** Arya Publications, New Delhi

B.Com II - IIIrd Semester w.e.f. session 2018-19

Paper: Business Statistics- I

Code 3.02

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit- I

Introduction of Statistics: Origin, Development, Definition, Scope, Uses and Limitations.

Statistical Data: Types of Measurement scales- normal, Ordinal, Interval and Ratio level measurement; Collection, Classification and Tabulation of Primary and Secondary data.

Presentation of data: Diagrammatic and Graphical presentation of Data-Bar, Squares, rectangular and Circular diagrams; Histogram, frequency polygon, Ogives, Stem and Leaf displays box plots.

Unit- II

Central Tendency and Partition values: Concept and Measures of Central tendency, Quartiles, Deciles, Percentiles.

Dispersion: Concept and Its absolute as well as relative measures.

Unit- III

Moments, Skewness and Kurtosis: Moments about any point and about mean and the relationship between them.

Sheppard's Corrections for Moments. Concept of symmetrical distribution and skewness, measures and Co- efficient of skewness, Concept of Kurtosis and its measures.

Unit- IV

Analysis of Bivariate data:

Correlation-concept, scatter diagram, Karl Pearson's co-efficient of Correlation and its properties Spearman's rank Correlation, Concurrent deviation method

Regression: Meaning and Definition, Difference between Correlation and Regression, Principle of least squares and fitting of a line of best fit to the given data, Regression lines, Properties of regression Co-efficient and Regression lines, standard error of estimate, Co-efficient of determination.

Suggested Readings:

1. Dr.S.P.Gupta, *Statistical methods*, S.Chand & Co., New Delhi.
2. D.N.Elhance, *Veena Elhance*, B.M.Aggarwal, *Fundamentals of Statistics*, Kitab Mahal.
3. N.P.Aggarwal, *Quantitative Techniques*, Ramesh Book Depot., Jaipur.
4. R.P.Hooda, *Statistics for Business and Economics*, Mcmillan India Ltd., New Delhi.

B.Com II - IIIrd Semester w.e.f. session 2018-19
Paper: Business Regulatory Framework- I
Code: 3.03

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Indian Contract Act: - Valid contract and its elements; Void and void able agreements; Void and illegal agreements; Offer and acceptance; Contractual capacity of parties; Free consent of parties; Lawful consideration and object; Agreements expressly declared as void.

Unit- II

Contingent Contracts: - Quasi contracts; Discharge of contracts: - methods of discharge of contracts; Consequences of Breach of contracts.

Contract of Indemnity and guarantee: - Elements of contract of Indemnity; Rights of Indemnity Holder and indemnifier Guarantee: - features of contract of guarantee; Rights and Liabilities of surety; Discharge of surety; Difference between contract of indemnity and Guarantee.

Unit- III

Contract of Bailment and Pledge: - Meaning; types of bailment, Termination of bailment, Duties and rights of bailor and bailee. Essentials of pledge, who may pledge, Rights and Duties of Pawnor and Pawnee.

Unit- IV

Consumer protection Act 1986: - Salient features of consumer Protection Act; Rights of consumers; consumer Protection councils; consumer disputes redressal machinery.

Suggested Readings:

1. *M.C.Kuchhal, Business Laws, Sultan Chand & Co., New Delhi.*
2. *N.D.Kapoor, Merchantile Law. Sultan Chand & Co., New Delhi.*
3. *Texman*
4. *Resai T.R. Partnership Act, S.C.Sarkar and Sons, kolkata.*

B.Com II - IIIrd Semester w.e.f. session 2018-19
Paper: Corporate Law- I
Code: 3.04

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Company- Meaning and Characteristics; Features of company; Types of companies, advantages and disadvantages of incorporation; Lifting of corporate veil;

Unit- II

Formation of Company: - Promotion of company; Functions of promoter; importance of promoter; Promoter's remuneration; legal status of Promoter; Rights of promoters; Duties of promoters; Liabilities of promoters; Pre- incorporation contracts, Incorporation and commencement of Business.

Prospectus: - definition; Public offer, contents; misleading prospectus and its consequences.

Unit- III

Memorandum of Association: - Meaning; importance; clauses of memorandum of association and their Alteration; doctrine of ultra- virus.

Articles of Association: - Meaning; contents; alteration of articles of association; constructive notice and doctrine of indoor management.

Unit- IV

Borrowing Powers; Debentures and Charges.

Suggested Readings:

- 1. Kuchal M.C. Modern Indian Company Law Shri Mahavir Books, Noida.*
- 2. Kapoor N.D. Company Law Incorporating the provisions of the companies Amendment Act.*
- 3. Singh Avtar Company Law Eastern Book Company, Lucknow.*

B.Com II - IIIrd Semester w.e.f. session 2018-19
Human Resource Management
Code 3.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

An Introduction to Human Resource Management

Definition, Importance objectives and scope of Human Resource Management (HRM).

Function of Human Resource Management: - Managerial and Operative Functions. Qualification and Qualities of Human Resource manager in our organization.

Evolution and Growth of Human Resource Management (HRM) India.

Unit-II

Recruitment Selection and Training

Recruitment: - Meaning, Steps in recruitment policy, sources and modes of recruitment, Factors affecting recruitment.

Selection: - Meaning, Essentials of Selection Procedure, Stages in Selection Procedure.

Training: - Concept, Need and importance of Training.

Methods of Training: - On the job Training + off the job Training, Principles of training, Evaluation of training Programme in India.

Unit-III

Wage and Wage Incentives

Wages: - Meaning, Objective and Theories of wages,

Methods of wage Programme: - Time wages and Piece wages methods

Concept of wages: - Fair, Minimum and Living wage, Factors determining wage

Structure of an organization, essentials of satisfactory wage policy.

Wage Incentives: - Concept, Need and Importance of Incentives. Special Incentives

Profit sharing and Labour Co. Partnership and Essentials of Ideal Incentives system.

Unit- IV

Industrial Relations and Industrial Unrest

Industrial Relations: - Concept, Importance and Objectives of industrial relations,

Contents of industrial relations. Participants of Industrial relation and Recruitment of good Industrial relation Programme.

Industrial Unrest: - Meaning, Forms and Causes of industrial disputes, Impact of

Industrial unrest on the Economy, preventive and curative methods and Agencies for Reconciliation of Industrial unrest.

Suggested Readings:

1. *Human Resource Management: Concepts and Issues*, by T.N. Chhabra, Dhanpat Rai & Co. New Delhi.
2. *Human Resource Management* by R. Wayne Mondy, Pearson Publications, Delhi.
3. *Human Resource Management* by C.B. Gupta.

B.Com II - IIIrd Semester w.e.f. session 2018-19
Optional Paper: Fundamentals of Insurance
Code: 3.06 (i)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Insurance- History and Development; Meaning; Importance; Nature; Main principles- Principles of Cooperation, Probability, at most good faith. Proximate cause, Insurable interest, Indemnity, Subrogation, Warranty.

Unit-II

Life Insurance: - Main Elements, Importance, Important life Insurance Policies, Annuities, Premium Determination under life Insurance.

Unit- III

General Insurance, Marine Insurance- Main Elements, Marine Losses, Types of Marine Insurance policies.

Agriculture Insurance: History, Meaning, Main problems, Policies.

Unit-IV

Fire Insurance- Elements, Premium Determination, Types of Policies. Important Provisions of Motor Insurance, Aircraft Insurance

B.Com II - IIIrd Semester w.e.f. session 2018-19
Optional Paper: Basics of Retailing
Code: 3.06 (ii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Introduction: Meaning, nature, scope, importance, growth and present size. Career option in retailing; Technology induction in retailing; Future of retailing in India.

Unit-II

Types of Retailing: Stores classified by owners; Stores classified by merchandising categories; Wheel of retailing; Traditional retail formats vs. modern retail formats in India; Store and non-store based formats; Cash and carry business - Meaning, nature and scope; Retailing models – Franchiser - franchisee, directly owned; Wheel of retailing and retailing life cycle; Co-operation and conflict with other retailers.

Unit-III

Management of Retailing Operations: Retailing management and "the total performance model; Functions of retail management; Strategic retail management process.

Unit-IV

Retail planning - importance and process; Developing retailing strategies, objectives, action plans, pricing strategies and location strategies.

B.Com II - IIIrd Semester w.e.f. session 2018-19
Optional Paper: Production Management
Code: 3.06 (iii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I:

Introduction: Concept, nature and scope of Production Management; Evolution of production function; Production Process, Organization of production function; Relationship between production and other functions.

Unit-II:

Location and Layout:

Location: nature, objectives and significance, Theories of location; factors influencing location. Layout:

Meaning, objectives and types; principles of layout; factors affecting layout.

Unit-III:

Production Planning and Control:

Production Planning: Concept, need and Types of Production planning; Production planning techniques. Factors influencing Production Planning.

Production Control: - Meaning, objectives and elements; Control techniques, Production Control in different Production Systems; Benefits & limitations.

Unit-IV:

Quality Control and Plan Maintenance.

Quality control: Meaning, scope, objectives and organization; Quality Control Techniques.

Plant Maintenance: Meaning, scope, objectives, types; Maintenance programme techniques & Organization.

Suggested Reading

1. Chaturvedi, M: *New Product Development*, Wheeler Publications, New Delhi.
2. Majumdar, ramanuj: *Product Management in India*, Prentice Hall, New Delhi.
3. Moise, S: *Successful Product Management*, Kogan page, New York.
4. Moore, W.I: *Product Planning Management*, McGraw Hill, Boston.
5. Quelch, J.A: *Cases in Product Management*, Irwin, London.
6. Urban, Glen L., John R. Haqnser and Nikilesh Dholakia: *Essentials of New Product Management*, Prentice Hall, Englewood Cliff, New York.

B.Com II - IIIrd Semester w.e.f. session 2018-19
Optional Paper: Computer - Application of Information Technology in Business -I
Code: 3.06 (iv)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Information Technology Basics: Introduction, Types of Information , Quality of Information, Levels of Information, Information processing life cycle, Components of IT, Role of Information technology; Information Technology and Internet services, Multimedia: Definition, Multimedia Systems, Multimedia Applications.

Electronic Data Interchange: - Basics of EDI, Financial EDI, Advantages and Applications of EDI

Unit-II

Data Communication and Computer Networks: Introduction , Modes of Data Communication, Forms of Data Transmission, Data Transmission measurement, Synchronous and Asynchronous Communication, Data Transmission Media: Wire-Cable, Fiber- Optics, Microwave , Communication Satellite, Switching Techniques:- Circuit switching, Message and Packet Switching.

Computer Networks: Introduction, Types of Network, LAN, MAN, WAN, Wireless Network, Network Topologies, Public and Private Networks, Communication Protocol-OSI Model.

Unit-III

Internet Concept and Technologies: Concept and evolution of Internet, Benefit of Internet, Hardware and Software requirement for the Internet, Intranet and Extranet Uses of the Internet, ISPs, Ways to Access the Internet, Internet Accounts, Internet Addressing, Internet networking Tools: Bridges, Routers, Gateways, Basic Internet Services: E-Mail, FTP, Mailing List, , IRC, Telnet, Usenet News group, WWW, Internet Phone, Uploading and Downloading Information from the Internet, Web Search Engines.

Unit-IV

Applications Software Packages:- Features of word Processing Packages, Spreadsheet Packages, Graphics Packages and Personal Assistance Packages, Database Software (MS Access); Creating data tables, Editing a database, Performing Queries, Generating Reports, Creating and Customizing a Form, Features of MS Access.

Suggested Books:

- (1) *Introduction to IT, ITL education* (Pearson), Published by Dorling Kinderslay (India) Pvt.Ltd., Office:14 Local Shopping Centre, Panchsheel Park, New Delhi-110017, India.
- 2) *Information Technology and Computer Fundamental*, Dr. Nasib Singh Gill.
- (3)*Computer Networks and Internets*:Douglas E.Comer,MS.Narayanan, Published by Dorling Kinderslay,
- (4) *Introduction to Information System*:Alexis Leon,McGraw-Hill Education(India)pvt.Ltd. B-4, Sector-63, Dist.Gautam Budh Nagar, Noida, Uttar Pradesh,-201301.

B.Com – II- IVth Semester w.e.f. session 2018-19
Paper: Corporate Accounting-II
Code: 4.01

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit- I

Internal Reconstruction; External Reconstruction in the nature of merger and purchase.

Unit- II

Liquidation of a company ; Financial reporting for financial institutions.

Unit- III

Final Accounts of Banking Companies.

Unit- IV

Accounts of Holding Companies.

Suggested Readings:

*Shukla M.C, Grewal T.S and Gupta S.C **Advance Accounts:** S.Chand and Comp., New Delhi. Gupta R.L & Radha*

*Swami M. **Company Accounts:** Sultan Chand and sons, New Delhi.*

*Monga J.R. ,Ahuja Girish and Sehgal Ashok **Financial Accounting:** Mayur Paper Bags, Noida. Goel, D.K.,*

Corporate Accounting. Arya Publications, New Delhi

B.Com – II- IVth Semester w.e.f. session 2018-19
Paper: Business Statistics- II
Code: 4.02

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit – I

Index Numbers:- Meaning, Types and Uses; Methods of Constructing price and Quantity indices (Simple and Aggregate); Tests of adequacy; Chain-base Index numbers, Base shifting, Splicing and Deflating; Problems in constructing index numbers; Consumer price index.

Unit- II

Analysis of Time Series: - Causes of Variations in time series data; Components of a time series.

Decomposition- Additive and Multiplicative models; determination of trend. Moving averages method and method of least squares (Including linear second degree, Parabolic and Exponential trend); Computation of seasonal indices by simple averages, Ratio to Trend, Ratio to moving average and link relative methods.

Unit- III

Theory of Probability: - Probability as a Concept; Approaches to defining probability, Addition and Multiplication laws of probability; Conditional probability, Baye's Theorem.

Unit- IV

Probability Distribution : - Probability distribution as a concept; Binomial, Poisson and Normal Distribution- Their Properties and Parameters.

Suggested Readings:

1. Dr.S.P.Gupta, *Statistical methods*, S.Chand & Co., New Delhi.
2. D.N.Elhance, Veena Elhance, B.M.Aggarwal, *Fundamentals of Statistics*, Kitab Mahal.
3. N.P.Aggarwal, *Quantitative Techniques*, Ramesh Book Depot., Jaipur.
4. R.P.Hooda, *Statistics for Business and Economics*, Mcmillan India Ltd., New Delhi.

B.Com – II- IVth Semester w.e.f. session 2018-19
Paper: Business Regulatory Framework – II
Code: 4.03

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Indian Partnership Act – Nature of Partnership firm; test of partnership; Duties and Rights of partners; Relations of partners to third parties; position of minor in partnership; Reconstitution of a partnership firm; Registration of firm.

Dissolution of firm: - Modes of dissolution; consequences of dissolution of firm; settlement of accounts after dissolution.

Unit- II

Negotiable Instruments Act: - Negotiable Instrument an introduction Promissory notes; Bills of Exchange; cheques, Parties to negotiable Instruments; Discharge of parties from Liability; Dishonour of Negotiable Instruments. Instruments; Presentment of Negotiable Instrument; Negotiation.

Unit- III

Sales of Goods Act: - Introduction; Formation of contract of sale of Goods; conditions and warranties; Transfer of property or ownership; Performance of contract- Delivery and Payment; Rights of unpaid seller; suits of Breach of contract.

Unit- IV

RTI Act : features, rights and importance.

Suggested Readings:

1. *M.C.Kuchhal, Business Laws, Sultan Chand & Co., New Delhi.*
2. *N.D.Kapoor, Merchantile Law. Sultan Chand & Co., New Delhi.*
3. *Texman*
4. *Resai T.R. Partnership Act, S.C.Sarkar and Sons, kolkata.*

B.Com – II- IVth Semester w.e.f. session 2018-19
Paper: Corporate Law- II
Code: 4.04

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Depository System –meaning and importance; Shares: -; Types of shares; Allotment of Shares;; Transfer and Transmission of shares; Paperless Trading – Benefits and Procedure; Need for educating investors

Unit- II

Share capital: - Meaning and forms of capital; Alteration of share capital; Reduction of share capital; Further issue of share capital; Rights of pre-emption of shares. Shareholders and Members: - Difference between Shareholders and members; Modes of acquiring membership; termination of membership; who may be members? Rights and Liabilities of members.

Unit- III

Meeting of Company: - Essentials of valid meeting; meetings of Shareholders: - Annual general meeting; Extra-ordinary general meeting; meetings of board of

directors; Proxy; Voting, Notice, Agenda and Minutes of meetings.

Directors: - Duties, Powers, Liabilities, Appointment and removal of directors.

Unit- IV

Winding Up: - Meaning; Winding up by the Tribunal-Petition for winding up; Voluntary winding up; Powers and Duties of company Liquidator, consequences of winding up..

Suggested Readings:

1. Kuchal M.C. **Modern Indian Company Law** Shri Mahavir Books, Noida.
2. Kapoor N.D. **Company Law: Incorporating the provisions of the companies Amendment Act.**
3. Singh Avtar **Company Law**, Eastern Book Company, Luckno

B.Com – II- IVth Semester w.e.f. session 2018-19
Paper: Marketing Management
Code: 4.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit- I

Introduction: - Nature, Scope, Importance of marketing; Marketing concepts- Traditional and Modern.

Market Segmentation: - Concept, Importance and basis of market segmentation.

Unit- II

Consumer Behavior: - Nature, Scope, Importance, Factors affecting buyer behavior.

Product Planning and Development: - Importance and scope of product Planning in marketing; Stages of New product development.

Product Lifecycle: - Stages of Product life cycle; factors affecting product life cycle.

Unit- III

Branding and Trademark: - Difference between brand and trademark; advantages and criticism of branding; types of branding; Brand Policies and Strategies.

Pricing: - Meaning; Importance, Factors affecting pricing, pricing objectives, Types of price policy and pricing strategies.

Unit- IV

Advertising: - Concept; Importance and criticism of advertising; Media of advertising; Evaluating advertising effectiveness.

Sales Promotion: - Importance, Methods, Functions and Publicity.

Suggested reading:

1. Kotler Philip **Marketing Management** Prentice Hall of India New Delhi, 1986
2. Pride William M and Ferrel O.C. **Marketing** Houghton-Mifflin Boston
3. Stanton W.J., Etzel Michael J. and Walker Bruce J. **Fundamentals of Marketing** MC Graw-Hill, New York.

B.Com – II- IVth Semester w.e.f. session 2018-19
Optional Paper: Business Ethics
Code: 4.06 (i)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Thinking conceptually about Politics: Liberty, Equality, Justice, Rights and Recognition, The idea of a good society. Concept of Business Ethics.

Unit-II

Domain of Politics and ethics: Democracy and Welfare State, Market and Globalization. Approaches to Moral Reasoning: Consequentialism, Deontology, Teleological reasoning.

Unit-III

Politics and Ethics in Business: Corporate Code of Ethics. a) Environment

b) Accountability c) Responsibility d) Leadership

e) Diversity

Corporate Social Responsibility. Arguments For and Against; Strategic Planning and corporate social Responsibility; Corporate Philanthropy.

Unit-IV

Corruption, corporate scandals, whistle blowing, insider trading, discrimination:

Gender Sensitization: Meaning, Definition, Gender Roles, Gender Equality, Gender Differentiation, Crucial Role of Gender Sensitization in Gender Mainstreaming, , Sex Ratio as per Census of India 2011, Role of Government in Gender Sensitization

Suggested Readings:

1. Dr.F.C.Sharma, *Business Values & Ethics* – Shree Mahavir Book Depot, Nai Sarak, New Delhi.
2. C.S.V Murthy – *Business Ethics*, Himalya Publishing House.
3. Shina Parkashan – *Managerial Ethics* – Rajat Publications.
4. C.L.Dave – *Social Accounting* – Renuka Publishers, Jodhpur.

B.Com – II- IVth Semester w.e.f. session 2018-19
Optional Paper: Banking and Banking Law
Code: 4.06 (ii)

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Definition of Bank, Commercial Banks-importance, functions and problems of Non-performing Assets, structure of Commercial Banking system in India. Credit Creation: Process of Credit Creation and its Limitations.

Unit-II

Regional Rural Banks, Cooperative Banking in India.

Reserve bank of India: Functions, regulation and control of credit, monetary policy.

Unit-III

Determination and Regulation of Interest Rates in India.

Relationship between banker and Customer, Definition of Customer, General Relationship between banker and customer, obligation of banker, Garnishee order, banker's rights.

Special types of Bankers Customers Minor, Married Women, Illiterate persons, Lunatics, Trustees, Executors and Administrators, Customer's attorney, Joint Account, Joint Hindu family, partnership Firm, Joint stock companies, Clubs, Societies and Charitable Institutions.

Unit-IV

Negotiable Instruments:

Definition of Negotiable instruments, Essential features of Negotiable instruments, holder and Holder in Due course.

Rights and Liabilities of parties for Negotiable instruments:

Capacity of parties: Minor's position, legal representative, Liability of parties, Drawer of Bill or Cheque, Liability of Maker of note & Acceptor of Bill, Liability of endorsed Negotiable Instruments without Consideration, Instrument obtained by Unlawful means.

Endorsements:

Meaning of Negotiation, Definition of Endorsement, Legal provisions regarding Endorsement, General rules regarding forms of endorsement, regular forms of Endorsement, Kinds of Endorsement.

B.Com – II- IVth Semester w.e.f. session 2018-19
Optional Paper : Secretarial Practices
Code : 4.06 (iii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note: The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Secretary : Meaning, definitions, functions, duties, responsibilities, powers, appointment, procedure; qualifications and disqualifications; position and removal of secretary.

Unit – II

Promotion of Company and Secretary: Duties of Secretary regarding formation of M/A and A/A and their alterations. Duties of secretary regarding issue of share certificate, share warrant and share stock, calls-in-arrear, forfeiture and re-issue of shares, transfer and transmission of shares.

Unit – III

Company Meeting & Secretary: Duties of Secretary regarding meetings, requisites of a valid meeting, secretarial duties regarding meetings of shareholders, meetings of Board of directors.

Unit - IV

Company Secretary and motion and Resolution, voting and proxy.

Suggested Readings:-

1. *Company Secretarial Practice – N.D.Kapoor*
2. *Text Book of Company Secretarial Practice – P.K.Ghosh*
3. *Company Law & Secretarial Practice – Dr. M.R.Sreenivasan.*
4. *Company Law Secretarial Practice Manual by – K.R. Chandratre*

B.Com – II- IVth Semester w.e.f. session 2018-19
Optional Paper: Computer :Application of Information Technology in Business-II
Code: 4.06 (iv)

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note: - The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Information System: Information, Information Processing Life Cycle, Methods of data processing, Application of Electronic Data Processing. Need of an efficient Information System, Types of an Information system, Information requirement for Planning, Coordination, and Control for various levels in Business, Industry.

Computer Fundamentals: Types of Computer, Hardware option-CPU, Input and Output devices, Storage devices, Configuration of Hardware Devices and their applications

Unit-II

Database Fundamentals: Database: Definition, Main Component of Database, DBMS: Architecture of DBMS, Benefits of DBMS, Data Models: Hierarchical, Network and Relational Model, Client-Server Concept.

Business Data Processing: Data Storage Hierarchy, File Management System: File Types, File Organization Techniques: Direct File, Sequential File and Index Sequential File; DBMS, Role of DBA, Main components of a DBMS: DDL, DML, Query Language and Report Generator, Creating and Using a Database.

Unit-III

Emerging Trends in IT: Introduction, E-Commerce and E-Business, Types of Electronic Commerce(E-Commerce), Processes in E-commerce, Types of an Electronic Payment System, E-Case, E-Cheque, Credit Card, Advt. and Disadvantages of E-Commerce, Security Schemes of an Electronic Payment Systems, Electronic Fund Transfer, Electronic Data Interchange(EDI), Mobile Communication, Infrared Communication, Smart Card.

Unit-IV

Computer Software: Definition, Categories of Software: System Software, Operating System Software, Application Software, Operating System:- Characteristics, Functions of an O.S., Types of an Operating System, System Utilities Programs: Editor, Loader, Linker, File Manager, Operating System as a Resource Manager, Concept of CUI and GUI.

Computer Languages: Definition, Machine Language, Assembly Language, High-Level Language, Compiler, Interpreter, Assembler.

Suggested Books:

1. *Introduction to IT, ITL Education Solutions Limited, Pearson education, 482, F.I.EmPatnarganj, Delhi, India.*
2. *Inf. Technology and Computer fundamental, Dr. Nasib Singh Gill,*
3. *Introduction to Information System: Alexis Leon, McGraw-Hill Education(India) pvt.Ltd. B-4, Sector-63, Dist.Gautam Budh Nagar, Noida, Uttar Pradesh, -201301.*
4. *Computer Networks and Internets: Douglas E.Comerce, Pearson Education.*

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Paper: Taxation Law-I
Code 5.01

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit-I

Income Tax: An introduction and Important Definitions, Agriculture Income, Residential status and incidence of Tax Liability, Exempted incomes.

Unit-II

Income from Salaries (including retirement benefits); Income from House property.

Unit-III

Profits and Gains from Business or Profession; Depreciation; Capital Gains.

Unit IV

Income from other sources, clubbing of incomes & aggregation of incomes, set off and carry forward of losses, Deductions to be made in computing total income.

Suggested Readings:

1. *Income Tax Law and Accounts-* Dr. Parveen Gupta, Dr.N.K.Garg and R.K.Tyagi, SBPD Publishing House, Agra
2. *Direct Taxes law & Practice –* Dr. H.C.Mehrotra & Dr. S.P. Goyal, Sahitya Bhawan Publications, Agra.
3. *Direct Taxes law & Practice –* Dr. Bhagwati Prasad – Wishwa Prakashan, N.Delhi.
4. *Simplified Approach to income Tax:* Dr. Girish ahuja & Dr. Ravi Gupta – Sahitya Bhawan Publishes & Distributors, Agra.

B.Com.III Pass Vth Sem w.e.f. from 2018-19

Paper: Cost Accounting – I

Code: 5.02

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note: The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.

Unit-I

Cost Accounting : Meaning, Features, Scope, Techniques, Methods, Objectives, Importance and Limitations. Costing; cost accountancy; cost centres and profit centres, Difference and similarities of cost accounting system with financial accounting system. Cost: main elements and types.

Material Control: Meaning and objectives of material control, material purchase procedure, fixation of inventory levels- reorder level, Minimum level, Maximum level, Danger level. EOQ analysis. Methods of Valuing Material Issues. Wastage of material – main types.

Unit – II

Labour Cost Control : Importance, methods of time keeping and Time Booking; Treatment and control of Labour Turnover, Idle Time, Overtime, Systems of Wage Payment-Time Wage System, Piece Wage System. Incentive Wage plans – Individual plans and group plans.

Unit – III

Overheads : Meaning and Types. Collection, Classification; Allocation, Apportionment and Absorption of Overheads – Main methods.

Unit – IV

Unit and output costing : meaning and objectives; cost sheet – meaning, Preparation, types preparation of cost sheet; determination of tender price; production account – types. Reconciliation of cost and financial accounts : Meaning. Objectives and procedure.

Suggested Readings:-

1. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons, Educational Publishers, New Delhi.
2. Jain & Narang – Cost Accounting – Principles and Practice Kalyani Publishers, Ludhiana.
3. Maheshwari and Mittal – Cost Accounting – Sh. Mahavir Book Depot, Delhi.

B.Com.III Pass Vth Sem w.e.f. from 2018-19

Paper: Accounting For Management

Code : 5.03

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.

Unit – I

Management Accounting: Nature and Scope of Management Accounting: Meaning, functions, Scope of Management Accounting, The Management Accountant, The Controller, The Treasurer, Management Accounting Principles, Management Accounting vs Financial Accounting vs. Cost-Accounting, Utility of management Accounting, Limitations of Management Accounting, Tools of Management Accounting.

Unit – II

Analysis and Interpretation of Financial Statements: meaning and types of financial statements, analysis and interpretation of financial statements, Types of financial analysis, steps involved in financial analysis, techniques of financial analysis. Ratio Analysis : meaning of ratios, classification of ratios, profitability ratios, balance sheet ratios and turnover ratios, advantages and limitations of ratio analysis.

Unit – III

Cash Flow Statement : Meaning, objectives, limitations and accounting procedure; Financial planning

Unit – IV

Capital Budgeting : Meaning, nature, need, importance, appraisal methods, capital rationing.

Suggested Readings

1. J.K.Aggarwal, R.K.Aggarwal, M.L.Sharma – Accounting for Managerial Decisions – Ramesh Book Depot., Jaipur.
2. R.Kishore – Advance Management Accounting – Taxam allied Services Pvt. Ltd.
3. M.Y.Khan, P.K.Jain – Management Account – Tata Mcgraw Hill.
4. Morngren, Sundem, Stratton – Introduction to Management Accounting - Pearson Accounting
5. S.N.Mittal – Accounting & Financial Management – Shree Mahavir Book Depot, Nai Sarak, New Delhi.

B.Com.III Pass Vth Sem w.e.f. from 2018-19

Paper: Financial Market Operations

Code : 5.04

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Money Market: Indian Money Markets Composition and Structure; (a) Acceptance houses (b) Discount houses and (c) Call money market; Recent trends in Indian money market.

Capital Market : Security market- (a) New Issue Market (b) Secondary market; functions and role of stock exchange listing, procedure and legal requirements Public issue pricing and marketing, Stock exchange – National Stock Exchange and over the Counter exchangers.

Unit – II

SEBI – Introduction, Role, Its powers, Objectives, Scope & Functions.

Investors Protection:- Grievances concerning stock exchange and dealings and their removal; grievance cell in stock exchange SEBI: Company law Board: Press remedy through courts.

Unit - III

Functionaries on stock exchanges:- Brokers, Sub brokers, Market makers, Jobbers, Portfolio Consultants, Institutional Investors, Depository.

Financial Services:- Merchant Banking – Functions and Roles; SEBI guidelines; credit rating – concept, functions, and types.

Unit – IV

Role, Policy measures relating to Development Financial Institution in India. Products & Services offered by IFCI, IDBI, IIBI, SIDBI, IDFC, EXIM, NABARD & ICICI.

Meaning and benefits of mutual funds, types, SEBI guidelines.

Suggested Readings:

1. Chandler M.V. and Goldfield S.M.: *Economics of Money and Banking* & Harper & Row Newyork.
2. Gupta Sural b: *Monetary Planning in India*: Oxford, Delhi.
3. Gupta Sural b: *Monetary Economics*: S.Chand & Co. New Delhi.
4. Bhole L.M.: *Financial Market Institutions*; Tata Mc Graw-Hill, New Delhi.
5. Hooda, R.P.: *Indian Securities Markets- Investors View Point*; Excell Books, New Delhi.

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Paper: Entrepreneurship and Small Scale Business
Code : 5.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Entrepreneur-Entrepreneurship-Enterprise: Conceptual issues. Entrepreneurship vs. Management. Roles and functions of entrepreneurs in relation to the enterprise and in relation to the economy. Entrepreneurship as a interactive process between the individual and the environment. Small business as the seedbed of entrepreneurship. (The teachers should emphasize to students the desirability as well as feasibility of a career in entrepreneurship in the Indian scenario.) Entrepreneurial competencies. Entrepreneurial motivation, performance and rewards. (The teachers may make use of Entrepreneurship Development Institute of India's Inventory of Entrepreneurial Competencies and National Institute of Entrepreneurship and Small Business Development's training kit for arousing entrepreneurial motivation and capacity and capability building).

Unit – II

Opportunity scouting and idea generation: role of creativity & innovation and business research. Sources of business ideas. Entrepreneurial opportunities in contemporary business environment, for example opportunities in network-marketing, franchising, business process outsourcing in the early 21st century. (The students be advised to visit various product/service franchisees, BPO concerns and meet up/down links in the Network Marketing.) The process of setting up a small business: preliminary screening and aspects of the detailed study of the feasibility of the business idea and financing/non-financing support agencies to familiarize themselves with the policies/programmes and procedures and the available schemes.) Preparation of Project Report and Report on Experiential Learning of successful/unsuccessful entrepreneurs. (The students may be advised to develop a structured instrument (questionnaire) for conducting survey of the various aspects of entrepreneurs/enterprise. They may also be advised to prepare a comprehensive business plan. The desirability and feasibility of liaison with relevant funding/non-funding agencies may also be explored.) **Unit**

– III

Managerial roles and functions in a small business. Designing and redesigning business processes, location, layout, operations planning & control. Basic awareness of the issues impinging on quality, productivity and environment. Managing business growth. The pros and cons of alternative growth options: internal expansion, acquisitions & mergers, integration & diversification. Crises in business growth.

Unit – IV

Issues in small business marketing. The concept and application of product life cycle (ptc), advertising & publicity, sales & distribution management. The idea of consortium marketing, competitive bidding/tender marketing, negotiation with principal customers. The contemporary perspectives on Infrastructure Development, Product and Procurement Reservation, Marketing Assistance, Subsidies and other Fiscal & Monetary Incentives. National, state level and grass-root level financial and nonfinancial institutions in support of small business development.

Suggested Readings:

Suggested Readings Books:

1. Brandt, Steven C., *The 10 Commandments for Building a Growth Company*, Third Edition, Macmillan Business Books, Delhi, 1977
2. Bhide, Amar V., *The Origin and Evolution of New Businesses*, Oxford University Press, New York, 2000.
3. Desai, Vasant, *Small Scale Enterprises Vols. 1-12*, Mumbai, Himalaya Publishing House. (Latest edition).
4. Dollinger, Mare J., *Entrepreneurship: Strategies and Resources*, Illinois, Irwin, 1955.
5. Holt, David H., *Entrepreneurship: New Venture Creation*, Prentice-Hall of India, New Delhi, latest Edition.
6. Panda, Shiba Charan, *Entrepreneurship Development*, New Delhi, Anmol Publications. (Latest Editions)
8. SIDBI Report on Small Scale Industries Sector (Latest Editions)

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Optional Paper : International Trade
Code: 5.06 (i)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

International Business:- An overview; Domestic business; International Business; Major risks and challenges of International Business; International Business Environment – Components and determinants; stages of internationalization of business; international business approaches, concept of globalization.

Unit – II

Modes of entering into international business; nature of multinational enterprise and international direct investment; foreign exchange; determination of exchange rate; Balance of payments.

Unit – III

Theories of International Trade : Absolute advantage theory; comparative advantage theory; factor proportions theory; product life cycle theory of trade; government influence on trade; rationale for government intervention, instruments of trade control; role of WTO, IMF and World Bank in International trade.

Unit – IV

Assessing International markets; designing products for foreign markets branding decisions; International promotions policy; international pricing; international logistics and distribution

Suggested Readings:

1. *International Business : Francis Cherunilam (Himalaya Publishing House)*
2. *International Trade and Export Management: Francis Cherunilam (Himalaya Publishing House)*
3. *International Business: Dr. P. SubbaRao (Himalaya Publishing House)*
4. *International Trade: Raj Aggarwal (Excel Publication)*

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Optional Paper : Investment Management
Code : 5.06 (ii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit-I

Investment: Meaning, nature and process. Investment avenues and alternations, concept and Measurement of Investment risk and return; Identification of Investment Opportunities; Speculation, Gambling and Investment activities.

Unit-II

Efficient Market theory or Hypothesis. Technical Analysis: Dow theory, Charting techniques, volume indicators.

Unit-III

Fundamental Analysis: Company Analysis, Industry Analysis and Economy Analysis, Technical v/s Fundamental analysis.

Unit-IV

Secondary Market : Stock Exchanges, Online Trading.

Trading mechanism in Bombay Stock Exchange. Derivatives: Meaning, uses, Types, Derivatives in Indian capital market.

Option Contracts: Meaning uses, Types (Elementary Introduction).

Suggested Readings:-

1. P. Pandian- "Security Analysis & Portfolio Management" Vikas Publishing house, New Delhi.
2. V.K.Bhalla - "Investment Management" S. Chand & Sons, New Delhi.
3. Fisher & Jordon – "Security Analysis & Portfolio Management)
4. Prasanna Chandra- "Investment Analysis & Portfolio Management.

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Optional Paper : Essentials of E-Commerce -I
Code 5.06 (iii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Introduction of E-Commerce:- Definition, Main activities of E-Commerce Benefits of E-Commerce, E-Commerce Applications, E-Commerce systems, Advantages and disadvantages of E-Commerce, E-Commerce Technologies, Types of E-Commerce: B2B, B2C, C2B, B2G, G2C, Mobile commerce, E-Commerce and the Trade cycle, E-Markets, Future of E-Commerce Introduction to Portals: Functions of Portals, Advantages of Portals, Market place for E-Commerce, E-Commerce Portals, Types of Portals.

Unit – II

Business to Business Electronic Commerce: Inter organization Transactions, Introduction to Electronic Market, Online Shopping, Online Purchasing, Models of Electronic Market, Markets Category, E-Business, B2B E-Commerce, B2B application, B2B Electronic Commerce requirements, Virtual Supply Technologies, Electronic Applications Categories, Electronic Tailing, E-Tailing in India, Auctions and the Emerging Electronic market place, Essential Elements of an Electronic Business, Differentiation in Catalogs for B2B as opposed to B2C, Instant Messaging. Electronic Data interchange (EDI): Definition, Benefits of EDI, Applications of EDI.

Unit –III

Business to Commerce electronic commerce: Definition, e-shop, Internet Shopping and the Trade cycle, Advantages and disadvantages of consumer e-Commerce. **Electronic Payment Systems:** Introduction, Traditional Payment Systems, Modern Payment system: PC Banking, Credit cards, Electronic Cheque, Micro payments, Smarts cards, E-cash, EFT. **Security Schemes:** Encryptions, Digital Signatures, Security Certificates, Protocols used in Internet Security; Secure Socket Layer (SSL), Secure Hypertext Transfer Protocol (SHTTP), Secure Electronic Transaction (SET), e- Commerce, I.T.Act. 12

Unit – IV

E-Banking/ Online Banking: Introduction, Advantages of Online Banking, issues in Internet Banking, Tools of Financial Banking, E-Banking Risks, e-Commerce and Internet: Definition, e-Commerce Technical components: Web resources, ISP, Cookies; Evolution of the Internet, Internet for Business, TCP/IP and OSI Model protocol, Broad Band Technology. Supply chain management; Definition, Different categories of supply chain, Functions of SCM, Benefits of SCM;

Books suggested

1. *e-Commerce, CSV, Murthy, Himalaya Publishing House.*
2. *e-Commerce, Keunth. L. Landon, Pearson Education.*
3. *e-Commerce, Renu Gupta, Mahavir Publications.*
4. *e-Commerce, David Whiteley, Tata Mco-raw-Hill.*

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Optional Paper: International Business Environment
Code : 5.06 (iv)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Recent global trends in international trade and finance; dimensions and modes of IB; structure of IB environment; risk in IB; motives for internationalization of firms; organizational structure for IB; world trading system and impact of WTO; exchange rate systems; global financial system; barriers to IB; international business information and communication.

Unit – II

Foreign market entry strategies; country evaluation and selection; factors affecting foreign investment decisions; impact of FDI on home and host countries; types and motives for foreign collaboration; control mechanisms in IB.

Unit – III

Decisions concerning global manufacturing and material management; outsourcing factors; managing global supply chains; product and branding decisions; managing distribution channels; international promotion mix and pricing decisions; counter trade practices; mechanism of international trade transactions.

Unit – IV

Harmonizing accounting difference across countries; currency translation methods for consolidating financial statements; the LESSARD-LORANGE Model; cross cultural challenges in IB; international staffing decisions; compensation and performance appraisal of expatriate staff; ethical dilemmas and social responsibility issues.

Suggested Readings:

1. Daniels, J.D. and H. LEE Radesbaugh, International Business-Environment and Operation (New Delhi; Pearson Education).
2. Hill, Charles W.L., International Business – competency in the Global marketplace (New Delhi: Tata McGraw Hill).
3. Sundram, Anant K and steward J Black, The International Business environment: Text and Cases (New Delhi: Prentice Hall of India).
4. Sharan, V., International Business: Concept, Environment and strategy (New Delhi: Person Education)
5. Beth V. Yarbrough and Robert H.Yarbrough, The World Economy – Trade and Finance, Thomson Learning, Singapore

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Paper: Taxation Law – II
Code: 6.01

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least Two numerical questions in the question paper.*

Unit – I

Rebate & Relief of Tax, computation of Total income and Tax liability of individuals. Filing and Filing of return (ITR – I and II)

Unit – II

Assessment of Hindu Undivided Families, Assessment of Firms & Association of Persons.

Unit – III

Income Tax authorities & their powers; procedure for assessment; Deduction of Tax at Source (TDS); advance payment of tax.

Unit – IV

Recovery & refund of tax; appeals & revision; penalties, offences & prosecutions.

Suggested Readings:

1. *Income Tax Law and Accounts-* Dr. Parveen Gupta, Dr.N.K.Garg and R.K.Tyagi, SBPD Publishing House Agra
2. *Direct Taxes Law & Practice :* Dr. H C Mehrotra & Dr. S P Goyal, Sahitya Bhawan Publications,Agra.
3. *Direct Taxes & Practice :* Dr. V K Singhania, Taxman Publications.
4. *Direct Taxes Law & Practice :* Dr. Bhagwati Prasad, Wishva Prakashan, New Delhi
5. *Simplified Approach to Income Tax :* Dr. Girish Ahuja & Dr. Ravi Gupta – Sahitya Bhawan Publishes & Distributors, Agra

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Paper: Cost Accounting -II
Code: 6.02

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit – I

Process Costing : Meaning; Uses; Preparation of process account, Treatment of Normal Wastage, Abnormal Wastage, Abnormal Effectiveness; Treatment of opening and closing stock (Excluding Work in Progress); Joint - Product and By - Product: Main methods of apportionment of Joint cost. Inter process profits.

Unit – II

Contract Costing – meaning, main features, preparation of contract account, Escalation clause; contract near completion; cost plus contract. Job and batch costing.

Unit- III

Budgetary control – meaning of budget and budgetary control, budgetary control as a management tool, limitations of budgetary control, forecasts and budgets, installation of budgetary control system, classification of budgets, fixed and flexible budgeting, performance budgeting, zero based budgeting and responsibility accounting.

Standard Costing : meaning, limitations, standard costs and budgeted costs, determination of standard cost, cost variances, direct material and direct labour only.

Unit – IV

Marginal Costing and Profit planning: Marginal costing, Absorption costing, Marginal cost, Cost volume Profit analysis, BEP Analysis, Key factor, BE chart, angle of incidence, concept of decision-making and steps involved, determination of sales mix, make or buy Decisions.

Suggested Readings:-

1. S.P. Iyengar – Cost Accounting, Sultan Chand & Sons, Educational Publishers, New Delhi.,
2. Jain & Narang – Cost Accounting – Principles and Practice Kalyani Publishers, Ludhiana.,
3. Maheshwari and Mittal – Cost Accounting – Sh. Mahavir Book Depot, Delhi.

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Paper : Financial Management
Code: 6.03

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Important: *The Examiner will set at least THREE numerical and THREE theoretical questions in the question paper.*

Unit – I

Nature of Financial Management : Scope of Finance, Finance functions, Financial Manager's role, Financial goal; Profit maximization Vs Wealth maximization, Objective of financial Management, Finance and related disciplines, Financial planning

Unit – II

Working Capital Management : Meaning, nature and planning of Working Capital. Permanent and variable Working Capital. Balanced working position, determinates of working Capital, Issues of working Capital Management. Management of cash and Marketable Securities and Receivables Management.

Unit –III

Cost of capital : Significance and determination, capitalisation; leverage analysis: operating, financial and composite leverage: EBIT-EPS Analysis.

Units – IV

Capital structure theory and policy: Relevance of capital structure; Net income and traditional views, Irrelevance of capital structure; NOI Approach and the MM Hypothesis without taxes, capital structure planning and policy.

Dividend Theory and Policy : Issues in dividend policy, Walter's and Golden's model of dividend relevance objections of dividend policy, considerations in dividend policy, stability of dividends, forms of dividend.

Suggested Readings:-

1. *Financial Management Accounting by : I.M.Pandey, Vikas Publications House New Delhi.*
2. *Financial Management Accounting by Khan & Jain, Tata Mc Graw Hill, Publications New Delhi.*

B.Com.III Pass VIth Sem w.e.f. from 2018-19

Paper: Auditing

Code: 6.04

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Auditing : Meaning, objectives, importance and types of Auditing.

Audit Process: internal control, internal check & internal audit, audit programmer.

Unit – II

Audit Procedure : Routine checking, vouching, verification & valuation of assets & liabilities.

Unit – III

Audit of Public Company : Qualification, Appointment of company Auditors, their powers, duties and liabilities, Audit of depreciation and reserves, Divisible profits & dividends

Unit – IV

Audit Report and Investigation

Audit Report : Meaning, objectives, contents and types.

Investigation : Meaning, Nature and objectives.

Suggested Readings:

1. *Sharma T.R. Principles of Auditing Sahitya Bhawan, Agra.*
2. *Tondon B.N. Principles of Auditing, S. Chand and Co., New Delhi.*
3. *Gupta Kamal contemporary Auditing Tata Mc Graw hill, New Delhi.*

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Paper: Goods and Services Tax (GST) & Customs Law
Code: 6.05

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Goods and services tax (GST):

Unit – I

Introduction:- Salient feature of GST, Benefit of GST, Constitutional Framework of Goods and Services tax, concept of GST; Important definitions; Supply under GST:- Meaning and scope of supply including composite and mixed supply ; levy and collection including reverse charge mechanism, Tax on electronic commerce operator (ECO); Exemption from GST; Composition levy;

Unit – II

Place of Supply:- Within state/Union territory, Interstate, Import and export; Time of Supply of goods and services; Value of supply including valuation rules; Input tax credit:- Eligibility and conditions for taking Input Tax Credit, Apportionment of credit and blocked credit, ITC in case of banking company and financial institutions, ITC availability in special circumstances, Reversal of ITC on switching to composition levy or exit from tax-paying status, Transfer of ITC on account of change in constitution of registered person, Input service distributors;

Unit – III

Registration; Issue of invoices:- tax invoice, revised tax invoice, credit note, debit note, bill of supply, receipt voucher, refund voucher, payment voucher, invoices in special cases. ; E-way bill; Payment of Taxes; Returns; Job work; Provision of TDS and TCS; Record keeping, Assessment and Audit;

Customs Act 1962:

Unit – IV

Customs duty: Important definitions, types, importance, documents required for import and export procedure : Export Promotion Scheme.

Suggested reading:-

1. *The Central Goods and Services Tax Act, 2017.*
2. *The Integrated Goods and Services Tax Act, 2017.*
3. *The Union Territory Goods and Services Tax Act, 2017.*
4. *Custom Act, 1962*
5. *Goods and Services Tax- Parveen Gupta and R.K. Tyagi, SBPD Publishing House, Agra*
6. *GST and Custom Law- Anoop Modi and Mahesh Gupta, SBPD Publication, Agra*
7. *Goods and Services Tax including Customs Duty Act- Prof. C.K. Shah and Prof. S.K. Mangal, RBD Publishing House, Jaipur*
8. *Goods and Services Tax (GST) – Dr. H.C. Mahrotra and Prof. V.P. Aggarwal, Sahitya Bhawan Publications.*

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Optional Paper: International Marketing
Code: 6.06 (i)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

International Marketing:

Nature and Concept; Domestic Vs International Marketing; Opportunities and Challenges for marketing in International Environment ; Foreign market selection and entry modes.

Unit – II

Product Planning and Pricing:

International product life cycle research and informations; Product designing and packaging; Pricing process and methods; International price quotations and payment terms.

Unit – III

International Distribution:

Channel structure and selection decisions; Managing channel conflicts; Selection and appointment of foreign sales agents; Basic export procedure and documentation.

Unit – IV

Product Promotion:

Methods of International product Promotion; challenges in International advertising and media strategy; Web marketing; Organising trade fairs and exhibitions.

Suggested Readings:

1. *Bhattacharya R.L and Varshney B: International Marketing Management: Sultan Chand, New Delhi.*
2. *Keegan W.J, Multinational Marketing Management, Prentice Hall, New Delhi.*
3. *Kotler Phillip: Moder Mott M.C: The Essence of International Business, Prentice Hall, New Delhi.*
4. *Caterora P.M. and Keavenay S.M: Marketing and International Perspective, Ervind Homewood Illinois.*

B.Com.III Pass Vth Sem w.e.f. from 2018-19
Optional Paper : Fundamentals of Operations Research
Code: 6.06 (ii)

Time: 3 Hours

Theory Paper Max Marks: 80

Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Basics of Operational Research – Development, Definition Characteristics, Necessity, Scope, Limitation.

Linear Programming - Introduction, Application, Formulation of Linear Programming Problem, General Linear Programming Problem, Graphical Method of Solution. Theory of Simplex method, Big-M Method, Integer Programming.

Unit – II

Transportation Model - Assumption, Formulation and Solution of transportation Models, Trans-shipment Problems, Definition of Assignment Model, Hungarian Method for solution of Assignment Problems. Travelling Salesman problem.

Unit – III

Queuing Models – Application, Introduction, Elements, operating Characteristics, Waiting Time and Idle Time Costs, Model I – Single Channel poisson Arrivals with Exponential Service Times. Infinite Population; Assumption & Limitation Poisson of Queuing Model.

Game Theory – Theory of Games, Characteristics of Games, Rules – Look for a pure Strategy, Reduce Game by Dominance, Mixed Strategies (2 x 2 Games, 2 x n Games or m x 2 Games).

Unit – IV

Simulation : Introduction- Meaning, Advantage, Limitation, Application, When to use Simulation? Monte Carlo Simulation, Generation of Random numbers.

Net Work Analysis in Project Planning: Project, Project Planning scheduling, CPM, PERT, Cost Analysis and Crashing the Network Exercises.

Suggested Readings:

1. Hien, L.W.: Quantitative approach to Managerial decisions, Prentice hall, New Jersey. India, Delhi.
2. Lawrence B. Morse: Statistics for Business & Economics, Harper Collins.
3. Levin, Richard I and David S Rubin: Statistics for management, Prentice hall of India, Delhi.
4. Watsnam Terry J. and Keith Parramor: Quantitative Methods in Finance, International Thompson Business Press.
5. Ackaff, R.L. and Sasieni, M.W., Fundamentals of Operations Research, John Wiley and Sons Inc., New York 1986.

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Optional Paper : Essentials of E-Commerce –II
Code : 6.06 (iii)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

E-Commerce : History of E-Commerce, Types of E-Commerce; B2B Business Models, B2 C Business models, M-Commerce; Business Models in Emerging E-Commerce Areas; Applications in E-Commerce, E-Commerce in Service Industry, Retail E-Commerce, E-Commerce in Financial Services, E-Commerce and shopping, E-Commerce Travel and Tourism, Internet Shopping, Future of E-Commerce.

Unit – II

Technology Infrastructure for E-Commerce: Internet key Technology Concepts, Switching Techniques, TCP / IP, IP Address, Domain names Service, URL, Client / Server Computing; Internet Protocol- HTTP, E-Mail Protocols, FTP, and SSL, WWW, Internet and the Web features; Internets and extranets: Role of Internets in B2B Applications, Access to Internets and Extranets , Application Extranet, Virtual Private Network (VPN), Firewall, Web Browser, Elements of Networking.

Unit – III

The Elements of e-Commerce: elements, e-visibility, e-shop, online payments, Delivering the goods, After-sales service, Internet e-Commerce security, A Website Evaluation Model. e-Business; Introduction, Internet Bookshops, Grocery Supplies, Software Supplies and Support Electronic, Newspaper Internet Banking, Virtual Auctions, Online share dealing, e-Diversity, Benefits of Auctions, Types and Examples of on-line Auctions.

Unit – IV

Customer Relationship Management: Introduction need of an electronic CRM, CRM's Goal, E- CRM Applications, CRM in Indian Banking, Technology use in CRM; E-Commerce marketing Communications; Online advertising, Display Ads, Search engine Advertising, Sponsorships, E-Mail marketing, Online Catalogs, Social Network, Offline advertising, Website as a marketing Communication Tool, Retail Sector; Advantages and Challenges to online Retail.

Books suggested :

1. e-Commerce, CSV, Murthy, Himalaya Publishing House.
2. e-Commerce, Keunth. L. Landon, Pearson Education.
3. e-Commerce, David Whiteley, Tata Mcgraw-Hill.

B.Com.III Pass VIth Sem w.e.f. from 2018-19
Paper : Tax Planning and Management
Code: 6.06 (iv)

Time: 3 Hours

Theory Paper Max Marks: 80
Internal marks: 20

Note:- The Examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of 2 marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All the questions shall carry 16 marks each.

Unit – I

Concepts of Tax Planning, Tax Evasion, Tax Avoidance, Tax Management Feature of Tax Planning, Need for Tax planning, Precautions in Tax planning, Limitations of Tax planning, Difference between Tax planning, Tax evasion, Tax avoidance, Tax Management.

Unit – II

Tax planning in relation to residential status and non-residents Tax-planning in relation to Employees remuneration: Tax planning for employer, Tax planning for employees. Tax Planning in relation to income from House Property Tax planning in relation to income from Business & profession.

Unit – III

Tax planning in relations to income from capital gains and other sources. Tax planning in relation to individuals and H.U.Fs.

Unit –IV

Tax planning in relation to partnership firms, Body of Individuals or Associations of Persons. Tax planning in relation to setting up of a new business: Nature and Size of Business, location of Business.

Suggested Readings:

1. Direct Taxes Law & Practice – Dr.H.C.Mehrotra & Dr.S.P.Goyal Sahitya Bhawan Publications, Agra.
2. Corporate Tax Planning & management – Dr.H.C.Mehrotra and Dr.S.P.Goyal – Sahitya Bhawan Publications, Agra.
3. Direct Taxes & Practice – Dr.V.K.Singhania Taxman's Publications.

Department of Geography, M. D. University, Rohtak

Programme outline/Structure and scheme of examination of M.A. Geography – GEO2 Two Year (Four Semesters) with Choice Based Credit System (CBCS) from the Session 2016-17 onwards.

M.A. Geography shall be of two years duration spread over four semesters. The duration of examination for theory and practical papers shall be three and four hours respectively. Practical examination shall be conducted by two external examiners out of the panel recommended by the P.G. Board of Studies in Geography. Marks of the internal assessment shall be awarded as per the laid down norms of the university. Soft Core and Open Elective Papers will be floated according to the administrative and academic convenience of the department.

PROGRAM SPECIFIC OUTCOMES

Students are able to:

- PSO1:** Understand not only the place where they live in but also about the lives of people living in other areas of the interconnected world. It also enhances understanding of the relationship between the global and the local level and the outcomes of these relationships (relationship between global processes and their local manifestations).
- PSO2:** Have deep knowledge about places, regions and spatial relationship as result of series of inter-related factors of nature, culture and individual human actions.
- PSO3:** Make the social and cultural differences (race, ethnicity, gender, age, class) their geographical embeddedness.
- PSO4:** Sensitise the need to conserve environment, resources in order to have a more sustainable earth.
- PSO5:** Have the theoretical knowledge with local realities by making field visits to different areas.
- PSO6:** Use and map the digital spatial data in more rational way.
- PSO7:** Understand the paradigm shifts all along with the process of historical development of geography as a subject of learning.

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)	Marks			Examination Hours	Credit (L +T +P)
				Internal	End Semester	Total		
1 st	16GEO21C1	Geomorphology	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C2	Climatology	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C3	Resource Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21C4	Statistical Methods in Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	16GEO21CL1	Practical Topographical Sheets and Its Interpretation	06 per student	-	50	50	04	0+0+3
	16GEO21CL2	Practical- Computer Aided Statistical Diagrams and Graphs	06 per student	-	50	50	04	0+0+3
	Credits	C=22 F=2	Total Credits=22-24					

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)		Marks			Exam Hours	Credit (L +T +P)
					Internal	End Semester	Total		
2nd	16GEO22C1	Geography of World Economy	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22C2	Regional Development and Planning	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22C3	Environmental Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D1	Urban Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D2	Cultural Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D3	Geography of India	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D4	Geography of Rural Settlements	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22D5	Soil Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	16GEO22CL1	Practical -Digital Cartography	06 per student		-	50	50	04	0+0+3
	16GEO22CL2	Practical -Morphometric Analysis	06 per student		-	50	50	04	0+0+3
Foundation Course									
	16GEOF1	Geography in Everyday Life	02(2+0+0)		10	40	50	03	2+0+0
Open Elective Course									
	16GEOO1	Basics of Geo-Informatics	03 (2+1 +0)	20	80	100	03	2+1+0	
	16GEOO2	Geography of India: Systematic and Regional	03 (2+1 +0)	20	80	100	03	2+1+0	
		C=18 D=04 SO=03	Total Credits=18-25+2						
1. Foundation Course (02 credits), either in semester I/II to be chosen from the basket provided by the University. 2. Open Elective Course (03 credits) to be chosen from the basket of Open Elective Courses provided by the University.									

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)		Marks			Exam Hours	Credit (L +T +P)
					Internal	End Semester	Total		
3rd	17GEO23C1	Remote Sensing and GIS	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23C2	Geography of Transport	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23D1	Bio Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23D2	Political Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23D3	Social Geography	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23D4	Hydrology	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23D5	Oceanography	04 (3+1 +0)		20	80	100	03	3+1 +0
	17GEO23CL1	Practical -Field Work	06 per student		-	50	50	04	0+0+3
	17GEO23CL2	Practical -GIS	06 per student		-	50	50	04	0+0+3
	Open Elective Course								
	17GEOO1	Introduction to Geography	03 (2+1 +0)	20	80	100	03	2+1+0	
	17GEOO2	Sources of Geographical Data	03 (2+1 +0)	20	80	100	03	2+1+0	
		C=14 D=04 O=03	Total Credits=21-25						
1. Open Elective (03 credits) to be chosen from the basket of Open Electives (OEs) provided by the University.									
2. Students will have to opt one paper from 17GEO23D1, D2, D3, D4 and D5.									

Sem	Paper Code	Nomenclature	Hours Per Week (L +T +P)	Marks			Exam Hours	Credit (L +T +P)
				Internal	End Semester	Total		
4 th	17GEO24C1	Geographical Thought	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24C2	Research Methodology	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA1	Water Resource and Management	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA2	Geography of Tourism	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DA3	Rural Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB1	Population Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB2	Natural Hazards and Disaster Management	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24DB3	Agricultural Geography	04 (3+1 +0)	20	80	100	03	3+1 +0
	17GEO24CL1	Practical :Aerial Photographs and Its Interpretation	06 per student	-	50	50	04	0+0+3
	17GEO24CL2	Practical: Satellite Images and Its Interpretation	06 per student	-	50	50	04	0+0+3
	C=14 D=08	Total Credits=22						
Students will have to opt two soft core papers, one each from 17GEO24DA1, DA2, DA3 and 17GEO24DB1, DB2, DB3.								

M.A. Geography - GEO2 Semester-I

Session 2016-17 onwards

16GEO21C1 - GEOMORPHOLOGY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Understand various aspects of landform growth and evolution on the Earth.

CO2: Explain the basic conceptual and dynamic concepts of landform development.

CO3: Understand the relevance of applied aspects of Geomorphology in various fields.

Unit-1

Geomorphology - Definition, Nature and scope, History and development of geomorphic ideas : Fundamental concepts - Uniformitarian's, geological structure, process and stage. The Earth's interior - structure and constitution, Recent Views. Plate tectonics- meaning and concept; plates, plate margins and boundaries; plate motion; Tectonic activities along the boundaries and Distribution of plates.

Unit-II

Endogenetic processes - Faulting, folding and their geomorphic expressions. earthquake concept, causes, classification, intensity and magnitude, Geographical distribution. Vulcanism - concept, mechanism and causes; Volcanoes- classification, volcanic materials; Topography associated with vulcanicity and geographical distribution.

Unit-III

Exogenetic processes: Weathering and mass wasting - meaning and concept, controlling factors, classification and significance. Dynamics of fluvial, aeolian, glacial and karst processes and resulting landforms.

Unit-IV

Applied Geomorphology - meaning; Applications of Geomorphology in Regional planning, engineering projects, mineral exploration and hydrology. Regional Geomorphology of Punjab plain, Aravalli Region and Thar desert of India.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire. All questions carry equal marks.

Recommended Readings:

1. Bloom, A.L. (1992) **Geomorphology**, Second Edition, Prentice Hall of India, New Delhi.
2. Dayal, P. (1990) **A Text Book of Geomorphology**, Shukla Book Depot, Patna.

3. Husain Majid (2002), **Fundamentals of Physical Geography**, Second Edition, Rawat Publications, Jaipur and New Delhi.
4. Singh Savindra (1993), **Physical Geography**, Prayag Pustak Bhawan, Allahabad.
5. Singh Savindra (1998), **Geomorphology**, Prayag Pustak Bhawan, Allahabad.
6. Strahler, A.N. and Strahler, A.H.(1996), **Introducing Physical Geography**, John Willey and Sons, New York.
7. Strahler, A .N. (1988), **Earth Sciences**, Harper and Row Publishers, N.D. Thornbury, W.D. (1991), **Principles of Geomorphology**, John Wiley, New Delhi.
8. Wooldridge, S. W and Morgan, R.S. (1991), **An Outline of Geomorphology**, Orient Longmans, Calcutta.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C2 - CLIMATOLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the global atmospheric circulations and disturbances.
- CO2:** Understand the world climate systems, climatic variability and change.
- CO3:** Sensitise the students with the future global environmental changes.

Unit-I

Nature and Scope of Climatology; Climatic elements – atmospheric temperature, pressure, moisture, general atmospheric circulations jet stream.

Unit-II

Weather system and disturbances – air-mass, fronts, cyclones, tornadoes; Ocean atmospheric interaction- El Nino, Monsoon winds.

Unit-III

Global climate system - Approaches to climatic classification; Classification of Koppen, and Thornthwaite; Major Climates of the world-tropical and polar.

Unit -IV

Climatic changes - evidences, possible causes, global warming acid rain and problems of acid rain.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aggarwal, S.K. (1972), **Fundamentals of Ecology**, Ashish Publishers, New Delhi.
2. Barry, R.G. and Chorely, R.J., **Atmosphere, Weather and Climate**, ELBS, Methuen & Co. Ltd. London.
3. Bhutani, Smita, (2000) **Our Atmosphere**, Kalyanai Publishers, New Delhi.
4. Critchfield, H.J. (1987) **Climatology**, Prentice Hall of India, New Delhi.
5. Griffith, J.F. and Driscell, D.M. (1982) **Survey of Climatology**, Charles Merrill.
6. Lal, D.S. (1993) **Climatology**, Chaitanya Publishing House, Allahabad.
7. Riehl, H. (1968), **Introduction to Atmosphere**, McGraw Hill, New York.

8. Robinson, P.J. and Henderson Sellers (1986) **Contemporary Climatology**, Longman, London.
9. Trewartha, G.T. (Latest edition) **Introduction to Climate**, McGraw Hill, New York.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C3 - RESOURCE GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Sensitized to concept and classification of resources.
- CO2:** Get knowledge about the models of natural resource process.
- CO3:** Understand a deep sense about use and misuse, conservation and management of resources for sustainable development.

Unit-I

Nature, Scope and Significance of Geography of Resource; Definition and Concept of Resources, Classification of Resources.

Unit-II

Models of Natural Resource Processes: Zimmermann's Primitive and Advance Models of Natural Resource Process, Kirk's Decision Model, Brookfield System Model.

Unit-III

Use and Misuse of Resources: Soil Resource; Water Resource; Forest Resource and Mineral Resources; Future Prospects of Natural Resources.

Unit-IV

Conservation and Management of Natural Resources : Meaning and Concept of Conservation of Natural Resources; Resource Conservation and Management Methods of Natural Resources- Soil Resource, Water Resource, and Forest Resource; Problems of Natural Resource Management in India.

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Eliot Hurst, M.E. (1972) **A Geography of Economic Behaviour: An Introduction**, Duxbury Press, California.
2. Guha, J.L. and P.R.Chattroji (1994) **Economic geography- A Study of Resources**, The World Press Pvt. Ltd. Calcutta
3. Haroon Mohamad. (2007) **Geography of Resources**, Vasundhara Parkashan, Gorakhpur. (Hindi Edition)

4. Martin, R.H. and F.L. Warren. (1959) **Natural Resources**. McGraw Hill Book Co. London.
5. Maurya, S.D. (2015) **Economic Geography**. Parwalika Publications, Allahabad (Hindi Edition).
6. Negi, B.S.(2000) **Geography of Resources**, Kedar Nath and Ram Nath, Meerut
7. Owen, Oliver, S.(1971) **Natural Resource Conservation** : A Ecological Approach. Mc Million New Delhi.
8. Ramesh, A. (1984) **Resource Geography (Ed.) R.P. Misra**, Contribution to Indian Geography, Vol 5, Heritage Publishers, New Delhi.
9. Singh, A and Raja, M. (1982) **Geography of Resources and Conservation** (Hindi Edition) Pargati Parkashan, Meerut.
10. Zimmermann, E. W. (1951) **World Resources and Industries**, Harper and Brothers, New Delhi.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21C4 - STATISTICAL METHODS IN GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Explain the nature and types of data and related statistical techniques.

CO2: Make a rational choice amongst listed various statistical techniques.

CO3: Describe and explain geographical data relationships.

Unit-1

Statistics, Geography and Statistics; Significance of Statistics in geographical studies; Primary and Secondary Data; Levels of data measurement: Nominal, Ordinal, Interval, and Ratio.

Unit-II

Measures of Central Tendency: Arithmetic Mean, Median, Mode and their geographical significance; Centographic techniques: Mean Centre, Median Centre and Standard Distance.

Unit-III

Measures of dispersion and concentration: Mean deviation, Standard Deviation; Coefficient of Variation, Lorenz Curve and Gini's Coefficient; Location Quotient.

Unit-IV

Correlation and regression: Scatter diagram, correlation by Spearman's Rank Difference and Karl Pearson's Product Moment, Significance testing of Correlation; Regression analysis regression equations construction of regression line, computation of residuals and mapping.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. David M. Smith (1975), **Patterns in Human Geography**, Penguin, Harmondsworth.
2. Ebdon, D (1983), **Statistics in Geography: A Practical Approach**, Blackwell, London.
3. Gregory, S. (1978) **Statistical Methods and the Geographer** (4th Edition), Longman, London.
4. Gupta, S.P., **Statistical Methods**, Sultan Chand and Sons, Latest Edition.

5. Mathews, J.A. (1987), **Quantitative and Statistical Approaches to Geography**, Practical Manual, Pergmon, Oxford.
6. Pal, S.K. (1998), **Statistics for Geoscientists; Techniques and Applications**, Concept Publishing Company, New Delhi.
7. Peter, J. Taylor (1977), **Quantitative Methods in Geography**, Houghton Mifflin Company, Boston.
8. Robert Hammond and Patrik Mc. Cullagh (1974), **Quantitative Methods in Geography**, Clarendon Press, Oxford.
9. Yeates, Mauris (1974), **An Introduction to Quantitative Analysis in Human Geography**, McGraw Hill, New York.

M.A. Geography – GEO2 Semester-I

Session 2016-17 onwards

16GEO21CL1 - PRACTICAL: TOPOGRAPHICAL MAPS AND INTERPRETATION

Credit: 03 (0+0+3)

Time: 4 Hours

Max. Marks: 50

Distribution of marks:

Lab work test: 30

Record on lab work: 10

Viva Voce: 10

Course Outcomes:

Students would be able to:

CO1: Understand the importance and uses of maps.

CO2: Have knowledge about the relationship and juxtaposition of features therein.

CO3: Represent various cultural & physical features using topographical maps.

Unit - I

Introduction to Maps: Definition and Types of Maps, Map scale, Conventional map symbols, Importance and uses of maps

Unit - II

Interpretation of Topographical maps: Topographical maps and their types, Basic information on Topographical sheets, Conventional Signs, Identification of Physical and Cultural details on Survey of India Toposheets.

Note:

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Robinson A. H. 2009. **Elements of Cartography**. New York: John Wiley and Sons.
2. Sharma J. P. 2010. **Prayogic Bhugol**. Meerut: Rastogi Publishers.
3. Singh R. L. and Singh R. P. B. 1999. **Elements of Practical Geography**. Noida: Kalyani Publishers.
4. Sarkar, A. 2015. **Practical Geography: A Systematic Approach**. New Delhi: Orient Black Swan Private Ltd.
5. Singh, R. L. and Rana P. B. Singh. 1991. **Prayogtmak Bhugol ke Mool Tatva**. New Delhi: Kalyani Publishers.
6. Sharma, J. P. 2010. **Prayogtmak Bhugol ki Rooprekha**. Meerut: Rastogi Publications,
7. Singh, R. L. and P. K. Dutta, 2012. **Prayogatmak Bhugol**, Allahabad: Central Book Depot.

M.A. Geography – GEO2 Semester-I
Session 2016-17 onwards
16GEO21CL2 - PRACTICAL: COMPUTER AIDED STATISTICAL
DIAGRAMS AND GRAPHS

Credit: 03 (0+0+3)
Time: 4 Hours
Max. Marks: 50
Distribution of marks:
Lab work test: 30
Record on lab work: 10
Viva Voce: 10

Course Outcomes:

Students would be able to:

- CO1:** Understand computer and use of computer in Geography.
- CO2:** Know the process of data input, data collection & data manipulation.
- CO3:** Draw various diagrams through computer.

Unit - I

Introduction to Computer: Components of Computer—Hardware and Software; Use of Computers in Geography.

Unit – II

Introduction to Microsoft Excel: Input of data, Bar Diagram, Pie Diagram, Scatter Diagram, Line Graph. Placement of heading and sub-heading, legend, Font size, Style, Bold, Italics, Changes from colour to different shade pattern. Different weight, colour and pattern to X and Y coordinates. Page layout. Ascending and Descending order.

Note :

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C1 - GEOGRAPHY OF WORLD ECONOMY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand how in an increasingly globalized world, economic activities occur unevenly over geographical space.
- CO2:** Know how local places and global economy are intertwined.
- CO3:** Describe the regime of neoliberal policies are generating uneven geography of capitalist development.

Unit-I

Economic Geography: The Stuff of Economic Geography, A brief history, Why Economic Geography? Modes of Theorizing in Economic Geography: Political Economy, Poststructuralist Economic Geography

Unit-II

Capitalism, Fundamental Concepts: Use-value, Exchange Value, Capital, Capital and Labour, Capital Accumulation, Capital Accumulation by Dispossession. Capitalism in Twentieth Century: Organized Capitalism Disorganized Capitalism. Neo-Liberalism.

Unit-III

World Economy and the Capitalist mode of production, The Basic Elements of World Economy: A Single Market, a Multiple State System, the Three-tier structure; A Space-Time Matrix of the World Economy, Dynamics of World Economy, Spatial Structure of the World Economy.

Unit-IV

Economic Development: Globalization or Internationalization, Patterns of International Trade, WTO and Developing Countries.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aoyama, Yuko et.al. (2011), **Key Concepts in Economic Geography**, London: Sage.
2. Benko, Georges and Ulf Strohmayr (2004), **Human Geography**, London: Arnold.
3. Daniels, Peter et.al. (2003). **Human Geography**, New Delhi: Pearson.
4. Dicken, P. (2003), **Global Shift: Reshaping the Global Economic Map in the 21st Century**, New Delhi: Sage Publications.
5. Gwynne, Robert et.al. (2003), **Alternative Capitalism**, London: Arnold.
6. Harvey, David (1982), **The Limits to Capital**, Oxford: Basil Blackwell.
7. Harvey, David (1990), **The Condition of Postmodernity**, Oxford: Blackwell.
8. Harvey, David (2008), **A Brief History of Neoliberalism**, Oxford: Oxford University Press.
9. Harvey, David (2015), **Seventeen Contradictions and the End of Capitalism**, London: Profile Books.
10. Hudson, Ray (2005), **Economic Geographies**, New Delhi: Sage Publications.
11. Johnston, R.J. et.al. (eds.) (2003), **Geographies of Global Change**, Oxford: Blackwell.
12. Knox, Paul et.al. (2003), **The Geography of the World Economy**, London: Arnold.
13. Leyshon, Andrew et.al. (2011), **The Sage Handbook of Economic Geography**, London: Sage.
14. Mackinnon, Danny and Andrew Cumbers (2011), **Introduction to Economic Geography**, London: Routledge.
15. Polanyi, Karl (1957), **The Great Transformation**, Boston: Beacon Press.
16. Singh, Sachinder (2013, “Unmasking Neoliberalism: From Welfare Commitments to Market Commitments”, **Transactions, Institute of Indian Geographers**, vol.35, no.2, pp.157-172.
17. Taylor, P.J. and Collin Flint (2000), **Political Geography: World Economy, Nation-State and Locality**, New York: Prentice Hall.
18. World Bank (2002), **Globalization, Growth and Poverty: Building an Inclusive World Economy**, New York: Oxford University Press.

MA Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C2 - REGIONAL DEVELOPMENT AND PLANNING

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Get familiarised with the theoretical foundations and conceptual grounding of this branch.

CO2: Understand and evaluate the concept of region in geography.

CO3: Know about the regional development and planning process in India.

Unit I

Conceptual and theoretical framework: Concept of development, regional development; concept of region and regional planning; geography and regional planning; selection of indicators and measures of regional disparities.

Unit II

Regional Growth Theories: Friedman's core-periphery theory; polarisation and trickle-down effect theory of Hirschman; circular and cumulative causation model of Myrdal; growth pole theory of Perroux.

Unit III

Planning process: types of planning; regional planning and its rationale, principles and objectives. Regions for Planning: characteristics, hierarchy, need, and demarcation; Planning regions of India.

Unit IV

Experiences of regional development and planning in India - multi level planning (state, district, block and panchayat level planning); Regional Policies in the Indian Five Year Plans; planning policies for regional development; regional backwardness: criteria, strategy and programmes for backward area development.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Bhatt, L.S. 1972. Regional Planning in India. Statistical Publishing Society, Calcutta.
2. Chand, M and V.K. Puri. 1985. Regional Planning in India. Allied Pub. Pvt. Ltd. New Delhi.
3. Coates, B.R. and R.J. Johnston. 1977. Geography and Inequality. Oxford University Press, Oxford.

4. Government of India. 2013. Report of the Committee for Evolving a Composite Development Index of States Ministry of Finance. http://finmin.nic.in/reports/Report_CompDevState.pdf
5. Friedmann, J. and William Alonso. 1967. Regional Development and Planning: a Reader. MIT Press, Cambridge Massachesetts
6. Kuklinski, A.R. ed. 1972. Growth Poles and Growth Centres in Regional Planning. Monton, The Hague.
7. Misra R.P. et al. eds. 1974. Regional Development Planning in India, Vikas, New Delhi.
8. Mohan, Krishna. 2005. Addressing Regional Backwardness: An Analysis of Area Development Programmes in India, New Delhi: Manak Publications.
9. Raza, Moonis. 1988. Regional Development, Heritage, New Delhi.
10. Singh, Nina. 2015. "Regional Backwardness in India: An Exploration of Demographic Indicators". Population Geography, vol.37, No. 1&2, pp. 13-24.
11. Surya Kant and Nina Singh. 2015. Geography Development Public Policy: Select Essays of Gopal Krishan. RK Books, New Delhi.
12. Kant, Surya et al. 2004. Reinventing Regional Development. Rawat Publications, Jaipur.
13. Sundram, K. V. 1977. Urban and Regional Planning in India. Vikas Publishig House Pvt Ltd, New Delhi.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22C3 - ENVIRONMENTAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Know the importance of biodiversity to maintain ecological balance.
CO2: Understand various environmental issues at national and international concerns.
CO3: Understand the linkages between environment and biomes.

Unit-I

Environmental Geography: Nature and scope of environmental geography, fundamental concepts of environmental geography; Approaches and methods in Environmental Geography; Relationship with other branches of knowledge, Environment and Ecology: Meaning, structure and type of Environment, Ecology - meaning, scope and concepts. Sub-vision of ecology.

Unit-II

Ecosystem: Meaning and concepts of ecosystem, Classification and components of eco-system, trophic structure, ecological pyramid, energy flow and biogeochemical cycle; Ecological regions of India.

Unit-III

Environmental pollution- meaning, types, sources, causes and impacts; Air, Water and Land pollutions; Environmental Degradation – Nature, process, types and causes of environmental degradation; Green house effect, Global warming, Ozone depletion and Desertification.

Unit-IV

Environmental management- concept, methods and approaches. Management of soil, forest and mineral resources; Disaster Management; Conservation of natural resources; Emerging environmental problems and issues in India, Environmental policies, programmes, awareness and movements in India.

Note :

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire. All questions carry equal marks.

Recommended Readings:

1. Anderson J.M. (1981): Ecology for Environmental Science: Biosphere, Ecosystems and Man, Arnold, London.
2. Awasthi, N.M. and Tiwari, R.P.L. (1995): Paryavaran Bhugool (Environmental Geography), Madhya Pradesh Hindi Granth Academy, Bhopal.

3. Goudie, Andrew (1984): The Nature of the Environment, Oxford Katerpring Co. Ltd.
4. Nobel and Wright (1996): Environmental Science, Prentice Hall, New York.
5. Odum, E.P. (1971): Fundamental of Ecology, W.B. Sanders, Philadelphia.
6. Saxena, H.M. (1994): PrayavaranevnParisthitikiBhugool (Geography of Environment and Ecology) Rajasthan Hindi Granth Academy, Jaipur.
7. Singh, Savinder (1991): Environmental Geography, PrayagPustakBhawan, Allahabad.
8. Singh, R.B. (ed.) (1989): Environmental Geography, Heritage, New Delhi.
9. Strahler, A.N. and Strahler, A.H. (1973) : Environmental Geosciences : Interaction between natural systems and Man, John Wiley and Sons, New York.
10. Strahler, A.H. and Strahler A.N. (1977): Geography and Mans Environment, John Wiley, New York.
11. William, M.M. and John, G. (1996) : Environmental Geography - Science, Landuse and Earth System, John Wiley and Sons, New York.

MA Geography – GEO2 Semester-II

Session 2016-17 onwards

16GEO22D1 - URBAN GEOGRAPHY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Gain a better understanding of the process of urbanization.

CO2: Understand the key aspects of cities and get an indication of the breadth of material that can be covered when examining cities.

CO3: Get sensitized to the evolving urban planning visions.

Unit-I

Urban Geography: definition, nature, scope, and recent trends; Urban revolutions and growth of towns and cities in the world (with particular reference to India).

Unit-II

Urbanisation processes and patterns in an era of globalisation; urbanisation process in India: colonial legacy, the post-independence characteristics; phases of urban development with location of economic activities in cities; urban form and structure: pre-industrial, industrial and post industrial societies.

Unit-III

Aspects of urban places: Location, site and situation - definition, nature and significance; urban ecological processes; urban systems and the growth of cities: the rank-size distribution of cities, primate city distribution, central place theory of Christaller; the urban fringe.

Unit-IV

Urban planning visions: the garden city, the radiant city; conserving urban landscapes; sustainability and the city; city environments and living conditions; urban development strategy with particular reference to India.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Badcock, Blair. 2002. *Making Sense of Cities: A Geographical Survey*. Arnold, London.
2. Bala, Raj. 1986. *Urbanisation in India*, Rawat Publishers, Jaipur.
3. Bansal, S.C. 2008. *Urban Geography* (Hindi Edition), Meenakshi Prakashan, Meerut.

4. Bansal, S.C. 2010. *Urban Geography*. Meenakshi Prakashan, Meerut.
5. Beall, Jo and Sean Fox. 2009. *Cities and Development*. Routledge, London.
6. Carter, Harold (1995), *The Study of Urban Geography*. 4th edn, Arnold, London.
7. Fyfe, Nicholas R. and Judith T. Kenny. 2005. *The Urban Geography Reader*. Routledge, New York.
8. Hall, Tim and Heather Barrett. 2012. *Urban Geography*. 4th edn. Routledge, London.
9. Pacione, Michael. 2001. *Urban Geography-A Global Perspective*. Routledge, London.
10. Ramachandran, R. 1989. *Urbanisation and Urban Systems in India*. Oxford, New Delhi.
11. Singh, K. and F. Steinberg. eds. 1987. *Urban India in Crisis*. New Age International, New Delhi.
12. Smailes, A.E. 1953. *The Geography of Towns*. Hutchinson, London.

MA Geography GEO2 Semester-II
Session 2016-17 onwards
16GEO22D2 - CULTURAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Keep up to date with the theoretical aspects and conceptual base of this branch.
- CO2:** Understand and evaluate the concept of culture in geography and its role and relevance in society.
- CO3:** Understand the cultural environment and various cultural regions of the world.

Unit-I

The Nature Meaning & Scope of Cultural Geography. The evolutionary approach in cultural geography. The Framework of cultural Geography. The evolution of cultural Geography-The contribution of Otto Schluter and Carl Sauer.

Unit-II

Cultural Geography: Elements & Components; Cultural Areas & Cultural Realm. Environment and Culture: Concept of cultural areas and cultural regions. Cultural adaptation and Environmental perception. Man as modifier of the earth

Unit-III

Spatial Structure. Focus on similarities and differences of various cultures with respect to racial, religious, linguistic and demographic, characteristics in Indian context. Studies of the socio-cultural characteristics of contemporary societies within their manifested

Unit-IV

Human races: Habitat economy and Society of tribal groups. Racial Elements in India's Population; Tribes of India (Bhil, Gond, Toda, Naga); Tribes of World (Eskimo, Pigmy, Bushman).

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Ahmad, Aijazuddin, **Social Geography**, Rawat Publication, New Delhi, 1999.
2. De Blij. B.d. **Human Geography**. John Wiley and Son, New York.
3. Dreze Jean, Amartya Sen, **Economic Development and Social Opportunity**, Oxford University press, New Delhi, 1996
4. Dubey, S.C.: **Indian Society**, National Book Trust, New Delhi, 1991.
5. Gregory, D. and UJ. Larry. (eds.) **Social relations and Spatial Structures**, McMillan, 1985
6. Haq, Mahbubul: **Reflection on Human Development**. Oxford University Press. New Delhi
7. Maloney, Clarence: **People of South Asia**, Winston, New York, 1974.
8. Planning Commission, **Government of India**: Report on Development of Tribal areas. 1981
9. Rao, M.S.A.: **Urban Sociology in India**. Orient Longman, 1970.
10. Schwartzberg Joseph: **An Historical Atlas of South Asia**. University of Chicago Press. Chicago, 1978.
11. Sen, Amartya and Dreze Jean, **Indian Development Selected Regional Perspectives**. Oxford University Press, 1996 .
12. Smith, David: **Geography: A Welfare Approach**. Edward Arnold, London, 1977.
13. Sopher, David: **An Exploration of India**. Cornell University Press. 1980.
14. Subba Rao. **Personality of India: Pre and Proto Historic Foundation of India and Pakistan**, M.S. University, Baroda, Vadodara, 1958.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D3 - GEOGRAPHY OF INDIA

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the geographical aspects of India.
- CO2:** Have knowledge about Indian sub continent contemporary issues.
- CO3:** Understand demographic aspects of India.

Unit-1

Physiographic division of India; Drainage systems" Mechanism of Indian monsoons and climatic regions of India: types of soils and natural vegetation.

Unit-II

Growth of population, Distribution and density of population; Demographic attributes; sex-ratio, literacy rate and work force; population problems and policies.

Unit-III

Characteristics of Indian agriculture and its development since independence; Agricultural region of India; Major industrial regions of India; domestic and international trade patterns; Transportation network.

Unit-IV

Evolution of administrative map of India since independence; Disputes of river water sharing amongst states with reference to SYL; Inter -linking of rivers; Terrorism problems of internal security; Population explosion and food security.

Note:

The question paper shall consist of five units. First four units of question paper shall contain two questions from each unit. Candidate is required to attempt one question from each unit. Unit five shall be compulsory and shall contain eight short type questions covering the entire syllabus. All questions carry equal marks.

Recommender Readings:

1. Spare, O.H.K. and A.T.A. learmonth: Geography of India and Pakistan, Methuen London (first Indian Edition, 1984, Munshiram Manoharlal, New Delhi) 1967.
2. Gautam A: Advanced Geography of India, Sharda Pustak bhawan, allahabad, 2009.

3. Sharma, T.C. and Coutinho, O: Economical and commercial Geography of India, Vikas publishing house Pvt. Ltd. New Delhi, 1988.
4. Chandna, R.C.: Geography of Population, Kalyani Publishers, 1998.
5. Tirtha, Ranji: Emerging India, Conpub. Ann Arbor, U.S.A. Michigan, 2006.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D4 - GEOGRAPHY OF RURAL SETTLEMENTS

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 Marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Have knowledge about the historical development, patterns, types and functional systems of rural settlements.
- CO2:** Know about the morphology of rural settlements.
- CO3:** Understand the factors and rural settlement planning in India.

Unit-I

Definition, Nature and Scope of Rural Settlement Geography; Trends in Rural Settlement Geography with special reference to India; Approaches to Rural Settlement Geography

Unit-II

Culture-Historical Perspective; Archaeological finds and settlements - Mesopotamia, the Nile valley, the Indus valley; Historical Development of Rural Settlements (based on major cultural periods) in India. Analysis of Place Names and environments.

Unit-III

Morphology of Rural Settlements in India: Religio-Ritual Model, Secular-Dominance Model; Types and Patterns of Rural Settlements in India and Causes of Diverse Types of Rural Settlements.

Unit-IV

Functions of Rural Settlements; Rural service centers; their nature and hierarchy; Basics of Rural Settlement Planning; Rural Settlement Planning of India.

Note:

The question paper will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Alam, S. M. et. al. (1982), **Settlement System of India**, Oxford and IBH Publication Co. New Delhi.
2. Chisholm, M. (1967), **Rural Settlements and Land Use**, John Wiley, New York.

3. Clout, H.D. (1977) **Rural Geography of Settlements**, Mac Donald & Evans, New York.
4. Hudson, F.S. (1976), **A Geography of Settlements**, Mac Donald & Evans, New York.
5. Mandal, R.B. (1988), **System to Rural Settlements in Developed Countries**, Concept Publication, New Delhi.
6. Mandal, R.B. (2001), **Introduction to Rural Settlements**, Concept Publication, New Delhi.
7. Misra, H.N. (1987) **Rural Geography**, Vol. IX, Contributions to Indian Geography, Heritage Publishers, New Delhi.
8. Singh, R.L. and K.N. eds. (1975), **Readings in Rural Settlements Geography**, NGSI, Varanasi
9. Singh, R.L. (1976), **Geographic Dimensions of Rural Settlements**, NGSI, Varanasi
10. Singh, R.Y. (1994), **Settlements**, NGSI, Varanasi. 11. Singh, R.Y. (2005), **Adhiwas Bhugol**, (in Hindi) Rawat Publication, New Delhi.
11. Wanmali, S. (1983), **Service Centres in Rural India**, B.R. Publication, New Delhi.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22D5 - SOIL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Enhance their knowledge about the soils, its properties, development and degradation.
- CO2:** Understand the management and conservation of soil resource with reference to India.
- CO3:** Understand the linkages between soil, environment and biomes along with its importance.

Students will be familiarized and enhance their knowledge about the soils, its properties, development and degradation. They will understand the management and conservation of soil resource with reference to India along with its importance.

Unit - I

Soil Geography: meaning, nature, and scope; its relationship with Pedology. Soil forming factors: parent material, organic, climatic, topographic, and time; Soil components: inorganic materials, organic matter, soil air, and soil water.

Unit - II

Processes of soil formation and soil development: physical, biotic and chemical. Soil Profile and its development; Pedogenic Regimes: podsolization, laterization, calcification and salinization.

Unit - III

Physical properties of soils: morphology, texture, structure, water, air, temperature and other properties of soil; Chemical properties of soil and soil reaction; Genetic classification of soils; Taxonomic classification of soils: zonal, azonal and intra-zonal soils, their characteristics. Spatial distribution of Indian soils.

Unit - IV

Evaluation of land and soil: Parametric and non parametric systems, Land capability classification, Soil survey and Mapping, field study of soil profile and their characteristics; Soil erosion, degradation, and conservation with special reference to India.

Note:

The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Backman, H.O and Brady, N.C. (1960): The Nature and Properties of Soils, McMillan, New York.
2. Basile, R.M. (1971): A Geography of Soils, William C. Brown, Dubuque, Ia.
3. Bennet, Hugh H.: Soil Conservation, McGraw Hill, New York.
4. Bunting, B.T. (1973): The Geography of Soils, Hutchinson, London.
5. Clarke G.R. (1957): Study of the Soil in the Field, Oxford University Press, Oxford.
6. De N.K. and Ghosh, P.(1993): India:A Study in Soil Geography, Sribhumi Publishing Co., Calcutta.
7. Foth H.D. and Turk, L.M. (1972): Fundamentals of Soil Science, John Wiley, New York.
8. Govinda Rajan, S.V. and Gopala Rao, H.G. (1978): Studies on Soils of India Vikas, New Delhi.
9. James S. Gardiner (1977), Physical Geography, Harper's College Press, New York.
10. McBride, M.B. (1999): Environmental Chemistry of Soils, Oxford University Press, New York.

M.A. Geography – GEO2 Semester-II
Session 2016-17 onwards
16GEO22CL1 - PRACTICAL: DIGITAL CARTOGRAPHY

Credit: 03 (0+0+3)
End Semester Exam: 50
Lab Record: 30
Lab Test: 10
Viva-Voce: 10
Time: 4hrs

Course Outcomes:

Students would be able to:

- CO1:** Have knowledge about computer aided cartography.
- CO2:** Prepare good quality maps.
- CO3:** Take up career in the field of digital cartography.

Unit I

Introduction to Softwares

Basic introduction to GIS softwares; (QGIS, ArcGIS, etc.), Raster (grid format) and vector (point, line and polygon) data models.

Unit II

Mapping and Map Essentials

Dot, Choropleth and Isopleths mapping; Proportional circles, and bar diagrams in a map. Map elements- title, legend, lat. long, scale, direction, source, name of projection and layout creation.

Note:

The question paper shall contain six questions in all containing three questions from each unit. Candidates are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Robinsin, A., Morrison, J.L., Muehrcke, P.C. and Guptil, S.C. (2002) Elements of Cartography, John Willey.
2. Taylor, D.R.F. (1985) Education and Training in Contemporary Cartography, John Willey.
3. Jil D., Charles W., Mohsen, M. (2016) Cartographic Grounds: Projecting the Landscape Imaginary, Princeton Press, New York
4. Cynthia, A.B. (2005) Designing Better Maps-A Guide for GIS Users, ESRI Press, New York.
5. Walford, N. (1995): Geographical Data Analysis, John Wiley & Sons, New York.
6. Nag, P. et al (1992): Thematic Cartography and Remote Sensing, Concept Publishing Co., New Delhi.

M.A. Geography GEO2 Semester-II
Session 2016-17 onwards
16GEO22CL2 - PRACTICAL: MORPHOMETRIC ANALYSIS

Credit: 03 (0+0+3)
End Semester Exam: 50
Lab Record: 30
Lab Test: 10
Viva-Voce: 10
Time: 4hrs

Course Outcomes:

Students would be able to:

CO1: Learn the morphometric techniques.

CO2: Know the types & significance of morphometry.

CO3: Understand the usefulness of morphometric techniques in the case of a drainage basin.

Unit - I

Morphometric Analysis of Drainage Basin- Types and its Geographical Significance, **Linear Aspects:** Stream Ordering Based on Horton and Strahler, **Areal Aspects:** Stream Frequency and Drainage Density. (04 Exercises)

Unit- II

Relief Aspects: Hypsometric Curve and Integral Hypsometric Curve, Clinographic Curve, **Slope Analysis-** Average Slope (Wentworth's method), Relative Relief (Smith's method), **Profile Analysis** -Longitudinal profile. (06 Exercises)

Note:

The question paper shall contain six questions in all, including three questions from each unit. Candidate(s) are required to attempt three questions in all selecting at least one question from each unit. All questions carry equal marks.

Recommended Readings:

1. Monkhouse, F.J. and H.R. Wilkinson (1980), **Maps and Diagrams**, B.I. Publications, Bombay.
2. Singh, R.L. (1979), **Elements of Practical Geography**, Kalyani Publishers, New Delhi.
3. Singh, S. (1997), **Geomorphology**, Prayag Pustak Bhawan, Allahabad.

M.A. Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23C1 - REMOTE SENSING AND GIS

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Know about various aspects of aerial photogrammetry.
- CO2:** Familiarize and enhance their knowledge about the Remote Sensing and GIS technology.
- CO3:** Understand the technology along with application value in the Earth observation.

Unit - I

Photogrammetry: History and development, Definition and meaning; Aerial photographs-types, characteristics and Geometry, methods of determining scale; Ground coverage and overlapping; stereoscopes and stereoscopic vision; Photomosaics-types and uses; Elements of image interpretation.

Unit - II

Remote Sensing technique- Meaning, basic principles/concepts, Remote sensing system and relevance in Geography; Electromagnetic radiations (EMR); Electromagnetic spectrum; interaction of EMR with atmosphere and Earth's surface features; Spectral reflectance; Remote sensing data; Basic principles of thermal and microwave remote sensing.

Unit - III

Remote sensing platforms- types and characteristics; Satellite orbits- Near polar and Geostationary orbits; Sensors- types, specifications and resolutions; Various artificial satellites series; Remote sensing applications in land use/land cover, urban, water resources and environment studies; Remote sensing set up and programmes in India.

Unit - IV

Geographic Information System (GIS) – Meaning and Basic concepts; Components of GIS; Functions in GIS - data input, storage, maintenance, manipulation, analysis and output; GIS data - spatial and non spatial data; Data formats - raster and vector; Data sources; Integration of Remote Sensing and GIS; Applications of GIS in Geographical studies.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Chanrda, A.M. and S.K. Ghosh (2006) **Remote Sensing and Geographical Information System**, Narosa Publishing House, New Delhi.
2. Chang, Kang-tsung (2002) **Introduction to Geographic Information Systems**, Tata McGraw Hills Publishing Company Ltd, New Delhi.
3. Chaunial, D.D. (2016) **Principles of Remote Sensing and Geographical Information System** (In Hindi), Sharda Pustak Bhawan, Allahabad.
4. Joseph, George (2003) **Fundamental of Remote Sensing**, University's Press (India) Pvt. Ltd., Hyderabad.
5. Lillesand, T.M. and Ralph W. Keifer (2002) **Remote Sensing and Image Interpretation**, John Wiley & Sons, Inc., New York.
6. Panda, B.C., (2005) **Remote Sensing: Principles and Applications**, Viva Books Pvt. Ltd., New Delhi.
7. Reddy, Anji, M. (2001) **Textbook of Remote Sensing and Geographical Information Systems**, BSP B.S. Publications, Hyderabad.
8. Siddique, M.A. (2006) **Introduction to Geographical Information Systems**, Sharda Pustak Bhawan, Allahabad.
9. Singh Surendra and A.N. Patel (1999) **Principles of Remote Sensing**, Scientific Publishers (India)

M.A. Geography - GEO2 Semester-III
Session 2017-18 onwards
17GEO23C2 - GEOGRAPHY OF TRANSPORT

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Understand geographic relevance of transportation.
- CO2:** Familiarize about various models and theories related to transport network.
- CO3:** Know about structural analysis of transport network.

Unit - I

Nature and Scope of Transport Geography, Geographic Relevance of Transportation, Transport and Development: Conceptual Frameworks; Theoretical Framework, Models of Global Relevance; (i) The Vance Model, (ii) The Rimmer Model, and (iii) The Taaffe, Morrill and Gould Model.

Unit - II

The Modes of Transport: Introduction to Modes of Transport, Modal Characteristics of Roads, Railways, Ropeways and Cableways and Airways.

Unit – III

Structural Analysis of Transport Networks: Networks, Networks Graphs and Types; Measures of Individual Elements of Transportation Networks: Mileage Matrix, Nodality Matrix, Weighted Mileage Matrix, Weighted Nodality Matrix, Gross accessibility; Connectivity of Networks: Cyclomatic Number, Diameter; Alpha, Beta, Gamma, Eta, Pie, Theta and Iota indices.

Unit- IV

Development of Road Transport in Haryana: Growth and Development of Roads in Haryana, Types of Roads, Levels of Road Transport in Haryana, Levels of Road Connectivity in Haryana, Problems of Road Transport in Haryana.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Bamford, C.G. and Robinson, H. (1978), **Geography of Transport**, Macdonald and Evans, London.
2. Bhaduri S. (1992), **Transport and Regional Development**, Concept Publishing Company, New Delhi.
3. Eliot Hurst, M.E. (1972), **A Geography of Economic Behaviour: An Introduction**, Duxbury Press, California.
4. Hammond, R. and Mc Cullagh, P.S. (1989), **Quantitative Techniques in Geography; An Introduction**, Clarendon Press, Oxford.
5. Hoyle, Band and Knowles, R. (2000), **Modern Transport Geography**, John Wiley and Sons, New York.
6. Mangat, H.S. and Gill, Lakhvir Singh. (2015), Haryana: Levels of Road Transportation, **Punjab Geographer**, Vol. 11, October, Punchkula, pp.87-102.
7. Raza, M. and Aggarwal, Y.P. (1985), **Transport Geography of India**, Concept Publishing Company, New Delhi.
8. Saxena, H.M. (2010), **Transport Geography**, Rawat Publications, New Delhi.
9. Subodh Rani and Chamar, K.V. (2016), Levels of Road Connectivity in Haryana, **Punjab Geographer**, Vol. 12, October, Punchkula.
10. Taaffe, E.J. and Gauthier, H.L. (1973) **Geography of Transportation**, Prentice Hall Englewood Cliff, New Jersey.
11. Vaidya, B.C. (1998), **Reading's in Transport Geography**, Devika Publications, Delhi.

M.A. Geography – GEO Semester-III

Session 2017-18 onwards
17GEO23D1- BIOGEOGRAPHY

Credit: 04 (3+1 +0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total : 100 marks

Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Know about various aspects of living organisms, their relationship with climate and physical environment.

CO2: Familiarize with interface between biology, ecology and geography.

CO3: Familiarize with converging and forming our biosphere.

Unit-I

Biogeography - The Development, field, functions of Biogeography; Biosphere - definition, nature, scope and composition.

Unit-II

Biogeochemical cycles- the hydrological cycle, the carbon cycle, and the oxygen cycle, the nitrogen cycle, the phosphorous cycle and the sediment cycle.

Unit-III

Ecosystem - Meaning, types, components and functioning of ecosystem; Evolution of living organism and factors influencing their distribution on the earth.

Unit-IV

Biomes- Meaning and types; Bio-geographical realms: Zoogeography and Zoogeographical realms.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Aggarwal, S.K. 1992. **Fundamental of Ecology**. New Delhi: Ashish Pub. House.
2. Brown, J.H. and Lomolino, M.V. 1998. **Biogeography**. 2nd edn. Massachusetts: Sinauer Associates, Inc.

3. Cox, C.B., Moore, P.D., Biogeography. 2010. **An Ecological and Evolutionary Approach**. 5th ed., Cambridge: Blackwell.
4. Johnathan B. Losos, Robert E. Ricklefs eds. 2010. **The Theory of Island Biogeography Revisited**. New Jersey: Princeton University Press.
5. Illic, J. 1974. **Introduction to Zoogeography**, McMillan, London.
6. MacDonald, Glen. 2002. **Biogeography: Introduction to Space, Time and Life**. New York: John Wiley.
7. Mathur, H.S. 1998. **Essentials of Biogeography**. Jaipur: Anuj Printers.
8. Richard John Huggett. 2004. **Fundamentals of Biogeography**. New York: Taylor and Francis.
9. Robert H., MacArthur and Edward O. Wilson. 1967. **The Theory of Island Biogeography** New Jersey: , Princeton University Press.
10. Robinson, H. 1982. **Biogeography**. London: The English Language Book Society and Macdonald and Evans.
11. Spellerberg, Ian F. and John, W.D. Sawyer. 1999. **An Introduction to Applied Biogeography**. Cambridge: Cambridge University Press.
12. Singh, Savindra. 2014. **Biogeography**. Allahabad: Pravalika Publications.

M.A. Geography GEO2 Semester-III

Session 2017-18 onwards

17GEO23D2 - POLITICAL GEOGRAPHY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Learn key concepts like state, nation and nationalism.

CO2: Understand the changing nature of modern state, challenges it is facing.

CO3: Know the linkages of space and politics at the local level.

UNIT-I

Nature and scope of Political Geography; Perspectives: Political-Economy, World Systems, Place, and Globalisation.

UNIT-II

Concepts of Nation, State, Nation-State; Emergence and growth of territorial state; Globalization and the Crisis of the Territorial State; Forms of Governance: Unitary and Federal.

UNIT-III

Rise and Demise of German Geopolitics; Geopolitics in the post Cold War World—S.B. Cohen's model of Geo-strategic and Geo-political regions.

UNIT-IV

India as a regional power in South Asia; National and Regional political parties in India; Women as a marginalized section in Indian politics; Inter-state water disputes in India (special reference to SYL canal).

Note : The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Agnew, J.A. (1987), *Place and Politics*, Boston: Allen and Unwin.
2. Agnew, J.A. (1998), *Geopolitics*, London: Routledge.
3. Blacksell, Mark (2003), *Political Geography*, London: Routledge.
4. Flint, Collin and Taylor, P.J. (2011), *Political Geography*, New Delhi: Pearson.

5. Cox, Kevin R. (2008), *The Sage Handbook of Political Geograph*, New Delhi: Sage.
6. Dicken, Peter (2003), *Global Shift*, New Delhi: Sage.
7. Dikshit, R.D. (2000), *Political Geography: The Spatiality of Politics*, New Delhi: Tata McGraw Hill.
8. Dodds, Klaus (2007), *Geopolitics*, New York: Oxford University Press.
9. Gallaher, Carolyn et.al. (2009), *Key Concepts in Political Geography*, New Delhi: Sage.
10. Jones, Martin, Rhys Jones and Michael Woods (2003), *An Introduction to Political Geography*, London: Routledge.
11. Khor, Martin (2001), *Rethinking Globalization*, London: Zed Books.
12. Nash, Kate (2000), *Readings in Contemporary Political Sociology*, Oxford: Blackwell.
13. Painter, J. (1995), *Politics, Geography and Political Geography*, London: Arnold.

MA Geography GEO2 Semester-III

Session 2017-18 onwards

17GEO23D3 - SOCIAL GEOGRAPHY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Understand the development of society and different social groups in India.
- CO2:** Know the theoretical, philosophical and conceptual base of social geography.
- CO3:** Understand the basic concepts of society in geographical perspectives.

Unit - I

Social Geography: Nature, meaning & Development of Social Geography; Philosophical bases of Social Geography: Positivism, Humanism and Feminism.

Unit - II

Towards a social geography of India; Concept of Social differentiation, socio cultural regions of India, Socio-Cultural Regions of India; Linguistic Elements in India. Caste System in India.

Unit - III

Social Well-being : Concepts of social well being, Human Development Index. Human Development in India. Factors of social change.

Unit - IV

Gender Issues of social Well Being: Female Literacy, family Planning, Women Health. Sex Ratio, Women Empowerment. Women Employment.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Ahmad, Aijazuddin (1999) **Social Geography**, Rawat: New Delhi.
2. Dreze, Jean and Amartya Sen (1996) **Economic Development and Social Opportunity**, New Delhi: Oxford University, Press.
3. Gregory, D and Larry (eds) **Social Relations and Spatial Structures**, Oxford: Macmillan

MA Geography – GEO2 Semester-III

Session 2017-18 onwards

17GEO23D4 – HYDROLOGY

Credit: 04 (3+1+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 marks

Time: 3 hrs

Course Outcomes:

Students would be able to:

CO1: Make better understanding about different physical aspects of water as a natural resource.

CO2: Understand different state of water occurrence.

CO3: Have better understanding of water distribution and circulation.

Unit – I

Introduction to hydrologic science: History of hydrology; Hydrology as a science; Basic hydrologic concepts: Physical quantities and laws; hydrologic systems;

Unit-II

Drainage Basin-Characteristics of drainage basin: size of the Basin, Shape of the basin, compactness ratio, form factor, type and arrangement of stream channels.

Unit – III

Precipitation-Process; Types, Forms. Mean Areal Depth of precipitation: Arithmetic average method, Thiessen polygon method and Isohyetal method; Intensity of rainfall.

Unit –IV

Evaporation-Actual evaporation, Potential evaporation; Estimation of actual and potential evaporation; Thornthwaite's book-keeping method of climatic water balance. Runoff-Factor affecting runoff.

Note: The question paper will have five units. First four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Davie, T. (2008) Fundamentals of Hydrology, Routledge, London.
2. Manning, J.C. (1997) Applied Principles of Hydrology, Prentice Hall, New Jersey.
3. Digman, L.S. (2002) Physical Hydrology, Prentice Hall, New Jersey.
4. Raghunath, H.M. (1990) Hydrology, Wiley Eastern Limited, New Delhi.
5. Garg, S.K. (1988) Hydrology and Water Resources Engineering, Khanna Publishers.

MA Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23D5 - OCEANOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Understand the dynamics of ocean physiography.
- CO2:** Know about ocean-human interface including weather, climate, navigation, security and resource utilisation.
- CO3:** Have knowledge of oceans as a resource in times to come.

Unit-I

Definition and scope of oceanography, major sea voyages, oceanography and other sciences; distribution pattern of land and sea, origin of ocean basins: Wegner's drift hypothesis, and sea floor spreading and Plate Tectonics.

Unit-II

Depth of ocean, ocean floor profile-continental shelf, slope, ridge and deeps, abyssal plains; submarine canyons; coral reefs-origin and distribution; ocean deposits; configuration of ocean floors of Indian Ocean and Atlantic Ocean.

Unit-III

Temperature of oceans; salinity in oceans; density of oceans; dynamics of ocean currents; currents of Atlantic, Pacific and Indian Ocean; tides and origin; Tsunami.

Unit-IV

Ocean currents and their impact on climate and economy; oceans as source of food, mineral and energy resources;; sea-level changes; evidences, mechanism and impact; maritime laws.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Denny, M., 2008, *How the Ocean works: An introduction to Oceanography*, Princeton University Press, New Jersey.
2. Garrison, T., 1995, *Essentials of Oceanography* Wardsworth Pub. Co., London.
3. S. Kerhsaw., 2004, *Oceanography: An Earth Science Perspective*, Routledge, UK.

4. Sharma, R.C. and V. Vatal., 1986, *Oceanography for Geographers*, Chatanaya Publishing, Allahabad.
5. Shepart, F., 1969, *The Earth Beneath the Sea*, Athneum, Rev. ed., New York.
6. Singh, Savindra., *Oceanography*, 2014, Pravalika Publications, Allahabad.
7. Thurman, V. Harold., 1987, *Essentials of Oceanography*, A Bell & Howell Company, Columbus/ Toronto/ Sydney.
8. Von Arx, W.S., 1962, *An Introduction to Physical Oceanography*, Addison, Wesley, New York.

M.A. Geography - GEO2 Semester-III
Session 2017-18 onwards
17GEO23CL1 - PRACTICAL: FIELD WORK

Credit: 03 (0+0+3)
Distribution of Marks
Lab Work Test: 20
Record on Lab/Field Work: 15
Viva Voce: 15
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

CO1: Understand the basic socio-economic characteristics of the chosen area

CO2: Understand the field methods/techniques to do research work.

CO3: Build the capability of writing a report.

Unit-I

Field Work in Geographical studies- Role, Value and Ethics; Field techniques- Merits and Demerits; Source of Data- Primary and Secondary; Collection of data: methods of primary data collection- Observation method, interview method, through questionnaire, through schedule and other methods; Questionnaire and Schedule; Processing and analysis of data.

Unit-II

Field Work and Report writing: Identification of research problem; data collection through field visit; Preparing research design- aims and objectives, methodology, analysis, interpretation and writing of report.

Note-1:

1. The students shall conduct physical/socio-economic survey in the area as decided by the department under the supervision of a faculty member (s) of the department.
2. A group of 15 students will prepare a report based on primary and secondary data collected during field work.
3. The duration of the field work should not exceed ten days.
4. One copy of the report on A-4 size paper should be submitted in soft binding.

Note-2:

1. The question paper of Lab work test shall contain three questions in all. Candidate(s) are required to attempt two questions in all. All questions carry equal marks.

Recommended Readings:

1. Ahuja, Ram (2003), Social Survey and Research (Hindi version), Rawat Publications, Jaipur.
2. Basotia, G. R. and Sharma, K. K. (2002), Research Methodology, Mangal Deep Publications, Jaipur.
3. Creswell J. (1994), Research Design: Qualitative and Quantitative Approaches, Sage Publications.
4. Dikshit, R. D. (2003), The Art and Science of Geography: Integrated Readings, Prentice- Hall of India, New Delhi.
5. Evans M. (1988), "Participant Observation: The Researcher as Research Tool" in Qualitative Methods in Human Geography, eds. J. Eyles and D. Smith, Polity.
6. Gideon Sjoberg and Roger Nett (1992), A Methodology for Social Research, Rawat Publications, Jaipur.
7. Mukherjee, Neela (1993), Participatory Rural Appraisal: Methodology and Application. Concept Publs. Co., New Delhi.
8. Mukherjee, Neela (2002), Participatory Learning and Action: with 100 Field Methods. Concept Publs. Co., New Delhi.
9. Robinson A. (1998), "Thinking Straight and Writing That Way", in Writing Empirical Research Reports: A Basic Guide for Students of the Social and Behavioural Sciences, eds. by F. Pryczak and R. Bruce Pryczak, Publishing: Los Angeles.
10. Special Issue on "Doing Fieldwork" The Geographical Review 91:1-2 (2001).
11. Stoddard R. H. (1982), Field Techniques and Research Methods in Geography, Kendall/Hunt.
12. Wolcott, H. (1995), The Art of Fieldwork, Alta Mira Press, Walnut Creek, CA.

M.A. Geography – GEO2 Semester-III
Session 2017-18 onwards
17GEO23CL2 - PRACTICAL-GIS

Credit: 03 (0+0+3)
Time: 4 Hours
Max. Marks: 50
Distribution of marks:
Lab work test: 30
Record on lab work: 10
Viva Voce: 10

Course Outcomes:

Students would be able to:

- CO1:** Know the basics of Geographic Information System.
- CO2:** Use geographic information in a systematic manner by the creation and updation of maps.
- CO3:** Understand the representation of earth surface features with the help of maps by GIS techniques.

Exercises will be taken on following topics:

1. Introduction to digital environment i.e. file creation and management
2. Introduction to GIS software
3. Shape file creation of point, line and polygon
4. Digitization
5. Map layout : title, legend, direction, scale, coordinate information
6. Map preparation of point, linear and areal features(atleast two exercises on each)
7. Map editing
8. Area calculation
9. Buffer analysis
10. Overlay analysis

Note:

The question paper shall contain six questions in all. Candidate(s) are required to attempt three questions in all. All questions carry equal marks.

Recommended Readings:

1. Chang, Kang-tsung., 2010, *Introduction to Geographic Information Systems*, Tata McGraw- Hill Education Private Limited, New Delhi.
2. Fazal, Shahab, 2008, *GIS Basics*, New Age International Publishers, New Delhi.
3. Heywood, Ian et. Al., 2002, *Geographical Information Systems* (Second edition), Pearson Education, Delhi.

M.A. Geography – GEO2 Semester-IV

Session 2017-18 onwards

17GEO24C1 - GEOGRAPHICAL THOUGHT

Credit: 04 (3+1 +0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total : 100 marks

Time: 3 hrs

Course Outcomes:

Students would be able to:

- CO1:** Acquaint with the philosophy, methodology and historical development of geography as a professional field.
- CO2:** Address the spirit and purpose of the changing geographies and to what we as geographers contribute towards knowledge production.
- CO3:** Critically look at the contents of other courses at Postgraduate level as logically integrated with the broad currents of thought the subject has witnessed in the distant and recent past.

Unit-I

Development of Geographical Knowledge: classification of knowledge; place of geography in the classification of knowledge. Relationship of geography with other natural and social sciences; subject matter of geography. Pre-scientific geographical ideas and emergence of scientific geography; influence of Kant.

Unit-II

Classical Period of Modern Geography: Humboldt and Ritter; legacy of Humboldt and Ritter. Dualisms and dichotomies: physical and human, systematic and regional, and general and particular. Unification of Geography- Richthofen and Hettner. Social Origins of Environmental Determinism. Possibilism, Regional concept, Vidal de la Blache.

Unit-III

Modern Geography since 1950s: Quantitative revolution and positivism; locational analysis. Reactions to scientific positivism and development of 'human centred theories; Behavioural, humanistic and radical approaches.

Unit-IV

Beginnings of Contemporary Geography: Structuralism and structuration; post-structural and post-colonial critique; Feminist and gender geography; the post-modern perspectives in geography; geography, neoliberalism and globalisation.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

(Note: Only essential books are mentioned below. Articles and other additional references would be provided in the class. Students are required to consult the following periodicals also: a) Professional Geographer; b) Annals of the Association of American Geography; c) Progress in Human Geography, d) Progress in Physical Geography; e) Antipode)

1. Dickinson, R.E. 1969. **Makers of Modern Geography**. London: Routledge and Kegan Paul.
2. Dickinson, R.E. 1976. **The Regional Concept**. London: Routledge and Kegan Paul.
3. Gosal, Gurdev Singh. 2015. **History of Geographic Thought**. Chandigarh: Panjab University.
4. Gregory, D. 1978. **Ideology, Science and Human Geography**. London: Hutchinson.
5. Gregory Ken J. 2000. **The Changing Nature of Physical Geography**. New York: Oxford University Press.
6. Hartshorne, R. 1939. **The Nature of Geography**. Lancaster, P.A.: Association of American Geography (Indian reprint: Rawat Publications).
7. Hartshorne, R. 1959. **Perspective on the Nature of Geography**. Chicago: Rand McNally.
8. Holt-Jensen, A. 2009. **Geography: History and Concepts- A Student's Guide**. London: Sage. (3rd edition)
9. Inkpen [Robert](#) & [Graham Wilson](#) 2013. **Science, Philosophy and Physical Geography**. 2nd edn. London: Routledge.
10. James, P.E. 1972. **All Possible Worlds: A History of Geographical Ideas**. Indianapolis: Odyssey Press. (Latest Edition 2005 is authored by Geoffrey J Martin).
11. James, P.E & Jones, C.F. 1954. **American Geography: Inventory and Prospects**. Syracuse: Syracuse Univ. Press & New York: John Wiley.
12. Johnston, R.J. 2005. **Geography & Geographers: Anglo-American Human Geography since 1945**. London: Arnold
13. Johnston, Ron J. et al. 2000. **Dictionary of Human Geography**. Oxford: Blackwell.
14. Nayak, A & Alex Jeffrey. 2011. **Geographical Thought**. Essex: Pearson.
15. Peet, R. 1978. **Radical Geography**. London: Methuen.
16. Peet, R. 1998. **Modern Geographical Thought**. London: Blackwell.
17. Stoddart, D.R. 1981. **Geography, Science and Social Concern**. Oxford: Blackwell.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24C2 - RESEARCH METHODOLOGY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Formulate research questions

CO2: Understand advantages and disadvantages of quantitative and qualitative approaches.

CO3: Write a research proposal.

Unit-I

Meaning and Purpose of Research? Types of Research; Social Science Research; Identification of Research Question and Literature Surveying; Methods and Methodology in Human Geography

Unit-II

Scientific Method in Human Geography; Analytical Steps of the Scientific Method; The Routes of Scientific Explanation: Deductive and Inductive forms of reference; Explanation in Geography: Some Problems

Unit-III

From Quantitative to Qualitative Geography; Qualitative Data Production: Interviews (Process of Interviewing, Structure interviews and informal surveys; Depth Interviewing and Working with Groups); Observation (Participant Observation and Ethnography).

Unit-IV

Process of Research Report Writing; Reference styles (Harvard, Chicago), Ethics in Research.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Dey, Ian (1993), *Qualitative Data Analysis*, London: Routledge.
2. Eyles, John and David M. Smith (1988), *Qualitative Methods in Human Geography*, Oxford: Polity Press.
3. Harvey, David (1969), *Explanation in Geography*, London: Edward Arnold.
4. Hubbard, Phil et.al. (2002), *Thinking Geographically*, London: Continuum.

5. Hoggart, Keith et.al. (2002), *Researching Human Geography*, London: Arnold.
6. Johnston, R.J. and J.D. Sidaway (2004), *Geography and Geographers*, London: Arnold.
7. Kitchin, Rob and Nicholas J. Tate (2000), *Conducting Research in Human Geography*, London: Prentice Hall.
8. Krishan, Gopal and Nina Singh (2016), *Researching Geography: The Indian Context*, New Delhi: Routledge India.
9. Limb, Melanie and Claire Dwyer (2001), *Qualitative Methodologies for Geographers*, London: Arnold.
10. Robinson, Guy M. (1998), *Methods and Techniques in Human Geography*, New York: John Wiley.
11. Seale, Clive (ed.) (2008), *Social Research Methods*, London: Routledge (Indian Edition).
12. Somekh, Bridget and Cathy Lewin (eds.) (2005), *Research Methods in the Social Sciences*, New Delhi: Vistaar Publications.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DA1 - WATER RESOURCE AND MANAGEMENT

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Learn some strategies of water resource management.
- CO2:** Have awareness about various important factors relating water.
- CO3:** Know water management strategies.

Unit –I

Water as a focus of geographical interest; Hydrological cycle; factor affecting water resources- physical factors, climatic factors, geological factors.

Unit – II

Groundwater and its occurrence - consolidated formation, semi-consolidated formation and unconsolidated formation.

Unit –III

Utilization of water resources; problems of groundwater utilization- groundwater quality, groundwater salinity, waterlogging and groundwater depletion.

Unit – IV

Surface and groundwater pollution; water scarcity; water resource management- definition, functions and strategies.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Andrew A. Dzuriak, (2002) **Water Resources Planning**, Rowman& Littlefield Publishers, Inc., Savage, Maryland.
2. Chorley, R.J. (1979) **Water, Earth and Man**, Methuen, London.
3. Daniel P. Loucks and E.V. Beek, (2005) **Water Resources Systems Planning and Management: An introduction to Methods, Models and Applications**, UNESCO.Publishing.
4. Jeet, Inder, (2005) **Groundwater Resources of India- Occurrence, Utilization and Management**, Mittal Publication, New Delhi.

5. Neil S. Grigg, (1996) **Water Resources Management**, McGraw-Hill Book Co., New York.
6. S.L. Dingman, (2002) **Physical Hydrology**, Prentice-Hall Inc., New Jersey.
7. T.V. Cech, (2005) **Principles of Water Resources: History, Development, Management and Policy**, John Wiley & Sons, Hoboken.

M.A. Geography Semester-IV
Session 2017-18 onwards
17GEO24DA2 - GEOGRAPHY OF TOURISM

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the basic concepts of tourism.
- CO2:** Know regional dimensions of tourism in India.
- CO3:** Have close insight to tourism in our own country.

Unit -I

Geography of Tourism: Definition, nature and scope; Motivating factors of tourism; Robinson's classification of motivating factors of tourism.

Unit-II

Tourism: Product and typology; Infrastructure and support system of tourism: Accommodation and supplementary accommodation; Agencies and intermediaries.

Unit-III

Impact of tourism: Physical, economic and social, perceptual positive and negative impacts; Tourism paradigms: Ethnic and cultural tourism, heritage tourism, sustainable tourism and eco-tourism.

Unit- IV

Regional dimensions of tourism in India: Himalayan region, Northern Plains and The Thar Desert, Deccan plateau, Coastal Plains and the islands.

Note: The question paper shall have five units. Each of the four units of question paper shall contain two questions from each unit of the syllabus. Candidates are required to attempt one question from each unit. Unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Robinson H.A., *Geography of Tourism*, Macdonald and Evans, London, 1996.
2. Williams Stephen, *Tourism Geography; Contemporary Human Geography*, Routledge, London, 1998.
3. Kamra K.K. and Mohinder Chand, *Basics of Tourism: Theory, Operation and Practice*, Kanishka, New Delhi, 2007

M.A. Geography – GEO2 Semester-IV

Session 2017-18 onwards

17GEO24DA3 - RURAL GEOGRAPHY

Credit: 04(03+01+0)

End Semester Exam: 80 marks

Internal Assessment: 20 marks

Total: 100 mark

Time: 3 hrs.

Course Outcomes:

Students would be able to:

CO1: Know about rural geography.

CO2: Enhance the knowledge about infrastructure, various types of houses and their building materials.

CO3: Be aware about developmental issues in rural India.

UNIT-I

Nature and scope of rural geography; **Infrastructure in rural India:** Irrigation, Electrification, and Roads.

Unit-II

Rural House Types : House Types based on Building Materials, Size and Shape as basis for classification, House Types based on Socio-Economic Status, Regional Patterns of Houses in India.

Unit-III

Issues of Rural Development in India: Land Reforms, Agricultural land-use, Distribution of Landholdings, Rural Poverty, Rural Unemployment.

Unit-IV

Untouchability and Dalits in Rural India: Some Theoretical Explanations, Anti Untouchability Movements: A Historical Overview; Scheduled Castes in Rural India, Patterns of Female Work Participation of Scheduled Castes, Women Empowerment in Rural India.

Note: The question will have five units. Each of the first four units of question paper will contain two questions from each unit of the syllabus. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire syllabus. All questions carry equal marks.

Recommended Readings:

1. Alam, S.M. et. al. (1982) Settlement System of India, Oxford and IBH Publication Co., New Delhi.
2. Chisholm, M. (1967) Rural Settlements and Land Use, John Wiley, New York.
3. Clout, H.D. (1977) Rural Settlements and Land Use, John Willy, New York.

4. Hudson, F.S. (1976) A Geography of Settlements, Mac Donald & Evans, New York.
5. Mandal. R.B. (1988) Systems of Rural Settlements in Developing Countries, Concept Publication, New Delhi.
6. Mandal, R.B. (2001) Introduction to Rural Settlements, Concept Publication, New Delhi.
7. Misra, H.N. (1987) Rural Geography, Vol. IX, Contributions to Indian Geography, Heritage Publishers, New Delhi.
8. Misra, S.K. and Puri, V.K. (2009) Indian Economy, Himalaya Publishing House, New delhi.
9. Rai, S. (2005) Kurukshetra, Ank. 12, October, Gramin Vikas Mantralaya, New Delhi.
10. Shah, G. Thorat S. et.al. (2006) Untouchability in Rural India, Sage Publication, New Delhi.
11. Singh, R.L. and K.N. Singh eds. (1975) Readings in Rural Settlements Geograpghy, NGSI, Varanasi.
12. Singh, R.L. (1976) Geographic Dimensions of Rural Settlements,NGSI, Varanasi.
13. Singh, R.Y. (1994) Geography of Settlements, Rawat Publication, New Delhi.
14. Singh, R.Y. (2005) Adhiwas Bhugol, (in Hindi) Rawat Publication, New Delhi.

M.A. Geography Semester-IV
Session 2017-18 onwards
17GEO24DB1 - POPULATION GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Know about spatial distribution of population with causative factors.
- CO2:** Learn with various theories and concepts related with population.
- CO3:** Understand the distribution, dynamics of population distribution, its problems and management.

Unit-I

Population Geography: Definition, nature and scope; relationship with other disciplines –demography and population studies; sources of data with particular reference to India – census, vital or civil registration system, Sample Registration System, Sample surveys with particular reference to NSSO and NFHS; Problems of their reliability and comparability.

Unit-II

Population Distribution and Growth: Factors affecting population distribution; Population growth - trends and determinants; spatial dimension of population growth in India; Theories of population growth – pre-Malthusian views, Malthus' Theory, views of socialist writers, optimum population theory, demographic transition model.

Unit-III

Components of population change: trends and patterns in fertility and mortality levels; Theories of fertility; Migration: major international migrations; features of internal migration in India; theories of migration; population composition and characteristics - age and sex composition, literacy, marital status and economic characteristics of population.

Unit-IV

Population and development: population growth and economic development; population growth and environmental quality; population control movement: population policies and its types; India's Population Policy: Post independence development – Reproductive and Child Health Programme.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Beaujen- Garnier J (1966) **Geography of Population**; Longman, London.
2. Bhende Asha A and Kanitkar (2002) **Principles of Population Studies**, 14th Edition, Himalaya Publishing House, Mumbai.
3. Chandana, R.C. (2002) **Geography of Population: Concepts, determination and patterns**, Kalyani Publishers, New Delhi.
4. Clarke, J.I. (1992) **Population Geography**, Second Edition, Pergamon Press, Oxford England.
5. Hassan, M.I. (2005) **Population Geography**, Rawat Publication, Jaipur.
6. Premi, M.K. (1991) **India's Population Heading Towards a Billion**, B.R. Publishing Corporation, New Delhi.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DB2 - NATURAL HAZARDS AND DISASTER MANAGEMENT

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand basic concepts of natural hazards and disaster management.
- CO2:** Know the techniques of management of disasters.
- CO3:** Know the disaster management setup of India.

Unit- I

Concept of Hazards, Risk, Vulnerability and Disaster. Types of Hazards: Natural (Tectonic Hazards – Earthquakes and Volcanoes; Hydrological Hazards – Floods and Droughts.

Unit- II

Regional Dimension of Natural Hazards: Occurrence and Trends. (Tectonic Hazards – Earthquakes and Volcanoes; Hydrological Hazards – Floods and Droughts.

Unit- III

Disaster Losses and Impact – Displacements, Livelihood. Economy and Infrastructure, and Health.

Unit -IV

Mitigation and Management: Plans and Policies. Role of Remote Sensing, GIS and GPS in Disaster Management.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Allan, S., Adam, B. and Carter, C., (eds.), (2000): *Environmental Risks and the Media*, Routledge, London.
2. Ambala-Bertrand, J.M., (1993): *Political Economy of Large Natural Disasters: With Special Reference to Developing Countries*, Clarendon Press, Oxford.
3. Blaikie, P., Cannon, T., Davis, I., (et al.), (1994): *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London.

4. Burton, I., Kates, R.W. and White, G.F., (1993): *Environment as Hazards*, 2nd edition, Guilford Press, New York.
5. Hewitt, K., (1997): *Regions of Risk" A Geographical Introduction to Disasters*, Longman, London.
6. Hood, C. and Jones, D.K.C. (eds.), (1996): *Accident and Design: Contemporary debates in Risk Management*, UCL Press, London.
7. Kasperson, J.X., Kasperson, R.E. and turner, B.L., (1995): *Regions at Risk: Comparisons of Threatened Environments*, United Nation University Press, Tokyo.
8. Mitchell, J.K., (ed.) (1999): *Crucibles of Hazard: Mega-Cities and Disasters in Transition*, United Nations University Press, New York.
9. Schneider, S.K., (1995): *Flirting with Disaster: Public Management in Crisis Situations*, M.E.Sharpe, New York.
10. Quarantelli, E.L. (ed.) (1998): *What is a Disaster? Perspective on the Question*, Routledge, London.
11. Schneid, T. and Collins, L. (1998): *Disaster Management and Preparedness*, Lewis Publishers, Washington, D.C.
12. Godschalk, D.R. (et.al.) (1999): *Natural Hazard Mitigation Recasting Disaster Policy and Planning*, Island Press, Washington, D.C.
13. Smith, Keith (1996): *Environmental Hazards; Assessing Risk and Reducing Disaster*, Routledge, London and New York.
14. Paraswamam, S. and Umikrishnan, P.V. (2000): *India Disaster Report*, Oxford University Press, New Delhi

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24DB3 - AGRICULTURAL GEOGRAPHY

Credit: 04 (3+1+0)
End Semester Exam: 80 marks
Internal Assessment: 20 marks
Total: 100 marks
Time: 3 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Have an understanding of agricultural geography as a developed branch of geography.
- CO2:** Learn major concepts, factors affecting agricultural land use, agricultural system of the world and the emerging scenario in agriculture.
- CO3:** Know the agricultural systems of the world and about agricultural models. They would gain an insight into the world trade in agriculture and address the question of sustainable agriculture.

Unit-I

Definition, nature, scope, and significance of agricultural geography; approaches to the study of agriculture in geography-commodity, deterministic, systematic, and regional.

Unit-II

Factors influencing agricultural patterns-Physical factors; terrain, climate, soils and water resources; institutional factors; demographic, land holding, farm family structure, caste, religion, peasant way of life, infrastructural services; technological factors, irrigation, mechanical inputs.

Unit-III

Agricultural system of the world: Whittlessey's classification- shifting cultivation, plantation farming, Mediterranean agriculture, commercial grain farming; agricultural region-concept and techniques; Normative technique, empirical technique, single element technique and statistical technique.

Unit-IV

Nature, significance and classification of agricultural models; economic and descriptive models; food security; sustainable agriculture; WTO and Agriculture.

Note: The question paper will have five units. First four units will contain two questions each. Candidate(s) are required to attempt one question from each unit. The unit five shall be compulsory and shall contain eight short answer type questions covering entire Syllabus. All questions carry equal marks.

Recommended Readings:

1. Alexander, J.W. 1968. **Economic Geography**. New Jersey: Prentice Hall.
2. Grigg, D.B. 1978. **The Agricultural Systems of the World: An Evolutionary Approach**. Cambridge: Cambridge University Press.
3. Hussain M. 1997. **Systematic Agricultural Geography**. Jaipur: Rawat Publications.
4. Ilbery, B. W. 1985. **Agricultural Geography**. Oxford: Oxford University Press.
5. Morgan, B.W. and Munton, J.C. 1971. **Agricultural Geography**. London: Methuen.
6. Shafi, M. 2006. **Agricultural Geography**. New Delhi: Pearson Education.
7. Singh, Jasbir. 2003. **Agricultural Geography**. 3rd edn. New Delhi: Oxford.
8. Singh, Jasbir. and S.S. Dhillon. 1984. **Agricultural Geography**. New Delhi: Tata McGraw Hill.

M.A. Geography – GEO2 Semester-IV
Session 2017-18 onwards
17GEO24CL1 - PRACTICAL: AERIAL PHOTOGRAPHS AND ITS
INTERPRETATION

Credit: 03(0+0+3)
Distribution of Marks
Lab Work Test: 30
Record on Lab/Field Work: 10
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Learn air photo interpretation techniques.
- CO2:** Understand the usefulness of air photo interpretation techniques in geography.
- CO3:** Enhance the knowledge about the applications of aerial photographs in various fields of geography.

Exercises will be taken on following topics:

1. Aerial Photographs-Types and Characteristics;
2. Elements of Air Photo Interpretation;
3. Stereo Vision Test, Orientation of stereo model under Mirror Stereoscope; Determination of scale on an aerial photograph;
4. Measurement of height of an object on single vertical aerial photograph;
5. Parallax bar measurement and height determination;
6. Preparation of Index map;
7. Preparation of stereogram, stereotriplet and mosaic from aerial photographs;
8. Interpretation of Aerial photographs - Identification, mapping and interpretation of Natural and Cultural features (at least three exercises);
9. Land use/Land cover studies on aerial photographs;
10. Urban studies on aerial photographs-Change detection, Residential area study

Note: The question paper shall contain six questions in all. Candidate(s) are required to attempt any three questions. All questions carry equal marks.

Recommended Readings:

1. Chauniyal, D.D. (2016), *Principles of Remote Sensing and Geographical Information System* (Hindi version), Sharda Pustak Bhawan, Allahabad.
2. Lillesand, T.M. and Kiefer, R.W. (2002), *Remote Sensing and Image Interpretation*, John Wiley and Sons, New York.
3. Rampal, K.K. (1999), *Handbook of Aerial Photography and Interpretation*, Concept Publishing Co., New Delhi.
4. Sabins, F.F. (1986), *Remote Sensing-Principles and Interpretation*, Second Edition, WH Freeman and Co., New York.
5. Sharma, J.P. (1996), *Prayogic Bhoogol*, Rastogi Publications, Meerut.
6. Wolf, Paul.R.(1983), *Elements of Photogrammetry*, 2nd ed., McGraw-Hill, New York, 1983.

M.A. Geography GEO2 Semester-IV
Session 2017-18 Onwards
17GEO24CL2 - PRACTICAL- SATELLITE IMAGES AND ITS
INTERPRETATION

Credit: 03(0+0+3)
Distribution of Marks
Lab Work Test: 30
Record on Lab Work: 10
Viva-Voce: 10
Total Marks: 50
Time: 4 hrs.

Course Outcomes:

Students would be able to:

- CO1:** Understand the different kinds of satellite image interpretation.
- CO2:** Create information about earth surface features from variety of satellite images.
- CO3:** Know the mapping of information from satellite images.

Exercises will be taken on following topics:

1. Kinds of satellite images
2. Study of a satellite image - annotation (IRS - IB, IRS- IC etc.)
3. Visual interpretation of a satellite image.
4. Separating physical and cultural features on an image.
5. Identification of objects on panchromatic, true colour and FCC images and their comparison.
6. Identification and mapping of landuse/land cover on satellite images.
7. Study of thermal image and interpretation of various features.
8. Study of Radar image and interpretation of various features
9. Acquisition of open source satellite data from USGS / GLOVIS.
10. Acquisition of open source satellite data from BHUVAN (ISRO).

Note:

The question paper shall contain six questions in all. Candidate(s) are required to attempt any three questions. All questions carry equal marks.

Recommended Readings:

1. Avery, T.E., and G.L. Berlin,1992, *Fundamentals of Remote Sensing and Airphoto*
2. *Interpretation*, 5th ed.,Macmillan, New York.
3. Lillesand, T.M. and Kiefer, R.W. ,2002, *Remote Sensing and Image Interpretation*, John
4. Wiley and Sons, New York.
5. Sabins, F. F,Jr., 1997, *Remote Sensing: Principles and Interpretation*,3rd ed., W.H. Freeman, New York.
6. Star,J. L.,J.E.Estes,andK.C.McGwire,1997,*Integration of GIS and Remote Sensing*, Cambridge University Press.

MAHARSHI DAYANAND UNIVERSITY ROHTAK
DEPARTMENT OF COMMERCE
Scheme of Examination under CBCS
w. e. f Session: 2016-17

M.Com First Semester

Sr. No.	Paper Code	Nomenclature of Paper	Theory Marks	Int. Ass.	Total Marks	Time	Credits (C+T+P)
1	16MCO21C1	Accounting Standards and Financial Reporting	80	20	100	3 Hours	4+1+0=5 Credits
2	16MCO21C2	Statistical Analysis for Business	80	20	100	3 Hours	4+1+0=5 Credits
3	16MCO21C3	Managerial Economics	80	20	100	3 Hours	4+1+0=5 Credits
4	16MCO21C4	Computer Application in Business	60	40 (Practical)	100	3 Hours	4+0+1=5 Credits
5	16MCO21D1 16MCO21D2 16MCO21D3	Student must choose one paper from the followings: (i) Entrepreneurship Development or (ii) Business Environment or (iii) Principles of Management	80	20	100	3 Hours	4+0+0=4 Credits

Details of Credits Per Week

M.Com First Semester:

Core Papers: (04 for Teaching +01 for Tutorial) X 4 = 20 Credits

Discipline Specific Elective Paper: (04 for Teaching only) X 1 = 04 Credits

Total = 24 Credits

Size of Groups: For Tutorial = 20 Students (one group)

For Practical = 15 Students (one group)

MAHARSHI DAYANAND UNIVERSITY ROHTAK
DEPARTMENT OF COMMERCE
Scheme of Examination under CBCS
w. e. f Session: 2016-17

M.Com Second Semester

Sr. No.	Paper Code	Nomenclature of Paper	Theory Marks	Int. Ass.	Total Marks	Time	Credits (C+T+P)
1	16MCO 22C1	Management Accounting	80	20	100	3 Hours	4+1+0=5 Credits
2	16MCO 22C2	Investment Management	80	20	100	3 Hours	4+1+0=5 Credits
3	16MCO 22C3	Financial Management	80	20	100	3 Hours	4+1+0=5 Credits
4	16MCO22D1 Or 16MCO22D2 Or 16MCO22D3	Student must choose one paper from the followings: (i) International Economics or (iii) Strategic Financial Management or (iii) Organizational Behaviour	80	20	100	3 Hours	4+0+0=4 Credits
5		Foundation Elective Paper (To be chosen From the list of Foundation Elective Papers provided by the University)				3 Hours	2 Credits
6		Open Elective Paper (To be chosen from the list of Open Elective Papers provided by the university)				3 Hours	3 Credits

Details of Credits Per Week

M.Com Second Semester:

Core Papers: (04 for Teaching +01for Tutorial) X 3 = 15 Credits

Discipline Specific Elective Papers: (04 for Teaching only) X 1 = 04Credits

Foundation Elective Paper: (02 for Teaching only) X 1 = 02Credits

Open Elective Paper: (03 for Teaching only) X 1 = 03 Credits

Total = 24 Credits

MAHARSHI DAYANAND UNIVERSITY ROHTAK
DEPARTMENT OF COMMERCE
Scheme of Examination under CBCS
w. e. f Session: 2017-18

M.Com Third Semester

Sr. No.	Paper Code	Nomenclature of Paper	Theory Marks	Int. Ass.	Total Marks	Time	Credits (C+T+P)
1	17MCO 23C1	Portfolio Management	80	20	100	3 Hours	4+1+0=5 Credits
2	17MCO 23C2	Corporate Tax	80	20	100	3 Hours	4+1+0=5 Credits
3	17MCO23DA1 or 17MCO23DA2 or 17MCO23DA3	Student must choose one paper from the followings : (i) Marketing Concepts & Decisions or (ii) Project Management or (iii) Management of Financial Services	80	20	100	3 Hours	4+0+0=4 Credits
4	17MCO23DB1 Or 17MCO23DB2 Or 17MCO23DB3	Student must choose one paper from the followings : (i) International Finance or (ii) Service Marketing or (iii) Advance Cost Accounting	80	20	100	3 Hours	4+0+0=4 Credits
5		Open Elective Paper (To be chosen from the list of Open Electives Papers provided by the university)				3 Hours	3 Credits

Details of Credits Per Week

M.Com Third Semester:

Core Papers: (04 for Teaching + 01 for Tutorial) X 2 = 10 Credits

Discipline Specific Elective Paper: (04 for Teaching only) X 2 = 08 Credits

Open Elective Paper: (03 for Teaching only) X 1 = 03 Credit

Total = 21Credits

MAHARSHI DAYANAND UNIVERSITY ROHTAK

DEPARTMENT OF COMMERCE
Scheme of Examination under CBCS
w. e. f Session : 2019-20

M.Com Fourth Semester

Sr. No	Paper Code	Nomenclature of Paper	Theory Marks	Int. Ass.	Total Marks	Time	Credits (C+T+P)
1	17MCO 24C1	Cost Accounting Standards & Reporting	80	20	100	3 Hours	4+1+0=5 Credits
2	17MCO 24C2	Corporate Tax Planning and Management	80	20	100	3 Hours	4+1+0=5 Credits
3	17MCO 24C3	Business Research Methods	80	20	100	3 Hours	4+1+0=5 Credits
4	17MCO24DA1 or 17MCO24DA2 or 17MCO24DA3 or 19MCO24DA4	Student must choose one paper from the followings : (i) Human Resource Management or (ii) Working Capital Management or (iii) Strategic Management or (iv) Project Work/Dissertation* (only for Foreign National Students)	80	20	100	3 Hours	4+0+0=4 Credits
5	17MCO24DB1 or 17MCO24DB2 or 17MCO24DB3 or 19MCO24DB4	Student must choose one paper from the followings : (i) International Business Environment or (ii) Production Management or (iii) Advance Accounting or (iv) Project Work/Dissertation* (only for Foreign National Students)	80	20	100	3 Hours	4+0+0=4 Credits
6	17MCO24DC1 or 17MCO24DC2 or 17MCO24DC3 or 19MCO24DC4	Student must choose one paper from the followings : (i) Financial Derivatives & Risk Management or (ii) International Marketing or (iii) Cost Management or (iv) Project Work/Dissertation* (only for Foreign National Students)	80	20	100	3 Hours	4+0+0=4 Credits

***Foreign National Students cannot opt more than one option for Project Work/ Dissertation.**

Details of Credits Per Week**M.Com Fourth Semester:**

Core Papers: (04 for Teaching +01 for Tutorial) X 3 = 15 Credits

Discipline Specific Elective Papers: (04 for Teaching only) X 3 = 12 Credits

Total = 27 Credits

Important Points regarding Papers:

Core Paper means : Compulsory Papers.

Discipline Specific Elective Paper means : Optional Papers within the Department.

Open Elective Paper means : Paper from list of Open Electives Papers provided by the University.

Foundation Elective Paper means : Paper from list of Foundation Electives Papers provided by the University.

Important Points regarding Credits:

Classroom Lecture of one Hour = One Credit Per Week

Tutorial of one Hour = One Credit Per Week

Practical of two Hours = One Credit Per Week

Project /Dissertation Work of one Hour = One Credit Per Week

Important Points regarding Project Work:

Foreign National Students of M.Com- 4th Semester (2 Year Course) opting for Project Work shall be required to prepare a project report on his/her project work during the concerned semester. Topic and supervisor for this project work will be decided by the department. Two copies of the project work (in not less than 10,000 words) will be submitted by students duly signed by the supervisor at least 1 week before the commencement of 4th semester examinations. The project work will be evaluated by the external examiner appointed by Head, Department of Commerce. In case of non-availability of external examiner the head of the department can appoint the examiner from the allied departments of M.D.University, Rohtak. The awards of the project work will be sent by the Head, Department of Commerce to the Controller of the Examinations.

For a Two-Years PG Programme, a student should accumulate the total credit score as under:

Semester	Credits					
	Hard Core	Soft Core	Open Elective	Supportive/ Foundation Elective	Project/ Field work/ Dissertation	Total
1 st	20-28	0-4	0-6	0-2	-	20-36
2 nd	12-24	0-8	0-6	2-4	-	21-36
3 rd	0-16	0-20	0-6	0-2	X (=0 or 2 or 4 or 8 or 20)	21-36
4 th	0-16	0-20	-	-	Y(=0 or 4 or 8 or 20)	20-36
Minimum Credits required	54 or 74-(X+Y) according to whether $X+Y \leq$ or > 20 . (Please see Annexure II)	20-(X+Y) or 0 according to whether $X+Y \leq$ or > 16 . (Please see Annexure II)	6	2	X+Y	82

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17
Accounting Standards and Financial Reporting
Paper Code: 16MCO21C1

Time: 3 hours

Max. Marks: 80
Credits: 4:1:0= 05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Accounting Standards: Meaning, Objectives, Benefits, Scope; Stages and Process of Standards settings in India, Accounting Standards issued by ICAI, Compliance and Applicability of Accounting Standards in India, The Companies (Indian Accounting Standards) Rules, 2015

Unit-II

International Financial Reporting Standards: Meaning, History, Objectives, Scope; Convergence of Indian Accounting Standards with IFRS: Current Status and Challenges; IASB: History, Objectives, Scope; FASB: History and its Pronouncements. Harmonization in Accounting and Reporting.

Unit-III

Financial Disclosures and Reporting: Objectives and Concepts, Developments on Financial Reporting Objectives: True blood Report, Corporate Report, Stamp Report, IASB's and FASB's Conceptual Framework, Corporate Annual Report, Segment Reporting and Interim Financial Reporting.

Unit-IV

Financial Reporting by Mutual funds, Non-banking finance companies, Merchant bankers
Contemporary Issues in Accounting:- Human Resource Accounting, Corporate Social Reporting, Forensic Accounting and Reporting. Environmental Reporting.

Suggested Readings:-

1. Kenneth S. Most, "Accounting Theory", Ohio Grid Inc.
2. JawaharLal, "Corporate Financial Reporting: Theory and Practice" Taxman, 2nd Ed.
3. Vijay Kumar, M.P, "First Lesson on Accounting Standards", Snowwhite.
4. Glautier, H.W.E. And Undordown, B. "Accounting Theory and Practice" (Arnold Heinemann).

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17

Statistical Analysis for Business

Paper Code: 16MCO21C2

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0= 05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

- Unit-1** Correlation and Regression Analysis: Partial and Multiple Correlation and Regression (Up to three variables); Probability Distribution : Binomial distribution , Poisson Distribution and Normal Distribution: Their applications to Business.
- Unit-2** Statistical Inference:- Test of Hypotheses: Sampling tests – Large and small Sample tests – Z-Test, T-Test.
- Unit-3** Analysis of Variance: Introduction, assumptions, Techniques of Analysis of Variance – one way classification and two way classifications. F-Test. Non-Parametric Tests: Sign-Test, Wilcoxon Sign – Rank test, Wald – Wolfowitz test, Kruskal Wallis – H Test and The Mann Whitney – U-Test. Median Test, Run Test
- Unit-4** Association of Attributes: Criterion of Independence, Consistency of data (two and three attributes), χ^2 – Test: Conditions for apply χ^2 – Test, Yate's correction, Uses of χ^2 Test, Additive Property of χ^2 ., Misuse of Chi-Square Test and its limitations.

Suggested Readings:

1. Chou-Ya-Lun: Statistical analysis, Holt, Rinehart and Winston.
2. Hooda, R.P: Statistics for Business and Economics, Macmillan India Ltd. New Delhi.
3. Heinz, Kohler: Statistics for Business & Economics, Harper Collins.
4. Hien, L.W: Quantitative approach to Managerial decisions, Prentice Hall, New Jersey. India, Delhi.
5. Lawrence B.Morse: Statistics for Business & Economics, Harper Collins.
6. Levin, Richard I and David S Rubin: Statistics for Management, Prentice Hall of India, Delhi.
7. Watsnam Terry J. and Keith Parramor: Quantitative Methods in Finance, International Thompson Business Press.
8. Ackoff, R.L. and Sasieni, M.W., Fundamentals of Operations Research, John Wiley and sons Inc., New York 1968.
9. Agee, M.H., Taylor, R.E. and Torgersen, P.E., Quantitative Analysis for Management Decisions, Prentice Hall Inc., Englewood Cliffs, N.J., 1976.

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17

**Managerial Economics
Paper Code: 16MCO21C3**

Time: 3 hours

**Max. Marks: 80
Credits: 4:1:0= 05**

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1 Introduction: Nature, Scope and Significance of Managerial Economics, its Relationship with other Disciplines, Role of Managerial Economics in Decision Making, Fundamental economic concepts: Consumer Behaviour and Demand Analysis: Cardinal and Ordinal Approaches to Consumer Behaviour, Demand Estimation and Forecasting.

Unit-2 Theory of Production and Cost: Managerial uses of Production Function, Short Run and Long Run Production Analysis, Isoquants, Optimal Combination of Inputs, Empirical Estimation of Production Functions; Traditional and Modern Theory of Cost in Short and Long Runs, Economies of Scale and Economies of Scope, Empirical Estimation of Cost Function: Behaviour of Firm under various market situations: Prisoner's Dilemma – Price and Non-price Competition.

Unit-3 Macro economics: Meaning, nature and scope; circular flow of income; multiplier, accelerator and marginal efficiency of capital. Economic growth: measurement and determinants. Inflation: definition, types and strategies to counter inflation

Unit-4 Budgets and budgetary deficits; deficit financing; Public debt operations and its management. Balance of payment management, management of internal and external balance, balance of deficit management; foreign exchange reserves; foreign exchange rate management and its role in managerial decision making; foreign exchange flow. Business cycles and its relevance to managerial economist.

Text Books:

1. Christopher R. Thomas & S. Charles Maurice (2006), Managerial Economics, Tata McGraw Hill, New Delhi.
2. Dean, Joel: Managerial Economics, Prentice Hall, Delhi.
3. Dholkia, R.H. and A.L. Oza: Micro Economics for Management Students, Oxford University Press. New Delhi.

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17
Computer Applications in Business
Paper Code: 16MCO21C4

Time: 3 hours

Max. Marks: 60
Credits: 4:0:1= 05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 6 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 12 marks each.

Unit-I

Introduction to computer: Characteristics of computer systems, Various Functional units of computers, Types of computer systems, Introduction to computer Memories: Primary Storage, Secondary storage, Input/Output Devices, Software types: Systems software, Application software, functions of Operating Systems, Computer Networks: Advantages of Networking, Types of Network: LAN, MAN, WAN, Public and Private Network, Data communication Media.

Unit-II

Internet and E-Commerce: Internet concept and Technologies, Internet applications, Internet Accounts, Extranet and E-Mail, Features of E-Commerce, Elements of E-Commerce, Types of E-Commerce System: B2B,B2C,C2C,C2B,B2Gand G2C, E-commerce technologies, Types of an Electronic Payment System, Security Schemes of an electronic Payment Systems, E-Commerce On-line Services. Electronic data Interchange (EDI): Basics of EDI, Application of EDI, Advantages of EDI.

Unit-III

Word processing: Introduction and working with MS-Word in MS-Office; Word basic commands; Formatting-text and documents; Sorting and tables; Working with graphics; Introduction to mail merge.

Spread Sheets: Working with EXCEL-formatting, functions, chart features; Working with graphics in Excel; using worksheets as database in accounting, marketing, finance and personnel areas.

Presentation with Power-Point: Power-point basics, creating presentations the easy way; Working with graphics in Power-Point; show time, sound effects and animation effects.

Unit-IV

Accounting Package-Tally (ERP 9): Features of Tally, Contents of Accounts Info, Menu, Creating Ledgers, Preparation of Vouchers, Inventory Master: Functions in Inventory Information Menu, Inventory Information Menu, VAT(Value added tax) in Tally, Maintenance of Inventory records, Maintenance of Accounting Books and Final Accounts, Generating and Printing of Accounting Reports.

Introduction to Statistical Packages (SPSS): Features, Formation of table, Types of graph, uses of SPSS.

Practical Max. Marks:40

The following areas are to be covered:-

Internet Technology-Applications

M.S.Word, PowerPoint , M.S Excel, Tally and SPSS basic commands.

References

1. Date, C.J: An Introduction to Database Systems, Addison Wesley, Massachusetts
2. Dienes, Sheila S: Microsoft office, Professional for Windows 95; Instant Reference; BPB publication, Delhi.
3. Mansfield, Ron: The Compact Guide to Microsoft office; BPB publication, Delhi.
4. Norton, peter: Working with IBM-PC,BPB Publications Delhi.
5. O'Brian, J.A: Management Information Systems, Tata McGraw Hill, New Delhi.
- 6.Ullman, J.O. Principles of Database Systems, Galgotia Publications, New Delhi.
7. S.anthony raj, Computer applications in Business Himalaya Pubnlshing House,
- 8, T.D.Malhotra, Computer applications in Business Kalyani Pub lishers

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17

Entrepreneurship Development

Paper Code: 16MCO21D1

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0= 04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Entrepreneurship: Definition, Concept, Growth and role. The Entrepreneur: types, Characteristics, theories of Entrepreneurial class, Urges and importance of Entrepreneurship Stimulants; Seed-Beds of Entrepreneurship, Influencing Factors; Problems (Operational and Non-Operational) and Obstacles. Entrepreneurial Management. Role of socio-economic environment.

Unit-2

Theories of Entrepreneurship, Schumpeter's, Ducker's and Walker's views on Entrepreneur; Evolution of Entrepreneurs in India; Business-skills, Inventory in Entrepreneurs; Information as a strategic catalyst of Entrepreneurial Development; Managers and entrepreneurs; Similarities, Creation of Dream for Entrepreneurs.

Unit-3

Skills for a New Class of Entrepreneurs; The Ideal Entrepreneurs; The Entrepreneurship Audit; Identification of opportunities by an Entrepreneur; The steps to identify the project /ventures; Process of converting business opportunities into reality. Feasibility Report and analysis; Process of setting up a small scale industry / unit.

Entrepreneurial Behavior, Innovations and Entrepreneurs, Behavioral and Psycho Theories, social responsibility and Entrepreneurial Problems. Location Problems before Entrepreneurs.

Unit-4

Promotion of a venture, External Environment Analysis: Economic, Social, Technological and competition; Legal Framework for establishing and fund raising Venture Capital: Sources and Documents required.

Entrepreneurial Development: Meaning, Need, Programmes, Cycle and Objective. Rural Area and ED, Structuring the EDPs; Inputs for and methods of Training, entrepreneurship Development Programmes in India: An Evaluation

SUGGESTED READINGS:

1. Tandon. B.C. Environment and Entrepreneur, Chugh Publication, Allahabad.
2. Siner A David: Entrepreneurial Megahuks: John Wiley and Sons, New York.
3. Srivastava S.B. : A practical Guide to Industrial Entrepreneurial, Sultan Chand and sons, New Delhi.
4. Parsana Chandra: Project preparation n, Appraisal, Implementation; Tata McGraw Hill, New Delhi.
5. Pandey, I.M. Venture Capital – The Indian Experience, Prentice Hall of India.
6. Halt: Entrepreneurship – New Venture Creation; Prentice Hall of India

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17

Business Environment

Paper Code: 16MCO21D2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0= 04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

- Unit-1** Theoretical Framework of Business Environment; Government Business Relationship:- Roles of government in business; Economic Implications of Indian Constitution- Preamble, Directive Principles of State Policy, Fundamental Rights, Centre-state relationship; Foreign Investment Policy; FEMA.
- Unit-2** Dualism in Indian Society and problem of uneven distribution of income; Emerging rural sector in India; Social responsibilities of Business; Consumerism in India; Consumer Protection Act. Economic Systems and Business Environment; Economic Planning in India – Types of Economic Plan; Pre-requisites of successful economic planning; Latest Five Year Plan.
- Unit-3** Economic Reforms in India; Industrial Policy – Policies of Pre and Post liberalization era; Industries (Development and Regulation) Act; Competition Policy and Competition Act; Small Scale Industries – Importance, Problems and Policies; Industrial Sickness – problem, magnitude and remedies.
- Unit-4** Public Sector- Objectives, pattern of growth; Changing role of public sector; Privatization and Disinvestments of public enterprises; Pricing policies in public enterprises. Multinational Corporations and its role; EXIM Policy(Latest): An overview of International Economic Institutions and their working – WTO, IMF, World Bank.

Suggested Readings:-

1. S.K.Bedi – Business Environment
2. Fransis Cherunilam – Business Environment – Himalya Publishing House.
3. P.K.Ghosh – Business & Government – Sultan Chand & Sons.
4. Adhikiary, M: Economic Environment of Business, Sultan Chand & Sons, New Delhi.
5. Ahluwalia. I.J. Industrial Growth in India, Oxford University Press, Delhi.
6. Alagh, Yoginder K: Indian Development Planning and Policy, Vikas Pub, N.Delhi.

M.Com (Two Year Course) 1st Semester w.e.f. 2016-17

Principles of Management

Paper Code: 16MCO21D3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0= 04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1. Schools of Management Thought: Scientific, process, human behavior and social system school; Decisions theory school; Quantitative and system school; Contingency theory of management; Managerial skills. Managerial Functions: Planning –concept, significance, types; Organizing-concept, principles, theories, types of organizations, authority, responsibility, power, delegation, decentralization; Staffing; Directing; coordinating; control- nature, process, and techniques.

Unit-2 Motivation: Process of motivation; Theories of motivation- need hierarchy theory, theory X and theory Y, two factor theory, Alderfer's ERG theory, McClelland's learned need theory, Victor Vroom's expectancy theory, Stacy Adams equity theory.

Unit-3 Leadership: concept; Leadership styles; Theories- trait theory, behavioral theory, Fiedler's contingency theory; Harsey and Blanchard's situational theory; Managerial grid; Likert's four systems of leadership.

Unit-4 Interpersonal and Organisational communication: concept of two-way communication; communication process; Barriers to effective communication types of organisational communication, improving communication, transactional analysis in communication;

Suggested Readings:-

1. Griffin, Ricky W: ;OrganisationalBehaviour, Houghton Mifflin co., Boston.
2. Hellreigel, Don, John W. Slocum, Jr., and Richards W. Woodman: Organizational Behavior, south western college Publishing, Ohio.
3. Hersey, Paul, Kenneth H. Blanchard and Dewey E Johnson: Management of Organisational Behaviour:
4. Utilising Human Resources, Prentice Hall, New Delhi.
5. Ivancevich; John and Micheel T. Matheson: Organisational Behaviour and Management, Tata McGraw-Hill, New Delhi.
6. Luthans, Fred: Organizational Behaviour, McGraw-Hill, New York

M.Com (Two Year Course) 2nd Semester w.e.f. 2016-17
Management Accounting
Paper Code: 16MCO22C1

Time: 3 hours

Max. Marks: 80
Credits: 4:1:0= 05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

- Unit-I** Management Accounting-An Introduction: Nature & Scope, Financial Accounting vs. Cost Accounting vs. Management Accounting; Functions, Techniques, Principles; Scope; Utility; Limitations; Essentials for Success. Management Accountant: Position, Role and Responsibility;
- Unit-II** Budgetary Control: Managerial Control Process; Benefits; Limitations; Installation of the System; Classification of the Budgets; Preparation of different types of Budgets, Performance Budget and Zero-Base Budgeting.
Lease Financing – Lease or buy decision; Evaluation of Lease methods
- Unit-III** Contemporary issues in Management-Accounting: Value Chain analysis; Activity Based Accounting; Quality Costing; Target and LifeCycle Costing.
- Unit-IV** Decisions Involving Alternate Choices: Cost Concepts Associated with Decision-making; Evaluation Process; Specific Management Decisions – Make or buy; Expand or buy; Expand or Contract; Change vs. Status Quo; Retain or Replace; Exploring New Markets; Optimum Product Mix; Adding and Dropping a Product.
- Responsibility Accounting – Principles; Definition; Types of Responsibility Centers; Pre-requisites; Utility; Problems.
Reporting to Management- Steps for Effective Reporting; Requisites of Ideal Report; Types of Reports; Uses

Suggested Readings:-

- 1.J.K.Aggarwal, R.K.Aggarwal, M.L.Sharma – Accounting for Managerial Decisions – Ramesh Book Depot., Jaipur.
- 2.R.Kishore – Advance Management Accounting – Taxam allied Services Pvt. Ltd.
- 3.M.Y.Khan, P.K.Jain – Management Accounting – Tata Mcgraw Hill.
- 4.Horngren, Sundem, Stratton – Introduction to Management Accounting - Pearson Education
- 5.S.N.Mittal – Accounting & Financial Management – Shree Mahavir Book Depot, NaiSarak, New Delhi.
6. Anthony, Robat N., Hawkins and Merchant Management Accounting

**Investment Management
Paper Code: 16MCO22C2**

Time: 3 hours

**Max. Marks: 80
Credits: 4:1:0= 05**

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Investments: Nature, Scope, Avenues, Elements, Process of Investment; Tax and Transactions Cost in Investment; Risk-Return Analysis- Meaning, Types and Measurement; Time Value of Money; Sources of Financial Information.

Unit-II

Capital Markets: Secondary and Primary, Public Issue: IPO and other types of issues in Securities in India; Stock-Market: - Stock-Exchanges, Listing of Securities, Trading and Settlement; SEBI- Objectives, Function and Evaluation of its role; Intermediaries in the capital markets (including Depositories).

Unit-III

Security Valuation: Bonds/Debentures, Preference Shares, Equity Shares, Options and Futures (With numerical); Security Analysis- Fundamental Analysis (Macroeconomic, Industry and Company analysis), Estimation of Intrinsic Value.

Unit-IV

Technical Analysis: Charting techniques, Dow-theory, Moving Average Analysis, Oscillators Moving Average Convergence-Divergence, Relative Strength Index and Rate of Change, Technical Indicators of Breadth, Sentiments), Testing Technical Trading Rules, Evaluation of Technical Analysis, Efficient Market Theory: Random Walk Theory, Forms and Empirical Evidences of Various Forms of EMH.

Suggested Readings:-

1. Fischer & Jordan, Security Analysis and Portfolio Management, Prentice Hall India.
2. Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd.
3. V. A. Avadhani, Investment and Securities Market in India, Himalaya Publishing House.
4. French, Don, Security and Portfolio Analysis, Merrill Publishing Co.
5. Preeti Singh, Investment Management, Himalaya Publishing.
6. Devin S., Portfolio Management, Prentice Hall.
7. Cheney, Muses, Fundamentals of Investments
8. V. K. Bhalla, Portfolio Analysis and Management, Sultan Chand & Sons
9. Chandra, P. Investment Analysis and Portfolio Management. McGraw Hill Education (India) Pvt. Ltd., New Delhi

M.Com (Two Year Course) 2nd Semester w.e.f. 2016-17

Financial Management

Paper Code: 16MCO22C3

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0= 05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Financial Management: Introduction, Meanings and Definitions, Goals of Financial Management, Finance Functions, Interface between Finance and Other Business Functions,

Financial Planning: Introduction, Objectives, Benefits, Guidelines, Steps in Financial Planning, Factors Affecting Financial Planning, Estimation of Financial Requirements of a Firm, Capitalization.

Time Value of Money: Introduction, Rationale, Future Value, Present Value, Construction of Present Value Tables and Annuity Tables.

Cost of Capital: Introduction, Meaning of Cost of Capital, Cost of Different Sources of Finance, Weighted Average Cost of Capital.

Unit – II

Leverage: Introduction, Operating Leverage, Application of operating leverage, Financial Leverage, Combined Leverage.

Capital Structure: Introduction, Features of an Ideal Capital Structure, Factors Affecting Capital Structure, Theories of Capital Structure.

Dividend Decisions: Introduction, Traditional Approach, Dividend Relevance Model, Miller and Modigliani Model, Stability of Dividends, Forms of Dividends.

Unit – III

Capital Budgeting: Introduction, Importance of Capital Budgeting, Complexities Involved in Capital Budgeting Decisions, Phases of Capital Expenditure Decisions, Identification of Investment Opportunities, Rationale of Capital Budgeting Proposals, Capital Budgeting Process, Investment Evaluation, Appraisal Criteria.

Risk Analysis in Capital Budgeting : Introduction, Types and Sources of Risk in Capital Budgeting, Risk Adjusted Discount Rate, Certainty Equivalent Approach, Probability Distribution Approach, Sensitivity Analysis, Simulation Analysis, Decision Tree Approach.

Capital Rationing: Introduction, Types, Steps Involved in Capital Rationing, Various Approaches to Capital Rationing.

Unit – IV

Corporate Restructuring: Mergers and Acquisitions, Take Overs, Amalgamation, Leverage Buy-outs, Management Buy Out

Financial Restructuring: Share Split, Consolidation, Cancellation of Paid Up Capital,

Corporate Failures and Liquidations

Suggested Readings:

1. Apte, P.G. *Global Business Finance* (ed.2002) T.M.H.New Delhi.
2. Buckley, Adrian, *Multinational Finance*, Prentice Hall, New Delhi.
3. Henning, C.N. ,W.Piggot and W.H.Scott. *Financial Management*, McGrawHill (Intl. Edition).
4. Shapppro , Alan C. *Financial Management*, Prentice Hall of India, New.Delhi.
5. Sharan,V. *Financial Management*, Prentice Hall of India, New Delhi.
6. Bhalla, V.K. *Financial Management, Text & Cases*, AnmolPublications,New Delhi.

M.Com (Two Year Course) 2nd Semester w.e.f. 2016-17

**International Economics
Paper Code: 16MCO22D1**

Time: 3 hours

**Max. Marks: 80
Credits: 4:0:0= 04**

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit 1

An introduction to International economics, International trade and Protection; Essential : Ricardo and comparative advantage, factor price equalization and trade, standard trade models and country welfare, Market imperfection and trade.

Unit 2

International factor movements; international labour mobility, international capital flows,; multinational firms and FDI; Tariffs and non-tariffs barriers to trade, strategic trade policies, Political economy of trade, WTO, Preferential Trading Arrangements, Custom unions and economic integration.

Unit 3

International macroeconomics-an introduction, National income accounting and Balance of payments, Asset approach to exchange rate determination, Price Levels and the Exchange Rate in the Long Run, Output and the Exchange Rate in the Short Run.

Unit 4

Fixed exchange rate regime, The international monetary system, International capital markets and emerging markets

Suggested Readings:-

1. Krugman, Paul, and Obstfeld, Maurice. 2008. International Economics: Theory and Policy. Addison Welsey
2. Chang, Ha-Joon. 2002. Kicking Away the Ladder: Development Strategy in Historical
3. Perspective. London: Anthem Press
4. Stiglitz, Joseph. 2002 (or 2003). Globalization and Its Discontents. New York: W.W. Norton & Company
5. Shaikh, Anwar. 2003. "Globalization and the Myth of Free Trade," to be found at <http://homepage.newschool.edu/~AShaikh/> .

M.Com (Two Year Course) 2nd Semester w.e.f. 2016-17
Strategic Financial Management
Paper Code: 16MCO22D2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0=04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

UNIT-I

Financial Policy and Strategic Planning: Changing face of Financial Management, components of financial strategy, Objectives and goals, strategic planning process. Investment Decisions Under Risk and Uncertainty: Techniques of investment decision-risk adjusted discount rate, certainty equivalent factor, statistical method, sensitivity analysis, corporate strategy and high technology investments. Project Evaluation and Corporate Goal.

UNIT-II

Expansion and Financial Restructuring: Mergers and Amalgamations- Corporate restructuring, types of corporate restructurings- Expansion strategy, Divestment Strategy, reason for merger, benefits and cost of merger. Determination of swap ratios, Evaluation of merger proposal.

UNIT-III

Leasing: Meaning, importance, types, tax, Evaluation of lease from the point of view of lesser and lessee, Lease versus buy decision. Venture Capital: Concept and developments in India, process and methods of financing, fiscal incentives.

UNIT-IV

Financing Strategy: Hybrid securities namely convertible and non-convertible securities, deep discount bonds, secured premium notes, convertible, preference shares; option financing warrants, convertibles and exchangeable. Corporate Strategy Financial Policy and shareholder value creation: Linkage between corporate strategy and financial strategy, Implication of capital budgeting, capital structure and dividend policy on corporate strategy, shareholder value creation.

Suggested Readings:-

1. Allen D. An Introduction to Strategic Financial Management, CIMA/Kogan page, London
2. Chandra, Parasanna, Financial Management, Tata Mc.GrawHill, Delhi.
3. Copeland. T.T Koller and J.Murrin. Valuation Measuring and Managing the value of Companies John Wiley, International Edition, NY.
4. Copeland T.E and J.D Weston: Financial Theory and Corporate Policy, Addison-Wesley, NY.
5. Hamton Jones: Financial Decision Making PHI, New Delhi.
6. Hull J.C. Options: Futures and other Derivative securities, Prentice Hall of India, Delhi.
7. Matto, P.K. : Corporation Restructuring: An Indian Perspective Macmillan, New Delhi.
8. Pandey I.M: Financial Management, Vikas Publications, Delhi.
9. Stewart G.B : The Quest for Value. Harper Collins, London.
10. Sudarshan, P.S: The Essence of Mergers and Acquisitions Prentice Hall of India, Hall.
11. Van Home J., C: Financial Management and Policy, Prentice Hall of India New Delhi..
12. Verma. J.C : Corporate Managers, Amalgamations and Takeovers Bharat Publishing House, New Delhi.
13. Weston J.F.K.S Chung and S.E Hoag: Mergers, Restructuring and Corporate Control, Prentice Hall, Delhi.

M.Com (Two Year Course) 2nd Semester w.e.f. 2016-17

Organisational Behaviour

Paper Code: 16MCO22D3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0=04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

- Unit-1** Organisational Behavior: concept and significance; Relationship to other fields ;OB Model, ethics and ethical behaviour in organizations. Learning: meaning and definition, process, theories of learning, OB in learning organization.
- Unit-2** Attitude: meaning and definition, components, functions, formation, changing of attitude, prejudice and attitude. Personality: meaning and definition, the big five personality model, the Myers-Briggs Type Indicator, additional work related aspects of personality.
- Unit-3** Perception: meaning and definition, process, factors influencing perception, perceptual errors or distortions.
Group Dynamics and Team Development: Group dynamics- definition and importance, types of groups, group formation, group development, group performance factors, group norms, group status, group size, cohesiveness, social loafing. Team: types, team composition factors, team development.
- Unit-4.** Organisational Conflict: Dynamics and management; sources, patterns, levels, and types of conflict; Traditional and modern approaches to conflict; Functional and dysfunctional organisational conflicts; Resolution of conflict.
Organisational development: Concept; Need for change, resistance to change; Theories of planned change; organisational diagnosis; OD intervention.

References

1. Griffin, Ricky W: ;Organisational Behaviour, Houghton Mifflin co., Boston.
2. Hellreigel, Don, John W. Slocum, Jr., and Richards W. Woodman:
3. Organizational Behavior, south western college Publishing, Ohio.
4. Hersey, Paul, Kenneth H. Blanchard and Dewey E Johnson: Management of Organisational Behaviour:
5. Utilising Human Resources, Prentice Hall, New Delhi.
6. Ivancevich; John and Micheol T. Matheson: Organisational Behaviour and Management, Tata McGraw-Hill, New Delhi.
7. Luthans, Fred: Organizational Behaviour, McGraw-Hill, New York
8. Newstrom, John W. and Keith Davis: Organizational Behavior: Human Behavior at Work, Tata McGraw-Hill, New Delhi.
9. Robbins, Stephen P, and Mary Coulter: management, Prentice hall, New Delhi.
- 10 Robbins, Stephen P: Organizational Behavior, Prentice hall., New Delhi.
11. Steers Richard m. and J. Stewart black: organizatiojnal Behavior, Hrper Collins college Publishers, New York.
- 12 Sukla, Madhukar: Understanding Organisations: Organisation Theory and Practice in India, Prentice Hall, New Delhi.

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

**Portfolio Management
Paper Code: 17MCO23C1**

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0=05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Portfolio: Meaning and Benefits, Rationale of Diversification in Investments, Portfolio Risk and Return: Meaning and Measurement; Strategic Asset Allocation; Portfolio Selection: Markowitz's model (Efficient Market Frontier); Risk less lending and Borrowings.

Unit-II

Sharpe's Single Index Model: Empirical Analysis and Sharpe's Optimal Portfolio; Capital Asset Pricing Model (including SML and CML): Assumptions, Empirical evidence on CAPM (with numerical) and Limitations.

Unit-III

Factor Models; Arbitrage Pricing Theory; Performance Evaluation: Treynor Ratio, Sharpe Ratio, Jensen Ratio, M2 Measure, Style Analysis, Risk Adjusted Measures of Return; Techniques of Portfolio Revision

Unit-IV

Behavioural Finance: Heuristic-Driven Biases, Frame Dependence, Emotional and Social Influences and Market inefficiency; Strategies of the Great Masters: Benjamin Graham, Warren Buffett, John Templeton, Peter Lynch, George Soros, David Dreman, Charles Ellis and Indian Money Monarchs; Basic guidelines for Investment Decisions.

Suggested Readings:-

1. Fischer & Jordan, Security Analysis and Portfolio Management, Prentice Hall India.
2. Punithavathy Pandian, Security Analysis and Portfolio Management, Vikas Publishing House Pvt. Ltd.
3. V. A. Avadhani, Investment and Securities Market in India, Himalaya Publishing House.
4. French, Don, Security and Portfolio Analysis, Merrill Publishing Co.
5. Preeti Singh, Investment Management, Himalaya Publishing.
6. Devin S., Portfolio Management, Prentice Hall.
7. Cheney, Muses, Fundamentals of Investments
8. V. K. Bhalla, Portfolio Analysis and Management, Sultan Chand & Sons
9. Chandra, P. Investment Analysis and Portfolio Management. McGraw Hill Education (India) Pvt. Ltd., New Delhi

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

**Corporate Tax
Paper Code: 17MCO23C2**

Time: 3 hours

**Max. Marks: 80
Credits: 4:1:0=05**

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Meaning of company; Types of companies; Residential status and incidence of tax on companies. Computation of Income of company under various heads; general provisions applicable to companies for computation of gross total income.

Unit-II

Deductions from gross total income as applicable to companies, computation of tax for various types of companies, Provisions of MAT; Assessment of Insurance Companies.

Unit-III

Assessment of Charitable / Educational Institutions/ Religious Trust and Political Parties; Assessment of Non- Residents and advance ruling for non-residents.

Unit-IV

Assessment of cooperative societies, Assessment of discontinued business, Double taxation relief.

Suggested Readings:

1. Direct Tax Law & Practice: Dr V.K.Singhanian and Dr.KapilSinghanian, Taxmann Publications.
2. Income Tax Law & Practice: Dr.H.C.Mehrotra&Dr.S.P.Goyal, SahityaBhawan Agra.
3. Direct Tax Law & Practice: B.B.Lal, Konark Publication, Delhi.
4. Service Tax and VAT: V.S.Datey, Taxmann Publication

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

Marketing Concepts and Decisions

Paper Code: 17MCO23DA1

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0=04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1 Introduction: Concept, nature, scope and importance of marketing. Understanding concepts of Relationship Marketing, Integrated Marketing, Internal and Marketing Performance Marketing. Marketing the Customer Value: The Value Delivery, Value Chain, Core Competencies. Strategic Marketing Planning: Corporate and Division Strategic Planning, Business Unit Strategic Planning.

Unit-2 Market Analysis and Selection: Marketing environment-Macro and Micro Components and their impact on marketing decisions; Market segmentation and Targeting; Buyer behaviour; Consumer decision making process. Creating Customer Value, Satisfaction and Loyalty.

Unit-3 Product Decisions: Concept of a product; Classification of products; Major product decisions; Product line and product mix; Branding; Packaging and labeling; Product life-cycle: strategic implications; New product development and consumer adoption process.
Pricing Decisions: Factors affecting price determination; Pricing policies and strategies

Unit-4 Promotion Decisions; Communication process; Promotion mix, advertising, personal selling, sales promotion, publicity and public relations; Determining advertising budget; Copy designing and its testing; Media selection; Advertising effectiveness; Sales promotion – tools and techniques.
Distribution Channels and Physical Distribution Decisions: Nature, functions and types of distribution channels; distribution channel intermediaries; Channel management decisions; Retailing and wholesaling. Decision – areas in the Management of Physical Distribution.

SUGGESTED READINGS:

1. Kotler, Keller, Koshy and Jha, Marketing Management-A South Asian Perspective, Pearson
2. Paul Baines; Chris Fill; Kelly Page and Piyush K Sinha. Marketing (Asian Edition). Oxford
3. V.S. Ramaswamy and S Namakumari. Marketing Management. Macmillan

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

Project Management

Paper Code: 17MCO23DA2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0=04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Basics of Project Management: Introduction, Need for Project Management, Project Management Knowledge Areas, The Project Life Cycle, The Project Manager (PM), Phases of Project Management Life Cycle, Project Management Processes, Impact of Delays in Project Completions, Essentials of Project Management Philosophy, Project Management Principles

Project Planning: Introduction, Project Planning, Need of Project Planning, Project Life Cycle, Roles, Responsibility and Team Work, Project Planning Process, Work Breakdown Structure (WBS)

Unit-II

Project Identification and Selection: Introduction, Project Identification Process, Project Initiation, Pre-Feasibility Study, Feasibility Studies, Project Break - Even -Point

Unit-III

Organisational Structure and Organisational Issues: Introduction, Concept of Organisational Structure, Roles and Responsibilities of Project Leader, Relationship between Project Manager and Line Manager, Leadership Styles for Project Managers, Conflict Resolution, Team Management and Diversity Management, Change management

Resources Considerations in Projects: Introduction, Resource Allocation, Scheduling, Project Cost Estimate and Budgets, Cost Forecasts

Unit-IV

Project Performance Measurement and Evaluation: Introduction, Performance Measurement, Productivity, Project Performance Evaluation, Benefits and Challenges of Performance Measurement and Evaluation, Controlling the Projects

Project Execution and Control: Introduction, Project Execution, Project Control Process, Purpose of Project Execution and Control

Project Close-out, Termination and Follow-up: Introduction, Project Close-out, Steps for Closing the Project, Project Termination, Project Follow-up

Suggested Readings:

1. Brycd, M.C: *Industrial Development*, McGrawe Hill(Int.Ed.), New Yorik..
2. Chandra, Prasanna; *project Preparation, Appraisal and Implementation*, Tata McGraw Hill, Delhi.
3. Pitale, R.L: *Prouectap[praisal Techniques*, Oxford and IBH.
4. *Planning Commission: Manual for Preparation of Feasibility Report*.
5. Timothy, D.R. and W.R. Sewell: *Project Appraisal and Review*, Macmillan, India

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

Management of Financial Services

Paper Code: 17MCO23DA3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Evolution of Financial Services: Indian Financial System. Formal Financial system and Informal Financial System; Financial Institutions –Banking Companies and Non-Banking Companies.

Securitisation: Concept, Players and Process of Securitisation. Securitisation structure, Securitisation Instruments, Developments in Securitisation.

Unit – II

Credit Rating: Concept of Credit Rating, Meaning, Definition, Scope, Need and Importance of Credit Rating, Types of Credit Rating, Kinds of Instruments rated, credit rating symbols, Credit Rating Agencies in India – CRISIL, CARE, ICRA and Fitch India, Process of Credit Rating and Methodology adopted by Indian Credit Rating Agencies, Services rendered by Credit Rating Agencies.

Unit-III

Depository: An overview of the Depository System, Meaning, scope, importance, features. Eligibility criteria for a depository, Right and obligations of Depositors, Records Maintained by the Depositories, Services and functions of Depository. NSDL-System, Procedure and Practices, Core Services and Special Services

Unit – IV

Other Financial Services: Leasing, Merchant Banking, Hire Purchase and Installment System, Consumer Finance, Credit Cards, Mutual Funds, Commercial Papers, Forfeiting, Counter Trade, Financial Journalism.

Suggested Readings:

1. Bhalla V.K. "Management of Financial Services": Anmol Publication - 4th edition, New Delhi.
2. Dharmaraj E "Financial Services ". S. Chand New Delhi.
3. Natrajan Gordon "Financial Markets & Services", 3rd Ed Himalaya Publishing House, New Delhi.

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18
International Finance
Paper Code: 17MCO23DB1

Time: 3 hours

Max. Marks: 80
Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

- | | |
|---------------|---|
| Unit-1 | International Finance: - Meaning, Nature and Importance. Bretton Woods Conference and afterwards, I.M.F. and World Bank, Methods of International Investments. Balance of Payments and its Components. Current Trends in International Trade and Finance. International Flow of : Goods, Service and Capital Coping with Current Account Deficit. |
| Unit-2 | International Monetary system: Developments, Gold Standard, Bretton Wood System, Fixed Parity System. Smithsonian Arrangement, Exchange Rate Regime since 1973, Floating system. Managing the Multinational Financial System: Inter company fund-flow mechanisms, designing a global remittance policy, transfer-pricing and tax evasion. |
| Unit-3 | International liquidity, Creation of SDRs, IMFs, funding facilities, the European Monetary system , Monetary and Banking Institutions in International Markets.
International Capital and Money Market Instruments: GDRs ADRs, IDRs, Euro Bonds, Euro Loans, Repos, CPs, floating rate instruments, loan-syndication and Euro – deposits. |
| Unit-4 | Parity Conditions in International Finance and Currency Forecasting: Arbitrage and Law of One Price, PPP – Theory. The Fisher- Effect, the International Fisher Effect, Inflation-risk and its impact on Financial markets, Currency forecasting; |

SUGGESTED READINGS:

1. Apte, P.G. Global Business Finance (ed.2002) T.M.H.New Delhi.
 7. Buckley, Adrian, Multinational Finance, Prentice Hall, New Delhi.
 8. Henning, C.N. , W.Piggot and W.H.Scott. International Financial Management, McGraw Hill (Intl. Edition).
 9. Shapppro , Alan C. Multinational, Financial Management, Prentice Hall of India, New.Delhi.
 10. Sharan,V. International Financial Management, Prentice Hall of India, New Delhi.
 11. Bhalla, V.K. International Financial Management, Text & Cases, AnmolPublications,New Delhi.
- The Economic Time

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18

Service Marketing

Paper Code: 17MCO23DB2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1

Introduction of Service: Meaning and Characteristics of Services; The '7 Ps of Services; Expectations and perceptions of a service; Core and augmented service; Technology in services; Future of services

Organization for service: Defining organization realities, Structure and Culture of organizations; Organizational Climate; Defensive behavior; Empowerment; Criticism of the new service management school of thought; The virtual organization

Unit-2

Service Design: The concept of design; Classification of service: a design issue; Objects of the service processes, Customer contact; service blueprint

Service Quality: Definitions of quality; Standards; The Gaps Model of Service Quality; The SERVQUAL Scale; Tools of Quality; Cost of quality; Implications for service quality.

Unit-3

The Service Encounter: The essence of an encounter; Service encounter as theatre; Scripts; Emotional labour; The critical incident technique; Dysfunctional customers, deviant employees- an everyday occurrence in the service encounter?

Demand and Capacity Management: The basic problem: perishability; Service capacity; Service demand; Managing demand and capacity; Yield management; Waiting and queuing; Queuing: A behavioural perspective

Unit-4

Service Communications: Integrated marketing communications; The role for communications; Key communication variables; Corporate identity; Branding services; Advertising the service.

Monitoring and Evaluating the Service: Customer satisfaction evaluation; Customer complaints; Service recovery; Effective complaint-handling procedures; Guarantees; Customer defections

Suggested Readings:

1. Peter Mudie and Angela Pirrie: Services Marketing Management, Elsevier Ltd.
2. Audrey Gilmore. Services Marketing and Management. SAGE
3. K. Douglas Hoffman and John E.G. Bateson. Services Marketing – Concepts, Strategies and Cases. Cengage
4. Steve Baron and Kim Harris. Services Marketing – Text and Cases. Macmillan
5. R.Srinivasan. Services Marketing : The Indian Context. PHI
6. Ravi Shanker. Services Marketing. Excel
7. Rama MoahanaRao. Services Marketing. Pearson
8. Lovelock. Services Marketing. Pearson
9. Harsh V. Verma. Services Marketing. Pearson

M.Com (Two Year Course) 3rd Semester w.e.f. 2017-18
Advanced Cost Accounting
Paper Code: 17MCO23DB3

Time: 3 hours

Max. Marks: 80
Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1

Inventory system: turnover of material: ABC analysis; VED analysis; JIT, aims and objectives of JIT, Methodology in implementation of JIT, Impact of JIT on Production Price. JIT's effect on costing system. Material Requirement Planning (MRP-I), aims, methodology, methods of Operations, Requirement for Implementation of MRPI, MRPI and Inventory Management. Zero Inventory system.

Unit-2

Manufacturing resource planning (MRP II), Evolution, essential elements. Enterprise resource planning (ERP), Lean Accounting, Back flush Costing, Conditions for adopting Back flush Costing, different types of back flush Costing, Accounting for Variances, disposition of variances, difficulties in backflush costing, backflush costing in JIT system.

Unit-3

Process Costing; Work in Progress, Inter process Profits, by Products and Joint Products. Uniform costing, Concept, Scope of Uniform costing, Need for Uniform Costing, Inter firm comparison, Need for Inter Firm Comparison. Requirements of an Inter firm Comparison scheme, Types of Comparison.

Unit-4

Cost records, Integral system, preparation of accounts under integral system. Non-integral system, preparation of accounts under non-integral system. Benefits and limitations of integral and non-integral systems.

SUGGESTED READINGS:-

1. Saxena and Vashishtha: Advanced Cost Accounting; Sultan Chand and Sons, Delhi.
2. Horngren Charles. T: Cost Accounting – A Managerial Emphasis. Pearson Publications, Delhi.
3. Ravi M. Kishore : Cost Management – Taxman Publications, Delhi.
4. Jain, S.P, K.L.Narang : Advanced Cost Accounting. Kalyani Publications, Delhi.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18
COST ACCOUNTING STANDARDS AND REPORTING
Paper Code: 17MCO24C1

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0 =05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Institute of Cost Accountants of India: Introduction, objectives. Cost accounting standard board: Introduction, objectives and functions. Generally accepted cost accounting principles: introduction, conceptual framework, objectives, scope, nature of content and format, Cost Accounting Standards(CAS): need and statutory recognition of CAS. Overall recommendations of B. B. Goyal expert committee.

Unit-II

Outlines of CAS: Classification of cost (CAS-1), Overheads (CAS- 3), Material cost (CAS-6), Employee cost (CAS-7), Direct expenses (CAS -10), Administrative overheads (CAS-11), Repairs and maintenance cost (CAS-12), cost of service cost center (CAS – 13) , Selling and distribution overheads (CAS-15) , Depreciation and amortization (CAS – 16) , Research and development costs (CAS-18) , joint costs (CAS-19) .

Introduction, objectives, scope, definition and explanation of terms used, principles of measurement, assignment of cost, presentation and disclosure of CAS: capacity determination (CAS-2), cost of production for captive consumption (CAS-4), Determination of average (equalized) cost of transportation (CAS-5), cost of utilities (CAS-8).

Unit-III

Introduction, objectives, scope, definition and explanation of terms used, principles of measurement, assignment of cost, presentation and disclosure of CAS: packing material cost (CAS-9), pollution control cost(CAS -14) , Interest and financing charges (CAS-17) , Royalty and technical know – how fee (CAS-20) , Quality control (CAS-21), Manufacturing cost (CAS-22). Latest amendments and development in CAS.

Cost auditor –appointment, eligibility, remuneration, rights and responsibilities, functions, appointing authorities.

Unit-IV

Cost Audit: nature, scope, advantages of cost audit, genesis of cost audit in India, types of cost audit, relevance of cost audit, usefulness of cost audit, difference between cost audit and cost investigation.

Cost audit standards : CAS 101 – planning on audit of cost statement, CAS -102 – cost audit documentation , CAS 103 – overall objectives of independent cost auditor , CAS -104 knowledge of business, its process and the business environment.

Cost accounting records, general features of cost accounting records, companies (cost records and audit) rules 2014.

SUGGESTED READINGS: -

- 1 Cost and Management Audit, ICAI, New Delhi.
- 2 Cost and Management Accounting, ICAI, New Delhi.
- 3 Cost Management, SP Jain and Narang, Kalayani Publications, New Delhi.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18
Corporate Tax Planning and Management
Paper Code: 17MCO24C2

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0 =05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Corporation Tax: Meaning of tax, Tax evasion, Tax avoidance, Tax planning, Tax management, Need for tax planning, Precautions in tax planning, Limitations of tax planning. Tax planning for new business: Tax planning with reference to location, nature and different forms of organization of new business.

Unit-II

Tax provisions relating to free trade zones, infrastructure sector, backward areas. Tax issues relating to amalgamations: Meaning and types of amalgamation, Tax incentives of amalgamation to amalgamating company, amalgamated company and shareholders of amalgamating company. Tax planning with reference to amalgamation of companies.

Unit-III

Tax Planning and Financial Management Decisions: Tax Planning relating to capital structure decisions, Dividend policy, Inter corporate Dividends, Bonus share and Bonus debentures, Tax planning in respect of own or lease. Tax planning regarding Managerial Remuneration.

Unit-IV

Tax planning and Financial Management Decisions: Tax planning in respect of sale of assets used for scientific research, Make or buy decisions, Repair replace, Renewal or renovation of an asset, Shut down or continue decisions. Tax planning in respect of selling in domestic or foreign market. Tax planning in respect of Tax Incentives to Exporters.

Suggested Readings:

1. *Corporate Tax Planning & Management* by H.C. Mehrotra & S P Goel, Sahitya Bhawan, Agra
2. *Simplified Approach to Corporate Tax Planning & Management*: Dr. Girish Ahuja & Dr. Ravi Gupta, Bharat Law House, New Delhi
3. *Corporate Tax Planning & Management* by V K Singhania & Monica Singhania, Taxmann Publications, New Delhi.
4. *Corporate Tax Planning & Management* by Rajvee Puri & Puja Gaur, Nirupam Sahitya Sadan, Agra.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Business Research Methods

Paper Code: 17MCO24C3

Time: 3 hours

Max. Marks: 80

Credits: 4:1:0 =05

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1 Introduction to Business Research: Defining Research; Types of Research-Basic and Applied Research; Process of Research; Features of a Good Research Study; Research Applications in Business Decisions.

Formulation of the Research Problem and Development of the Research Hypotheses: Problem Identification and definition; Process of Problem Identification; Developing a research proposal; Formulation of the Research Hypotheses

Unit-2 Research Design: The Nature of Research Designs; Process of Formulation of Research Design; Classification of Research Designs: Exploratory, Two-tiered, Experimental and Descriptive

Research Design for Hypothesis Testing or Experimental Research Studies: Concept and Classification of Experimental Designs; Validity in Experimentation; Factors affecting Internal Validity of Experiment; Factors affecting External Validity of Experiment; Methods to Control Extraneous Variables and Environments of Conducting Experiments.

Unit-3 Data Collection Methods: Classification of Data; Research Applications of Secondary and Primary Data; Secondary data sources and usage; Online data sources; Qualitative Method of Data Collection: observation method, Content Analysis, Focus Group Method, Personal Interview Method and Projective Techniques; Primary data collection methods-questioning techniques, online surveys; Questionnaire Design Procedure.

Sampling Plan: Universe, Sample vs Census; Sample Frame and Sampling Unit; Sampling Design; Sampling Techniques; Sample size Determination; Sampling and Non-Sampling Errors.

Unit-4 Report Writing : Meaning, Functions and Types of Research Report, Steps of Planning Report Writing, Research Report Structure, Principles of Writing, Guidelines for Effective Documentation, Writing and Typing the Report, Research Briefings: Oral Presentation. Presentation of Results: Descriptive Presentation, Graphic Presentation, Diagrams, Pictures and Maps, Tabular Presentation, Difficulties in Presentation.

SUGGESTED READINGS: -

1. Dr Deepak Chawla and Dr NeenaSondhi. Research Methodology-Concepts and Cases. Vikas
2. Hooda, R.P. Statistics for Business and Economics, Macmillan India, New Delhi.
3. S.N.Murthy and U Bhojanna. Business Research Methods. Excel
4. K.V. Rao. Research Methodology in Commerce and Management. Sterling
5. Donald R Cooper and Pamela S Schindler. Business Research Methods. McGraw Hill
6. Panneerselvam, R. Research Methodology. PHI
7. K.N. Krishnaswamy, AppalyerSivakumar and M. Mathirajan. Management Research Methodology. Pearson.
8. Dr V.P. Michael. Research Methodology in Management. Himalaya

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Human Resource Management

Paper Code: 17MCO24DA1

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Human Resource Management- An Introduction, Nature, Features, Scope, Objectives and importance of Human Resource Management; Functions of Human Resource Management- Managerial and Operative functions; Qualification and Qualities of Human Resource Manager in an Organisation; Evolution and growth of Human Resource Management in India, Recent Techniques in Human Resource Management (HRM).

Unit-II

Workers Participation in management (W.P.M): Concept, Need, Objectives and Forms of W.P.M ; Pre-requisites of effective participation, Evaluation of the scheme of W.P.M., Essential features, Functions and progress of Joint Management Councils in India, Causes of failure of Joint Management Councils.

Unit-III

Trade Unions: Concept, Need, Functions and Objectives of Trade Unions, Origin, Growth and development of Trade Unions in India, Difficulties and Principal drawbacks of Trade Unions movement in India. Collective Bargaining: Concept, nature, Scope and functions of Collective Bargaining in India, Essentials for the success of collective Bargaining in India.

Unit-IV

Employee Morale: Concept, Nature and significance of morale, Determinants of morale and measurement of morale.

Productivity: Concept and significance of productivity, Measurement of Productivity, Factors influencing Industrial productivity, measures to improve productivity and relationship between morale and productivity.

Suggested Readings:-

1. Rao.P.Subba, Essentials of Human Resource Management, Himalaya Publishing House, Bombay.
2. Robins A. David, Human Resource Management, Prentice Hall of India, New Delhi.
3. Flippo, Edwin B, Principles of Personnel Management; McGraw Hill Book Co. New York. Ganguli, H.C. Industrial Productivity and Motivation, Asia Publishing House, Bombay.
4. Yoler, Dale, Personnel Management and Industrial Relations, Prentice Hall of India, New Delhi.
5. Bowley, AM Handbook of Salary and Wage System, Grover press, Essex.
6. Tracy, W.R. Designing, Training and Development Systems, American Management Association, New York.
7. Yoder, D. Maheman, H.G. Turnbule J.G. and Stone, C. Handbook of Personnel Management and Industrial Relations McGraw Hill Book Co. New York.
8. Memoria, C.B. Personnel Management, Himalaya Publishing House, Bombay.
9. Indian Journal of Industrial Relations, Shri Ram Center for Industrial Relations, New Delhi.
10. Industrial Relations, Institute of Industrial Relations, University of California, Berkley. California.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Working Capital Management

Paper Code: 17MCO24DA2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit - I

Working Capital Management: Meaning, Concepts, Classification and Importance of working capital. Excess or Inadequate working capital, its disadvantages. Objective of working capital. Factors determining working capital requirements, Forecast of working capital requirement.

Working Capital Financing: Financing of working capital, Determining the working capital Financing Mix, New Trends in Financing of Working Capital by Banks, Dahejia Committee Report, Tondon Committee Report, Chore Committee Report, Marathe Committee Report, Chakravarty Committee Report, Kannan committee Report, The Latest Report on Working Capital Financing.

Unit - II

Management of Cash: Nature of Cash, Motives of holding Cash, Managing Cash Flows, Determining Optimum Cash Balance, Cash Management Models, Investment of Surplus Funds. The Cash Budget and Financial Decision Making.

Unit - III

Receivables Management: Meaning of Receivables. Cost of maintaining Receivables. Factors Influencing Receivables. Meaning, Objects and Dimensions of Receivable Management. Formation and Execution of Credit Policy. Formation and Execution of Collection Policy.

Unit - IV

Inventory Management: Meaning and Nature of Inventory. Purpose and Benefits of Holding Inventory. Risk and cost of Holding Inventory. Inventory Management Tools, Techniques, and Objectives. Determining Stock levels and safety stocks. EOQ, VED, and ABC Analysis. Inventory Turnover Ratios. Aging schedule of Inventory. Classification, Codification and valuation of Inventories.

Suggested Readings:

1. *M.Y.Khan and P.K.Jain 'Financial Management'*
2. *I.M.Pandey 'Financial Management'*
3. *Parsana Chandra 'Financial Management Theory and Practice'*
4. *Aggarwal and Aggarwal 'Financial Management ' Hindi Medium.*
5. *Van Horne, James C 'Financial Management and Policy.*

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Strategic Management

Paper Code: 17MCO24DA3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I Strategic Management Process: Evolution of Strategic Management, Concept of Strategy, Level at which Strategy operates, Issues in Strategic decision making, Schools of thoughts of strategy formulation, Process of Strategic Management, Role of Strategists in the Process of strategic management. Establishment of Strategic Intent; Hierachy of Strategic Intent vision. Mission Statements – Process of envisioning, Formulation and Communication of Mission Statements; Setting of Goals and Objectives; Identification of Key Success Factors..

Unit –2 Environment and Organisational Appraisal: Concept of Environment and its components, Environmental Scanning and Appraisal; Organisational appraisal- its dynamics, Considerations, Methods and Techniques. Structuring Organisational Appraisal; SWOT Analysis. Strategy Formulation: Corporate level Strategies; Grand Strategies, Stability Strategies, Expansion Strategies, Retrenchment Strategies, Combination Strategies, Corporate Restructuring; Business level Strategies and Tactics

Unit-3 Strategic Analysis and Choice: The Process of Strategic Choice, Corporate Level Strategic Analysis, Business Level Strategic Analysis, Subjective Factors in Strategic Choice, Contingency Strategy, Strategic Plan. Strategy Implementation: Inter relationship between formulation and Implementation, Aspects of Strategic Implementation, Project Implementation, Procedural Implementation, Resource Allocation; Strategy and Structures: Structural Considerations, Structures for Strategies; Organisational Design and Change.

Unit-4 Behavioural Implementation: Leadership Implementation, Corporate Culture, Corporate Politics and Use of Power, Personal values and Business Ethics. Functional Implementation: Functional Strategies, Functional Plans and Policies, Marketing Plans and Policies, Financial Plans and Policies, Personnel Plans and Policies, Operations Plans and Policies. Strategic Evaluation and Control: Overview of Strategic Evaluation and Control, Techniques of Strategic Evaluation and Control.

SUGGESTED READINGS:-

1. Bhattachary, S.K. and N. Venkataramin: Managing Business Enter rises: Strategies, Structures and Systems, Vikas Publishing House , New Delhi.
2. Budhiraja, S.B. and M.B. Athreya: Cases in Strategic Management, Tata McGraw Hill, New Delhi.
3. Chreistensen, C. Ronald, Kenneth R. Andrews, Joseph L. Bower, Rochard G. Hamermesh, Michael E. Porter: Business Policy: Text and Cases, Richard D. Irwin, Inc., Homewood, Illinois.
4. Coulter. Mary K: Strategic Management in Action, Prtentice Hall, New Jersey.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18
International Business Environment
Paper Code: 17MCO24DB1

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1

International Business and Environment: Meaning, Nature, significance, dimensions, types Level of International Business and its Environment; Business Environment and strategic decisions: Geographic, Economic, political, Demographic, Social/Cultural and Regulatory Framework.

Unit-2

International Economic Cooperation and Agreements; Regional Economic Integration (Trade Blocks); Integration, Customs-Union, European Union, Indo-Eu Trade, Euro, south – south cooperation (SAARC, SAPTA, Indo-Lanka Free Trade Agreements, NAFTA. International commodity Agreements; Generalised and Global systems of Trade Preferences (GSP & GSTP); International Trade and Investment Theories.

Unit-3

International Economic Institutions: IMF, WB, ADB, UNCTAD, IMODO and WTO Multi-Fibre Arrangement (MFA); International Trade and Payments (Protectionism, Barriers: Tariff & Non-Tariff); State-Trading, Foreign-Trade Policy; Global Sourcing, BOPs, BOT and Indian scene.

Unit-4

Foreign Exchange Market: Types of Exchange Rates,. Participation in Foreign Exchange Market, types of foreign Exchange Market, ER Quotas. Determination of Foreign Exchange Rates; Futures, Options and Swap-Operations, Arbitrage, convertibility of Rupee. ER-Arrangements in India.

Suggested Readings:-

1. Bhattacharya, B :Going International Response Strategies for Indian Sector,Wheeler Pub. Co.New Delhi
2. Black and Sundaram : International Business Environment , Prentice Hall, New Delhi.
3. Buckley , Ardin : The Essence of International Money, Prentice Hall, New Delhi.
4. Daniels,John D and Lee H Radebaugh : International Business: Environment, and Operations, Readings.
5. Letiche , John M :International Economics Policies and Theoretical Foundations, Academic Press, New York.
6. Sodersten, B.O :International Economics, Macmillan , Landon.
7. Rao, P. Subha, International Business , Himalaya Pub. House, Mumbai.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Production Management

Paper Code: 17MCO24DB2

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Introduction: Concept, nature and scope of Production Management; Evolution of production function; Production Process, Organization of production function; Relationship between production and other functions.

Unit-II

Location and Layout:

Location: nature, objectives and significance, Theories of location; factors influencing location.

Layout: Meaning, objectives and types; principles of layout; factors affecting layout.

Unit-III

Production Planning and Control:

Production Planning: Concept, need and Types of Production planning; Production planning techniques. Factors influencing Production Planning.

Production Control: - Meaning, objectives and elements; Control techniques, Production Control in different Production Systems; Benefits & limitations.

Unit-IV

Quality Control and Plant Maintenance.

Quality control: Meaning, scope, objectives and organization; Quality Control Techniques.

Plant Maintenance: Meaning, scope, objectives, types; Maintenance programme techniques & Organization.

Suggested Readings:

1. Chaturvedi, M: New Product Development, Wheeler Publications, New Delhi.
2. Majumdar, ramanuj: Product Management in India, Prentice Hall, New Delhi.
3. Moise, S: Successful Product Management, Kogan page, New York.
4. Moore, W.I: Product Planning Management, McGraw Hill, Boston.
5. Quelch, J.A: Cases in Product Management, Irwin, London.
6. Urban, Glen L., John R. Haqnser and NikileshDholakia: Essentials of New Product Management, Prentice Hall, Englewood Cliff, New York
7. K. Aswathappa, Production and operations management, Himalya Publishing House, Delhi.
8. K. ShridharaBhat, Production Management ,Himalya Publishing House, Delhi.
9. Dr. C.B. Gupta, Operations Management and Control, Sultan Chand & Sons, New Delhi

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Advanced Accounting

Paper Code: 17MCO24DB3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1 Accounts for holding and subsidiary Companies: Minority Interest, Pre-acquisition, and Post-acquisition Profit, Capital Profits, Cost of Control or Goodwill, inter Company owings, Unrealised Inter Company Profits, Revaluation of Assets and Liabilities, Bonus, Shares, Treatment of Dividend More than one subsidiary, Inter company holdings, Consolidated Profit and Loss Account and Balance Sheet

Unit-2 Accounting for corporate restructuring, Forensic Accounting
Double Account System : Nature, Features of Double Accounts System, Receipt and Expenditure on Capital Accounts, General Balance Sheet, Personal Account, Net Revenue Accounts, Difference between Single Account System and Double Accounts System, Replacement of an Assets, Accounts of Electricity Companies.

Unit-3 Farm Accounting: Need, Accounting treatment, Recording-Final Accounts, Government Accounts, General Principal, Indian Audit and Accounts Department, Comptroller and Audit General of India, Public Accounts Committee, Consolidation of funds, Compilation of accounts; Voyage Accounts. .

Unit-4 Inflation Accounting:- Meaning, Limitations of Historic Accounting, Methods of Accounting for price level changes, General Price level Accounting or current purchasing Power Accounting, Current Cost Accounting Method: An Appraisal of C.P.P and C.C.A Method: Human Resource accounting: Meaning, Approaches to HRA, Assumptions, methods, Human Resource Cost Accounting, Historical cost Accounting, Replacement cost Method, opportunity cost method, Human Resource value Accounting.

SUGGESTED READINGS:-

1. Beams, F.A; Advanced Accounting ,Prentice Hall, New Jersey.
2. Dearden ,J. and S.K.Bhattacharya :Accounting for Management, Vikas Publishing House, New Delhi.
3. Engler,C., L.A Bernstien and K.R .Lambert :Advanced Accounting ,Irwin, Chicago.
4. Fischer ,P.M., W.J.Taylor and J.A.Leer; Advanced Accounting , South-Western , Ohio .
5. Gupta.R.L.:Advanced Financial Accounting, S.Chand and Co. New Delhi.
6. Kesio D.E. and J.J.Weygandt: Intermediate Accounting,. John Wiley and Sons, N.Y.
7. Maheshwari , S.N.: Advanced Accounting- Vol. II, Vikas Publishing Housing, New Delhi.
8. Monga J.R.: Advanced ,Mayoor Paperbacks , Noida.
9. Narayanaswamy, R. : Financial Accounting: A Managerial Perspective, Prtentice Hall of India, Delhi.
10. Neigs, R.F. Financial Accounting, Tata McGraw Hill, New Delhi.
11. Shukla, M.C, and T.S.Grewal: Advanced Accountancy, Sultan Chand Co. New Delhi.
12. Warren C.S. and P.E.Fess: Principles of Financial and Managerial Accounting, South-Western, Ohio.

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18
Financial Derivatives and Risk Management
Paper Code: 17MCO24DC1

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit I

Derivates and derivative market—Derivatives, underlying, types of derivatives, derivative market , cash and derivative market, participants in derivative market, why derivatives, other side of derivative market, derivative markets in India.

Unit II

Forward and futures - difference between forward and future, mechanism of future contract, pay-off position in future , pricing of future, value of future contract, effect of corporate action on future, index future, trading system of future at NSE.Risk management, speculation, arbitrage and hedging through future.

Unit III

Option--meaning, types and terminology , working of option, pay-off from basic option, index option, different option strategies to manage risk. Option valuation model –BSM option Greeks.

Unit IV

Swap -meaning and features, characteristics of swap market, currency swaps- structure and pricing, interest rate swap- valuation and pricing , equity swap and reverse swap. Risk management through derivatives, use of derivatives by corporate in India.

Suggested Readings:

1. *“Principles of Financial Engineering”, By S.L. Neftics. Of Academic Press Advances Finance Series.*
2. *Fisher & Jordon: “Security Analysis and Portfolio Management: PHI*
3. *A.C. Shapiro: “International Financial Management” PHI.*
4. *R.M. Shulz. “Risk Management and Derivatives” “Thomson”*
5. *V.K. Bhalla: Investment Management: S. Chand*

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

**International Marketing
Paper Code: 17MCO24DC2**

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-1 Introduction to International Marketing: Nature and significance; Complexities in international marketing ; Transition from domestic to transnational marketing; International market orientation – EPRG framework; International market entry strategies.

International Marketing Environment: Internal environment; External environment -geographical, demographic, economic, socio-cultural, political and legal environment; Impact of environment on international marketing decisions.

Unit-2 Foreign Market Selection: Global market segmentation; Selection of foreign markets; international positioning. International Marketing Planning, Organising and Control: Issues in international marketing planning; International marketing information system; Organising and controlling International marketing operations. Emerging Issues and developments in international marketing: Ethical and social issues; International marketing of services; Information technology and international marketing; Impact of globalisation;

Unit-3 Product Decisions: Product planning for global markets; Standardization vs. product adaptation; New product development; Management of international brands; Packaging and labeling; Provision of sales related services.

Pricing Decisions: Environmental influences on pricing decisions; International pricing policies and strategies.

Unit-4 Promotion Decisions: Complexities and issues; International advertising, personal selling, sales promotion and public relations.

Distribution Channels and Logistics: Functions and types of channels; Channel; selection decisions; Selection of foreign distributors\agents and managing relations with them; International logistics decisions

SUGGESTED READINGS:-

1. Czinkota, M.R.: International Marketing, Dryden Press, Boston.
2. Fayerweather, John: International Marketing, Prentice Hall, New Delhi.
3. Jain, S.C: International Marketing, CBS Publications, New Delhi.
4. Keegan, Warren J : Global Marketing Management, Prentice Hall, New Delhi.
5. Onkvisit, Sak and John J.Shaw: International Marketing : Analysis and Strategy, Prentice Hall, New Delhi.
6. Paliwoda, S.J(ED):International Marketing, Reader, Routledge, London.
7. Paliwoda,Stanley J:The Essence of International Marketing, Prentice Hall, New Delhi.
8. Sarathy, R and V Terpstra: International Marketing, Dryden Press, Boston.
9. Vsudeva P.K., International Marketing; Excel Books, New Delhi

M.Com (Two Year Course) 4th Semester w.e.f. 2017-18

Cost Management

Paper Code: 17MCO24DC3

Time: 3 hours

Max. Marks: 80

Credits: 4:0:0 =04

Note: The examiner shall set nine questions in all covering the whole syllabus. Question No.1 will be compulsory covering all the units and shall carry 8 small questions of two marks each. The rest of the eight questions will be set from all the four units. The examiner will set two questions from each unit out of which the candidate shall attempt four questions selecting one question from each unit. All questions shall carry 16 marks each.

Unit-I

Cost Control, importance of Cost Control, elementary of a Cost Control Scheme, Cost Control Techniques, Cost Control in Individual Cost Elements, Cost reduction, Cost reduction process, Tools and techniques of Cost reduction, Cost Control v/s Cost Reduction, Value Analysis, Types of Value, Procedures of Value Analysis, Relationship between value, function and cost, Techniques of value analysis developed by Lawrence D. Miles.

Unit-2

Activity based Costing (ABC), Inadequacies of traditional methods of overhead absorption. Under costing and over costing, Product-Cost-Cross subsidization, Cost Hierarchies, Cost Drivers and cost pools, implementing ABC system for cost management and profitability, Kaplan and Cooper's approach to ABC.

Unit-3

Productivity, Concept, Measurement of Productivity, Productivity of Material, Labour and other Factors, Productivity of Management Resources, Importance of Human Factor in Productivity Drive, Productivity and Profitability. Supply chain Analysis, Key Success Factors, Value chain analysis, Steps in Value Chain analysis, Value Chain Analysis for assessing competitive advantage.

Unit-4

Target Costing, origin, steps or stages in target costing, traditional vs. target costing, target costing process, impact of target costing on profitability. Kaizen, Concept, Procedure for implementation, evaluation, Kaizen Costing. Business Process Outsourcing (BPO), Concept, Major Areas, types of outsourcing, Outsourcing vs. Contracting, Outsourcing vs. BPO, Business Process Reengineering (BPR), Concept, Methodology. Synergy, characteristics, types.

SUGGESTED READINGS:-

1. Saxena and Vashishtha: Advanced Cost Accounting; Sultan Chand and Sons, Delhi.
2. Horngren Charles. T: Cost Accounting – A Managerial Emphasis. Pearson Publications, Delhi.
3. Ravi M. Kishore : Cost Management – Taxman Publications, Delhi.
4. Jain, S.P, K.L.Narang : Advanced Cost Accounting. Kalyani Publications, Delhi.