PANJAB UNIVERSITY, CHANDIGARH-160014 (INDIA)
(Estd. under the Panjab University Act VII of 1947—enacted by the Govt. of India)

SYLLABI

FOR

B.A./B.Sc. (Honours) Course
THIRD YEAR
(SEMESTER : FIFTH AND SIXTH)
Examination, 2018-2019

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ENGLISH

SEMESTER V

PAPER : 20th Century Literature

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Texts :

1. G.B. Shaw : Arms and the Man.
2. George Orwell : Nineteen Eighty Four.
4. W.B. Yeats : (i) Among school Children
                              (ii) The Second coming
                              (iii) Lake of Isle Innisfree

Testing :

There will be Two Units.

Unit I will consist of two compulsory questions.

Unit II will consist of four questions (with internal choice). The students will attempt any three

Unit I
There will be one question on the literary movement of 20th Century with internal choice (15 marks)

There will be one question with reference to the context from writers at Serial No. 1 and 4. Two passages will be set from each writer with internal choice. Students will attempt one passage from each writer. (15 Marks)

Unit II
There will be two essay type questions with internal choice on each of the four writers’ texts. Students will attempt three questions from three different writers. (20 × 3 = 60 marks)
ENGLISH

SEMESTER VI

PAPER : INDIAN WRITING IN ENGLISH

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Texts :

1. Tagore : (i) The Journey
            (ii) Sea Shore.
            (iii) Maya
            Selection from Geetanjali


3. R.K. Narayan : The Vender of Sweets

4. Kamla Dass : (i) An Introduction
                (ii) Forest Fire
                (iii) The Freaks
                (iv) My Grandmother’s House

Testing :

1. There will be one question with reference to context. Two stanzas with internal choice will be set from Tagore and Kamla Dass. Students will attempt one stanza from each Poet. (10 marks)

2. Four questions (one on each author) of 20 marks each will internal choice. (20 x 4 = 80 marks)
संस्कृत
बी. ए. (आन्तरिक) तृतीय वर्ष परीक्षा, 2018-2019
SEMESTER-V

तृतीय पत्र :
(आन्तरिक परीक्षा- 10 लिखित परीक्षा- 90)
पूर्णक: 90+10 = 100 अंक
समय : 3 घण्टे

उद्देश्य:-

विद्यार्थियों को काव्य के स्वरूप, प्रयोजन इत्यादि से अवगत कराया। इसी के साथ ही पाण्डव िर्में के माध्यम से काव्य तथा स्त्री प्रत्ययों के अध्ययनोपरांत संस्कृत लेखन के प्रति उत्साहित कराया।

UNIT-I

(क) साहित्यदर्पण-प्रथम परिभाषा 40 अंक

UNIT-II

(ख) लघुसिद्धांतकोश मुदी त्रि-

(i) विभक्त्यां (कारक-प्रकरण) 15 अंक

(ii) स्त्री-प्रत्यय 15 अंक

UNIT-III

(ग) संस्कृत में नवन य (इन विषयों पर- संस्कृतभाषा, परंपरागत, जीता, वेदांत महत्व, आदर्श-छत्र): 20 अंक

नोट - पत्र का अध्यापन समय-ली पीरियड (प्रति घण्टा) प्रति सतह होगा।

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संस्कृत
बी. ए. (आन्तर्गत) तत्त्वीय वर्ष परीक्षा, 2018-2019
SEMESTER-VI

चर्चाव्यंत्र प्रश्न -पत्र:
(आन्तरिक परीक्षा- 10 विशिष्ट परीक्षा- 90)
पूरकक: 90+10 = 100 अंक
समय: 3 घण्टे

उद्देश्य:-
उपप्रश्न प्रतिपादित नविकक्षा एवं यम के संवाद द्वारा विद्यार्थियों को रहस्यमय प्रसंग से परिचित कराना, इसके अतिरिक्त चर्चा वेद, ग्राममण तथा उपनिषद ग्रन्थों के विषय-वस्तु का अध्ययन कराना।

UNIT-I

(क) उपनिषद-साहित्य

60 अंक

(i) कलोपनिषद-(प्रश्न अध्याय) अनुवाद एवं व्यास्त्वक (6 में से 4 सब्जत्व) 4×10 = 40 अंक
(ii) कलोपनिषद से संवाद प्रश्न (2 में से 1 का उत्तर ) 1×20 = 20 अंक

UNIT-II

(ख) वैदिक साहित्य का इतिहास

30 अंक

1. सहिताक्ष 2. ग्राममणरस 3. उपनिषद 2×15 = 30 अंक

(विषय वस्तु से समन्वित चार में से दो के उत्तर पूछे जायें।)

नोट - पत्र का अध्ययन समय-नी पौरी (प्रति घण्टा) प्रति पत्र सतत होगा।

Books Recommended :

4. A History of Indian Literature, Vol. 1 : M. Vintenitz
5. History of Sanskrit Literature by V. Varadachari.
6. संस्कृत साहित्य का इतिहास : बलदेव उपाध्याय
7. वैदिक साहित्य और संस्कृत : बलदेव उपाध्याय
8. संस्कृत वाङ्मय का इतिहास : वाङ्मयतलि जैशेला
9. संस्कृत साहित्य की सुपरेक्षा : बदनशेखर पाण्डेय

Note: All books are available at the Chaukhamba Sanskrit Series, Chaukhamba, Varanasi and Motilal Banarasidas, Jawahar Nagar, Bunglow Road, Delhi.
PERSIAN

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-2019

SEMESTER V

PAPER-III : HISTORY OF PERSIAN LITERATURE

SAFIVID PERIOD

100 Marks

Time : 3 Hrs.

Books Recommended:

1. History of Persian Literature by Dr. Razazadeh Shafaq.
2. History of Persian Literature by Dr. Brown Vol. III.
Paper-IV MODERN PERSIAN

1. PROSE:
   (i) The following three short stories of Saeed-Nafisi
       (a) Azan-E-Maghrib
       (b) Khana-Ye-Pidari.
       (c) Janayat-E-Man

   (ii) The following three short stories of Mohammed Heijazi:
       (a) Khud Khusi.
       (b) Eedi.
       (c) Mah-e-man

**Book Prescribed:**

Nasib-Jadid-e-farsi, jayyed Press, Ballimaran, Delhi-6

2. POETRY:

   Quasidan
   1. Namund Namah by Bahar.
      “Dar Sher Band Mehro-Wafa Dilbari Namund.”
   2. Ghazalliyat-E-Parveen Etisami by Mehdi Hameedi.
   3. Qataat by Mehdi Hameedi.

**Books Recommended:**


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ARABIC

B.A. (HONOURS) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019
(Kept in Abeyance)

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FRENCH

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-2019

SEMESTER V

5th Semester: FRENCH LITERATURE

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INTRODUCTION TO HISTORY OF FRENCH LITERATURE FROM 17th–18th CENTURY

Questions should be asked strictly from the prescribed text book.

1. Five questions of 8 marks each based on History of French Literature 40 Marks
2. Fill in the blanks or multiple choice questions on History of literature 20 Marks with maximum of 2 marks each.

Poetry: Explanation, central idea, critical appreciation of poems 30 Marks

1. L’amour et la folie (La Fontaine)
2. Le laboureur et ses enfants (La Fontaine)
3. Le lion et le rat (La Fontaine)
4. Le chêne et le Roseau (La Fontaine)
5. La Jeune veuve (La Fontaine)

Courses of Reading:

Mémento de Littérature française, by Hélène, Publication Hatier, Profil Littérature. Only from 17-18 centuries to be studied.

Note:
1. The latest syllabus should be followed.
2. Choice should be given in questions.

Reference Books:
2. Recueil de Textes littéraires français. Moyen Age -20ème siècle-Chassang et Senninger.

For the information of private candidates:
1. The theory paper would be proportionately marked out of 100 as there is no internal assessment.

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FRENCH

SEMESTER VI

6th SEMESTER-: HISTORY OF LITERATURE, POETRY & VIVA-VOCE

Max. Marks : 100
Theory : 70 Marks
Internal Assessment : 10 Marks
Time : 3 Hours
Viva-Voce : 20 Marks

History of literature 19th-20th Century:

Five questions of 8 marks each based on History of French Literature 40 Marks

Poetry:

Explanation, resume, central idea, critical appreciation of the poems

1. Les feuilles mortes (Jacques Prévert)
2. Chant d’automne (Baudelaire)
3. L’homme et la mer (Baudelaire)
4. Paysage (Baudelaire)
5. L’albatros (Baudelaire)

Viva-Voce

1. Dictation of an unseen passage of about 200 words. 10 Marks
2. Oral questions based on the dictation passage and also general questions 10 Marks

Note: Questions in all the papers shall be asked and answered in French only.

For the information of private candidates:

1. Viva is compulsory
2. The theory paper would be proportionately marked out of 80 as there is no internal assessment.
HINDI
(B.A. HONS. 3rd YEAR 5th SEMESTER 2018)

PAPER-III (A)

पूर्णक - 90 + 10 = 100
समय - तीन घंटे

1. कहानियाँ : आधार चयन-भीष्म साहनी, आधार पढ़िकेशन, पंचकूला।

2. संस्मरण : अतीत के चलचित्र - महादेवी वर्मा, राधकृष्ण प्रकाशन, नई दिल्ली।

(क) प्रस्तुत दोनों कृतियों में से 10/10 अंकों के 4 व्याख्यांश पूछे जाएंगे।
छात्रों को केवल दो की संदर्भ एवं काव्य-सौंदर्य सहित व्याख्या करनी होगी।
10+10=20

(ख) दोनों कृतियों में से 4 समीक्षात्मक प्रश्न पूछे जाएंगे। जिनमें से छात्रों को 15-15 अंकों के दो प्रश्नों के उत्तर देने होंगे।
15+15=30

(प्रत्येक कृति में से एक प्रश्न अवश्य करना होगा)
(चरित्र, मूल संवेदना, तात्पर्य समीक्षा, उद्देश्य, भाषा-शैली)

3. काव्यशास्त्र अंक-30

(क) शब्द शक्तियाँ - परिभाषा और उदाहरण

(ख) बिंब - परिभाषा एवं स्वरूप

(ग) रस - परिचय, प्रकार, लक्षण और उदाहरण

(घ) प्रतीक - परिभाषा एवं स्वरूप

खंड तीन से संबंधित चारों उपखंडों (क ख ग घ) में से कुल मिलाकर 20-20 अंकों के चार प्रश्न पूछे जाएंगे जिनमें से छात्रों को किसी दो के उत्तर देने होंगे।
4. दो-दो अंकों के 5 वस्तुनिष्ठ प्रश्न करने होंगे।
   8 प्रश्न पूछे जाएंगे।  
   5x2=10

5. आंतरिक मूल्यांकन –  
   अंक-10

सहायक पुस्तकें:
1. अन्धा युग: एक विवेचन, डॉ. हरीशचन्द्र वर्मा. नव भारती शंकर प्रतिष्ठान, नई दिल्ली।
2. हिंदी कहानी अन्तररग परिचय: रामदर्श भिन्न, नेशनल पब्लिकेशन, नई दिल्ली।
3. हिंदी कहानी अपनी जुबानी: डॉ. इंद्रनाथ मदान, संभावना पब्लिकेशन, हापुड।

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HINDI
(B.A. HONS. 3rd YEAR 6th SEMESTER 2019)
PAPER-IV (B)
चतुर्थ पाठ्यचर्या

पूर्णक-90+10=100
समय – तीन घंटे

1. काव्य-नाटक : एक कण्ठ विषयाधी-दुष्प्रतिक कुमार, लोकभारती
   (क) इस कृति में से 10-10 अंकों के दो व्याख्यांश पूछे जाएंगे,
   इनमें से एक करना होगा ।
   (ख) इस कृति में से 16-16 अंकों के दो समीक्षात्मक प्रश्न पूछे जाएंगे,
   इनमें से एक करना होगा ।
   अंक-26

2. छंद : भुजंगप्रयात, मालिनी, मंदाक्रान्ता, शिक्षरिणी, अहीर
   मनव, बरवै ।
   अंक-20

3. अंलकार : अन्योक्ति, तुल्योगिता, उलेख, व्याजस्तुति,
   अन्वन्य, विभावना
   अंक-20
   (छात्रों को पाँच-पाँच अंकों के 4 छंदों और पाँच-पाँच अंकों के चार अलंकारों के
   लक्षण तथा उदाहरण लिखने होंगे । प्रश्निन दो हुगना विकल्प देना होगा)

4. भाषा :
   अंक-24
   (i) हिंदी की प्रमुख बोलियां-क्षेत्र और विशेषताएं
       विशेषत: ब्रज, अवधी का परिचय
(ii) मानक हिन्दी की संस्करण—शब्द संस्करण, रूप—संस्करण
वाक्य संस्करण

(iii) क. राजभाषा हिन्दी का परिचय तथा वर्तमानस्थिति
ख. देवनागरी लिपि का अनुसार नियमित मानक रूप

विशेष : खंड 4 में से 15-15 अंकों के कुल चार प्रश्न पूछे जाएंगे। जिनमें से छात्रों को दो से उत्तर देने होंगे।

5. आंतरिक मूल्यांकन : अंक-10

सहायक पुस्तकें:

1. अन्धा युग : पथ और प्रदर्शन, जयदेव तनेजा, वाणी प्रकाशन, नई दिल्ली।

2. अन्धा युग और भारती के अन्य नाट्य प्रयोग : जयदेव तनेजा, नचिकेता प्रकाशन, नई दिल्ली।

3. काव्य के तत्त्व : आचार्य देवेन्द्रनाथ शर्मा, लोकभारती प्रकाशन, इलाहाबाद।
पैसाधी (आधुनिक)

1. शी चौंकों (आधुनिक) भाषा जीवन (2018-19) से डिमिडिगर लक्ष्य
2. सन्घन 2018 से डिमिडिगर लक्ष्य

मभेंटल भेंटी

पाठ्यभूमि भेंटी बृम्म

भेंटी बृम्म मामूल

वेंस ओंट : 50
चित्राळ्लेड अभीमान : 05
पूण्य ओंट : 45
मभं : डिले बांटे

बन्ध भविया

1. भविया बृम्म मामूल - बृम्म सी विकास दे पूण्यत
2. बृम्म सी भाषा : विकास दे डिलपावत
3. बृम्म दे डेंड (डिलंं डिचे दे) (ओंट : 20)

बन्ध अॅॅना

1. यूटी मंधुसंधि
2. तम मंधुसंधि
3. भाविजस मंधुसंधि
   (डेंचे डिचे दिच) (ओंट : 10)

बन्ध जीवन

1. भविया बृम्म मामूल - पूण्य पूर्व भविया (चेंडे पौंस तिंचिघ) (डिलंं डिचे दे)
2. सन्खरण
3. सन्खरण संबंध दे मभं
4. सन्खरण दे मभं
5. सन्खरण दे पूर्वसंधि (ओंट : 15)
पेपरबो (अनुदाप)

घी दे (अनुदाप) ग्रंथ तीव्र (2018-19) के विभिन्न रुझान

समीक्षक 2018 के विभिन्न रुझान

मानकता पेपरबो

प्रागुक्ष मद वेंकस

सीख पेपरबो

पेपरबो आकर्षण के बारह मानक


दूर्दृष्टि: 50

सिक्कमान: 05

पूर्वांश अंक: 45

संभव: टिक घड़ी

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1. आंकरा ची धर्मधाम, दूर्दृष्टि मद घेना
2. पेपरबो आकर्षण - आकर्षण के दिवस
3. बारह धर्मधाम के टीमवारी

(टिक घड़ी दिखते हैं) (अंक: 20)

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1. घरेलू खेल मिश्र, उत्तरम खेल, अद्व खेल, उद्वाहन खेल
2. (टिक घड़ी दिखते हैं) (अंक: 10)

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1. माध्यमिकता - मेंट मिश्र मेंधे (पेपर चेटले दिखते) (टिक घड़ी दिखते हैं)
2. पूर्वांश बारिश लिख अनुदाप
3. अभिव्यक्ति बारिश
4. बारिश के मध्यस्थ आकर्षण
5. बारिश के दिवसिंह (अंक: 15)
पीएच.डी. (आटमकी)

ग्यां डी. (आटमकी) ढांढा अभिमन्यु (2018-19) से विभिन्नता रही
अप्रैल - मई 2019 से विभिन्नता रही
मामलत के लिए,
पाठ्यक्रम पर बांटाए जाएगा
पैकेट में आए रहेंगे

पुलिली बाणि सामवठ

डिग्री अंक : 50
विचारतल प्रमोटेंशन : 05
पूर्ण अंक : 45
मार्किंग : डिग्री पॉइंट

बाण धारण

1. यूनिवर्स बाणि सामवठ : विभिन्नता अंके पूर्णत
2. आटमकी, विशेषता अंके पूर्णत
3. यूनिवर्स/आटमकी : बेंचली सामवठी
   (डिग्री डिचे दे)

बाण चुनना

पाठ्य, आटमकी, तेम्पलेट : बेंचली सामवठ-पाठ्य
(डिग्री डिचे दे)

बाण तीमा

उद्देश्य लगा आयुर्वेदी की पुलिली माध्यम सामवठ डिचे पेम तिरंगा
(डिग्री डिचे दे)

1. माध्यम दे तीर्थ
2. माध्यम दे महास
3. माध्यम दे विशेषता
4. आटमकी चुनना
5. तिरंगा दे मेली
पंजाबी (आठवां)

दी त्री (आठवां) बण्ड दीमा (2018-19) दे टिमहदिलग भागी
अगुजू-अगुजू 2019 दे टिमहदिलग भागी
मानेमल प्लाटीं
पाठवून अडे वेळम
पेपर अडेमन
पंजाबी आठवटा ते बण्ड मानमाट

बेल भेक : 50
फिटिंगन आमेसेट : 05
पूडम भेक : 45
मध्य : दिले थेटे

बण्ड पॅरिस

1. आठवटा ती पालिका : डिशेम डे प्लेड
2. पंजाबी आठवटा : पुढम वसायस्टार्टिंग
3. दिस्तन्दी ते माधुर, अक्षरवीचलक ते माधुर घट
(प्लेत दिले देते)
(भेक : 20)

बण्ड दुर्गा

अवदागार, तुषारम, अक्षरवीचलक, मंज़ुलमणि : ब्ल्डसी नाट फ्राम
(देते दिले दिले)
(भेक : 10)

बण्ड दीमा

टी त्री एड मिस्टी दी प्रमुख माधुर आठवटा दिले पोस दिलेथा)
(प्लेत दिले देते)

1. माधुर (पालिका, धृष्टवम दे वर्दी)
2. माधुर अडे पूणव
3. माधुर अडे पुरबिर्ग्याना
4. माधुर अडे मंदलवरा
5. माधुर अडे विडल
(भेक : 15)

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URDU

SEMESTER V

Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Paper- I Novelette

Unit-I
Novelette- ‘Dilruba’ Ka tanqidi Jayeza 25 marks

Unit-II
Plot aur Character 20 marks

Unit-III
‘Agle Janam Mohe Bitiya na Kijo’ ka tanqidi jayeza 25 marks

Unit-IV
Plot aur character 20 marks

Books Prescribed: -

1. ‘Char Novelette’ by Qurrat-ul-ain Hyder, Educational Book House, Aligarh.
2. ‘Beesveen Sadi mein Urdu Novel’ by Dr. Usuf Sarmast, Education Book House, Aligarh.
URDU

SEMESTER VI

Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Paper- II Novelette

Unit-I
Ismat Chughtai Ka Novelette ‘Ziddi’ Ka Plot 25 marks

Unit-II
Character 20 marks

Unit-III
Critical notes on Ismat Chughtai ki novel nigari ki khususiaat 25 marks

Unit –IV
Ismat Chughtai ki life history 20 marks

Books Prescribed:-

1. Novelette ‘Ziddi’ by Ismat Chughtai, Education Book House, Aligarh
2. ‘Beesveen Sadi mein Urdu Novel’ by Dr. Usuf Sarmast, Education Book House, Aligarh.

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GERMAN

SEMESTER V

Summary

Max. Marks: 100 marks (Total)
Paper-1 (Theory): 90 marks
Internal Assessment: 10 marks

Paper – 1 (Theory): 90 marks (Total)
Time: 3 hours
Note: Use of dictionary is allowed

i. Three out of five questions to be attempted on the history of German literature (Literaturgeschichte)
   Following movements in literature are to be studied:

   i. Aufklärung
   ii. Sturm und Drang.

Internal Assessment : 10 marks (Total)

   - Continuous Evaluation
   - Attendance

Note:

1. The mode of evaluation for internal assessment is to be followed as per University guidelines.

2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination

Prescribed Textbooks:

i. Geschichte der deutschen Dichtung, Fricke/Klotz.


Supplementary book:

i. Deutsche Literaturgeschichte - Von Anfangen bis zur Gegenwart (J.B. Metzler Verlag Stuttgart)
GERMAN

Summary

Max. Marks: 100 marks (Total)

Paper-2 (Theory): 90 marks
Internal Assessment: 10 marks

Paper - 2 Essay and Translation (Theory): 90 marks

Time: 3 hours
Note: Use of dictionary is allowed

i. Translation of an unseen text/s from German into English : 50 marks
ii. Translation of an unseen text/s from English into German : 20 marks

iii. Essay writing in German (about 250 words) : 20 marks

   i. Länder und Leute
   ii. Ausbildung und Berufswege (Indien / Deutschland)
   iii. Politik (Indien / Deutschland / Europa / Welt)
   iv. Umzug und Einrichtung

Internal Assessment : 10 marks (Total)

   - Continuous Evaluation
   - Attendance

Note:
1. The mode of evaluation for internal assessment is to be followed as per University guidelines.

2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination

Prescribed Textbooks:

i. Deutsche Texte zum Übersetzen (Hueber Verlag)

Supplementary book:

i. "Lagune-2" Kursbuch by Hartmut Aufderstraße a.o.
GERMAN

SEMESTER VI

Summary

Written Paper (Theory): 90 marks (Total)
Time: 3 hours
Note: Use of dictionary is allowed

Three out of five questions to be attempted on the history of German literature (Literaturgeschichte)
Following movements in literature are to be studied:
  i. Klassik
  ii. Romantik

Internal Assessment : 10 marks (Total)
  - Continuous Evaluation
  - Attendance

Note: 1. The mode of evaluation for internal assessment is to be followed as per University guidelines.
  2. For private candidates, Internal Assessment will be calculated proportionately to the marks obtained by the candidate in written examination

Prescribed Textbooks:
  i. Geschichte der deutschen Dichtung, Fricke/Klotz.

Supplementary book:
  i. Deutsche Literaturgeschichte - Von Anfangen bis zur Gegenwart (J.B. Metzler Verlag Stuttgart)

Viva-voce (Oral exam)
Max. Marks : 100 marks (Total)

  i. Reading, comprehension (question/answers) of an unseen text : 40 marks

  ii. To speak on one of the given topics : 30 marks

  iii. General conversation in German : 30 marks

Suggestions for preparation:
  i. Magazine (Der Spiegel), Internet websites, Information on German-speaking countries etc.

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Note: There will be one theory paper of 90 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 question of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition, there will be four sections of the questions paper. The candidate will be required to attempt one question from each of these carrying 17 ½ marks each.

Paper: Area Studies China-I

Max. Marks : 100
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hrs.

Total Teaching Periods: 75

SECTION-I
1. Military Geography of China: Location, size and strategic importance.
2. Economic and Industrial resources (in brief).
3. Population, composition and characteristics of major ethnic groups.

SECTION-II
1. History of China in brief from the CH'IN to Manchus Dynasty.
2. Nationalist Revolution in China under Dr. Sun Yet Sen: Events and effects.

SECTION-III
1. Rise of Chiang Kai Shek.
3. The Civil War in brief.
SECTION-IV

1. Party-Army Relationship.
2. Communist party and its relationship with the Armed Forces.

BOOKS RECOMMENDED:

3. Encyclopaedia of Britannica.
DEFENCE & STRATEGIC STUDIES  
SEMESTER - VI  
B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-19  
Outlines of Tests, Syllabi and Courses of Reading

Note: There will be one theory paper of 90 marks. The internal assessment will be of 10 marks. The theory paper will have one compulsory short answer type question containing 15 question of 2 marks each covering the entire syllabus. The candidates will be required to attempt any 10 short answer type questions. In addition, there will be four sections of the questions paper. The candidate will be required to attempt one question from each of these carrying 17 ½ marks each.

Max. Marks : 100  
Theory : 90 Marks  
Int. Ass. : 10 Marks  
Time : 3hrs

Total Teaching Periods: 75

Paper: Area Studies China-II

SECTION- I

SINO-INDIAN WAR (1962)

1. Events Leading to the war.
2. Operation in brief.
3. Lessons learnt

SECTION- II

1. Determinants of Chinese Foreign Policy.
2. China’s Relations with India.
3. China’s Relations with Pakistan and its impact on India.

SECTION-III

1. China’s Relations with other neighbouring countries.
2. China’s Relations with the U.S.A.
3. China’s Relations with Russia.
SECTION-IV

2. China’s Modernization Program.
3. China’s Nuclear Weapon Development.

Books Recommended:

2. Griffith Samoul, B. : The Chinese People’s Liberation Anny, Army Pub., N.D.
4. Mao TsiTung : CoIn~ist Rule ~Chin~. .
5. Sharma, B.L. : The Paklstan’-Chma AXIS, Asia Pub., B~mbay.
7. Tr~er N. Frank and : Twentieth Appraisal Year, Weidenfeld and Nicolson, London, William Genderson

Journals:

1. RAUSEN DATA : Problem of Communism.
2. Institute of Defence Studies & Analysis (India)
   i. Strategic Analysis.
   ii. Strategic Digest.
3. The China Quarterly.

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HISTORY

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-19

Note: The Honours programme outlined below is intended to encourage an in depth study of some aspects of society and culture in broad periods and significant epochs in Indian History, and wherever possible, to also provide a comparative perspective. The programme intends to supplement and complement the general course, adding specialized study.

SEMESTER V

Any one paper from the following:

(i) History of China

OR

(ii) History of Russia

(i) HISTORY OF CHINA:

Max. Marks: 100
Theory: 90 Marks
Internal Assessment: 10 Marks
Time 3 hours

General Instruction:
1. In all nine questions will be set. Each question will carry 18 marks.
2. First question shall be a Short Answer type containing 15 short questions spread over the whole syllabus. Candidates will attempt nine out of the fifteen short answer type questions in about 25-30 words each. It shall carry 18 marks (9x2) and shall be compulsory.
3. Rest of the paper shall contain 4 units. Each unit shall have two essay type question and the candidates shall attempt one question from each unit -4 in all.
4. Each essay type question will be set on half of the topics and not on a single sub topic.

Note: The Honours programme outlined below is intended to encourage an in depth study of some aspects of polity, economy, society and culture in broad periods and significant epochs in World History, and wherever possible, to also provide a comparative perspective. The programme intends to supplement and complement the general course, adding specialized study.

UNIT-I

CHINA IN THE 18TH CENTURY
1. Political and Economic Institutions
2. Social and Intellectual Conditions
3. Foreign Relations

UNIT-II

‘OPENING’ OF CHINA AND REBELLIONS
4. Canton Trade System, Opium Wars, Treaty Settlements
5. Taiping Revolution
6. Reform Movement of 1898
UNIT-III

REVOLUTION AND REFORM
7. Boxer Rebellion 1900
8. Intellectual, Social and Economic Change
9. Rise of Sun Yat Sen and Revolution

UNIT-IV

RISE OF THE REPUBLIC
10. Intellectual Revolution and National Unification
12. Chinese People’s Republic 1945-49

Recommended Readings:

(ii) HISTORY OF RUSSIA:

Max. Marks: 100
Theory: 90 Marks
Internal Assessment: 10 Marks
Time 3 hours

General Instruction:
1. In all nine questions will be set, Each question will carry 18 marks.
2. First question shall be a Short Answer type containing 15 short questions spread over the whole syllabus. Candidates will attempt nine out of the fifteen short answer type questions in about 25-30 words each. It shall carry 18 marks (9x2) and shall be compulsory.
3. Rest of the paper shall contain 4 units. Each unit shall have two essay type question and the candidates shall attempt one question from each unit -4 in all.
4. Each essay type question will be set on half of the topics and not on a single sub topic.

Note: The Honours programme outlined below is intended to encourage an in depth study of some aspects of polity, economy, society and culture in broad periods and significant epochs in World History, and wherever possible, to also provide a comparative perspective. The programme intends to supplement and complement the general course, adding specialized study.

UNIT-I

1. Liberalism and Reaction : Alexander I; Nicholas I.
2. Modernisation of Russia : Alexander II; Alexander III & Nicholas II.
UNIT-II


UNIT-III


6. Civil War: Russian withdrawal from First World War; Peace of Brest Litovsk; Allied Intervention.

UNIT-IV


Recommended Readings:


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### HISTORY

#### SEMESTER VI

Any one paper from the following:

(iii) Social Origins of Right And Left Wing Dictatorship Of Modern Times  
     OR

(iv) USA and the World c.1800-1960’s

#### (iii) SOCIAL ORIGINS OF RIGHT AND LEFT WING DICTATORSHIP IN MODERN TIMES:

Max. Marks: 100  
Theory: 90 Marks  
Internal Assessment: 10 Marks  
Time 3 hours

**General Instruction:**

1. In all **nine** questions will be set, Each question will carry 18 marks.
2. First question shall be a Short Answer type containing 15 short questions spread over the whole syllabus. Candidates will attempt **nine** out of the fifteen short answer type questions in about 25-30 words each. It shall carry 18 marks (9x2) and shall be **compulsory**.
3. Rest of the paper shall contain 4 units. Each unit shall have two essay type question and the candidates shall attempt **one** question from each unit -4 in all.
4. Each essay type question will be set on half of the topics and not on a single sub topic.

**Note:** The Honours programme outlined below is intended to encourage an in depth study of some aspects of polity, society and culture in broad periods and significant epochs in World History, and wherever possible, to also provide a comparative perspective. The programme intends to supplement and complement the general course, adding specialized study.

#### UNIT I: China

1. The Collapse of Imperial System, the emergence of War lords; the Kuomintang interlude; efforts at democracy and Capitalism.
2. The Peasant rebellions; Communist Revolutions; success against the Kuomintang

#### UNIT II: Russia

3. The Internal Collapse of the Tsarist Regime; Revolution of 1917- Feb/ March and October
4. The Establishment of a Communist Government; Forced industrialization and Collective Agriculture; Stalinist Totalitarianism.

#### UNIT III: Italy

5. Italy’s problems with the Capitalist powers; Failure of Italian Democracy in Economic, Social and Foreign policy
6. The Fascist alternative: Ideology and the corporative state
UNIT IV: Germany

7. Germany’s rise as a capitalist powers; Weimar republic and its failure.
8. The fascist stresses with western Europe; Nazi totalitarian programme.

Essential readings:


Reference Reading


(iv) USA AND THE WORLD c.1800-1960’s:

Max. Marks: 100
Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 hours

General Instruction:

1. In all nine questions will be set. Each question will carry 18 marks.
2. First question shall be a Short Answer type containing 15 short questions spread over the whole syllabus. Candidates will attempt nine out of the fifteen short answer type questions in about 25-30 words each. It shall carry 18 marks (9x2) and shall be compulsory.
3. Rest of the paper shall contain 4 units. Each unit shall have two essay type question and the candidates shall attempt one question from each unit -4 in all.
4. Each essay type question will be set on half of the topics and not on a single sub topic.

Note: The Honours programme outlined below is intended to encourage an in depth study of some aspects of society and culture in broad periods and significant epochs in Indian History, and wherever possible, to also provide a comparative perspective. The programme intends to supplement and complement the general course, adding specialized study.

UNIT I

1. US Foreign Policy 1789-97-Response to French; issues with Britain; Jay’s Treaty 1799; Pinckney’s Treaty 1797; Peace with France
2. Diplomatic Achievements 1800-1820’s-Louisiana Purchase; Settlement with Britain; Acquisition of Florida; non colonization of Alaska; liberation of Latin America; Monroe Doctrine
3. Industrial Revolution in America-expansion of transportation; manufacturing; foreign trade and shipping
UNIT II
4. Expansion to the West in the 1830’s –Early settlement in the West; Texas question; migration to Oregon
5. Manifest Destiny –Annexion of Texas; Oregon Treaty; Relations with Mexico; conquest of California
6. USA as a World Power-Expansion in Pacific region; Dispute with Venezuela; Results of War with Spain 1898; Policy in Caribbean and Mexico; Open Door Policy in South East Asia

UNIT III
7. USA and World War I-US attitude to war, entry into the war; 14 point programme, role in Paris peace conference 1919
8. Foreign Policy 1920,s-30’s- Washington Treaties, Locarno Treaty, Relations with Mexico, Change in ‘Big Stick’ Policy, Good Neighbour policy, reaction to Chinese situation
9. USA and World War II- US attitude, US aid to War and War Production, Pearl Harbour

UNIT IV
10. New World Order-US Peace Programme and United Nations, Relations with Soviet Union and Containment, Pan, American Conference 1945, post War Europe
11. US in East Asia-American response to China, Japan, Korea, Vietnam
12. US in Europe and West Asia-US and NATO, issues with Egypt, support to Israelis, Eisenhower Doctrine

Recommended readings:
POLITICAL SCIENCE

B.A. (HONOURS) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

Outlines of Tests, Syllabi and Courses of Reading

V SEMESTER :
Option (i) International Relations since 1945.
OR
Option (ii) Modern Indian Political Thought.
OR
Option (iii) Women and Political Process.

VI SEMESTER :
Option (i) Research Methods in (Political Science) Social Sciences.
OR
Option (ii) Modern Political Ideologies
OR
Option (iii) Western Political Thought.

V SEMESTER :
Option (i) — INTERNATIONAL RELATIONS SINCE 1945

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.

There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Objectives : This paper aims at mapping out some of the major transformations that have occurred in the realm of International Relations since 1945.

UNIT-I Post World War-II International Relations :
(a) Post War World Order.
(b) Emergence of Super Powers.

UNIT-II Democracy and Rise of IIIrd World :
(a) Non-Alignment: Meaning and Relevance.
(b) SAARC, European Union.
UNIT-III  Transformation in Post World War II International Relations:
(a) Decline of Bipolarity.
(b) Nature of Emerging World Order.

UNIT-IV  New Global Scenario and International Relations:
(a) Demand for New International Economic Order (NIEO)
(b) Issue of Global Terrorism.

Suggested Readings:


References:


OR

V SEMESTER  Option (ii) — MODERN INDIAN POLITICAL THOUGHT

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

*The syllabus has been divided into four units.*

There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory
question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be
given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Objectives: The paper aims at creating understanding about the evolution of political thought in modern India
with special reference to the stated philosophers.

UNIT-I Sir Syed Ahmed Khan:
(a) As a Nationalist.
(b) Education.
(c) Muslim Nationalism-As a Communalist.

UNIT-II M.K. Gandhi:
(a) Satyagraha.
(b) Swaraj.
(c) Non-Violence.

UNIT-III M.N. Roy:
(a) Radical Humanism - critique of Marxism
(b) New Humanism

UNIT-IV B.R. Ambedkar:
(a) Annihilation of Caste
(b) Social Justice
(c) Democracy : Political and Social

Recommended Readings:-


References:


OR

V SEMESTER : Option (iii) — WOMEN AND POLITICAL PROCESS

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.
There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Objectives:

The paper aims to introduce students to the key approaches of Feminist thought contemporary debates concerning women and politics in India. It will include an analysis of the Indian State, the role of women’s movement and the major feminist issues in contemporary Indian politics.

UNIT-I Theoretical Approaches to Women Studies:
(a) Liberal Feminism.
(b) Marxist / Socialist Feminism.

UNIT-II Rise of Women’s Movement, its role in Contemporary Societies:

Historical Legacy:
(a) French Revolution, Civil Rights and Suffrage Movements in the West.
(b) Role and Contribution of Women in Indian National Movement.

UNIT-III Women and Society in India:
(a) Evolution of Women’s position in India – an historical overview-
   (i) Vedic period
   (ii) Medieval Period (Post Vedic Period)
   (iii) Modern Period
(b) Social Position:
   (i) Demographic pattern– Sex Ratio.
   (ii) Legal, Political and Property Rights.
   (iii) Access to Education.

UNIT-IV Women’s Movement in Contemporary India:
(a) Women Movement in India- Women Movements against Dowry & Rape
(b) Women and Political Participation in India- Status & Barriers, 73rd & 74th Amendment.

Recommended Readings:


15. "Women’s Struggles and Movement", Paper of Third National Conference, Chandigarh, IAWS.


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POLITICAL SCIENCE

B.A. (HONOURS) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018-2019

SEMESTER- VI

VI SEMESTER : Option (i) — RESEARCH METHODS IN (POLITICAL SCIENCE)
SOCIAL SCIENCES

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.

There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Objectives : The paper endeavors to introduce the students about the tools of research methodology into social sciences. The paper would enable the students to take up research after Master’s degree.

UNIT-I Research in Social Science with reference to Political Science—Definition, Nature and Limitations.

UNIT-II Methods – Traditional and Scientific, Survey Research Methods : Observation, Interviews, Questionnaire, Content–Analysis.

UNIT-III (a) Sample and Sampling Techniques.
(b) Measures of Central Tendency—Mean, Mode and Median.
(c) Data Processing—Coding Tabulation and Analysis.


Suggested Readings :


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**OR**

**VI SEMESTER :** Option (ii) : MODERN POLITICAL IDEOLOGIES

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<td>: 90</td>
<td>: 10 Marks</td>
<td>: 3 Hrs.</td>
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**INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :**

*The syllabus has been divided into four units.*

There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

**Objectives :** The paper refers to the basic tenets of modern political ideologies.

**UNIT-I**

**Liberalism :**

a) Classical and Modern Liberalism.

b) Neo Liberalism.

**UNIT-II**

**Socialism :**

a) Marxian Socialism.

b) Democratic Socialism.

**UNIT-III**

a) Anarchism.

b) Fascism.

**UNIT-IV**

**Gandhism**

a) Gandhi’s Idea of State:

b) Social and Political Ideas of Gandhi.
Suggested Readings:


OR

VI SEMESTER: Option (iii) — WESTERN POLITICAL THOUGHT

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

There shall be 9 questions in all. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 10 to 20 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks each. It shall carry 18 marks and shall be a compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Objectives: This paper aims to introduce to the students the major themes of Western Political Thought. This will be done by taking an in-depth study of the key thinkers of this tradition.

UNIT-I
Hobbes.
   b) Social Contract.
   c) Individualism Vs. Absolutism.

UNIT-II
Locke.
   b) Social Contract.
   c) Contribution of Locke to Liberalism.

UNIT-III
Rousseau.
   a) State of Nature, Natural Man.
   b) Social Contract.
   c) Theory of General Will.

UNIT-IV
Karl Marx.
   a) Historical Materialism, Economic Determinism.
   b) Theory of Surplus Value.
   c) Class Struggle.
Recommended Readings:


References:


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ECONOMICS
SEMESTER V

The candidates are required to study one of the following papers:

I Money and Banking.
II International Economics.
III Introduction to Econometrics.

Paper-I: MONEY AND BANKING

Max. Marks : 100 Marks
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective: Money and Banking constitute important components towards understanding of economics. A clear understanding of the operations of money and banking and their interaction with the rest of the economy is essential to realize how monetary forces operate through a multitude channels- market, non-market, institutes and among others, the state. The operation of financial markets and their regulations are to be studied to appreciate their key-role in an economy, especially after the far reaching banking and financial sector reforms in India and elsewhere. The present course is designed to acquaint the students fully with the changing role of financial institutes in the process of growth and development. Accordingly, the paper on ‘Economics of Money and banking’ is an optimal interaction of monetary theory, banking and non-banking financial institutes, which combines with itself a systematic discussion of the theory, institutions and policy with special reference to India.

The students would be evaluated at the end of each semester through subjective type questions/answers (both short and essay type). The scripts would be evaluated by the examiners having adequate postgraduate teaching experience in the paper/option concerned.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

(i) The syllabus has been divided into four units.

There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.
UNIT-I

Definition of Money. Money and Near Money Assets.
Supply of Money: Components, Determinants- High Powered Money and Money Multiplier, Measures of Supply of Money in India.

UNIT-II

Central Banking: Main Functions, Techniques of Monetary Management, Monetary Policy of Reserve Bank of India.

UNIT-III

Commercial Banking: Main Functions, Major Developments and Reforms in Indian Banking System since 1991.
Non-Banking Financial Institutions (NBFIs) – Role and Structure NBFIs in India.

UNIT-IV

International Monetary Fund- Features and Role.
World Bank: Features and Role.
Asian Development Bank: Features and Role.

Recommended Readings:


Supplementary Readings:

1. Reserve Bank of India Publications- (Latest).
Paper-II: INTERNATIONAL ECONOMICS

Max. Marks : 100 Marks
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objectives: The course intends to provide a deep understanding about the broad principles and theories, which tend to govern the free flow of trade in goods, services and capital- both short-term and long-term-at the global level. The contents of the paper spread over the different modules, lay stress on the theory and nature of the subject which, in turn, will greatly help them to examine the impact of the trade policies followed both as the national and international levels as also their welfare implications at macro level and the distribution of gains from trade.

The time-tested method of imparting verbal instructions through lectures would be used. Examples, in so far as possible, would be selected from everyday life/experience. The feedback would be sought from the students writing assignments, tutorials and seminars.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

UNIT-I


UNIT-II

Commercial Policy:The Theory of Tariffs, Optimum and Effective Rate of Tariff, Inter-relationship between Trade, Aid and Economic Development. The Theory of Economic Integration among Nations; Forms of Economic Integration. The Theory of Customs Union.

UNIT-III

UNIT-IV


Recommended Readings:


Supplementary Readings:

Objective: Application of economic theory need a reasonable understanding of economic relationship and statistical methods. The econometric theory thus becomes a very powerful tool for understanding of applied economic relationships and for meaningful research in economics. This paper accordingly is devoted to equip the students with basic theory of econometrics and relevant application of the methods. The topics covered in the course include various problems faced in estimation of both single equations and simultaneous models.

Besides the time-tested method of imparting verbal instructions through lectures, description and derivation of econometric models would be demonstrated by extensive use of blackboard. Examples, is so far as possible, would be selected from everyday life/experience. The feedback would be sought through the students writing assignments and written examinations.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

UNIT-I


UNIT-II

Testing of Hypothesis: Basic Concepts; Type I and Type II errors. Simple and Composite Hypothesis. t and F tests. Maximum Likelihood Estimation.

UNIT-III

UNIT-IV

Dummy Variables: The dummy Variable Trap. Interpretation of Slope and Intercept.

Recommended Readings:


Supplementary Readings:


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ECONOMICS
SEMESTER VI

The candidates are required to study one of the following papers:

IV Environmental Economics
V Economics of Labour
VI Public Finance

Paper-IV: Environmental Economics

Max. Marks: 100 Marks
Theory: 90 Marks
Internal Assessment: 10 Marks
Time: 3 Hours

Objectives: This paper aims to make aware students about the importance of environment in economics and vice-versa. It helps them to know the ways of sustaining our resources by optimally allocating them for future use.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

UNIT-I

Introduction to Environmental Economics: Introduction; the Economy and the Environment: Inter-Linkages; First Two Laws of Thermodynamics.
Economic Efficiency and Market Failures: Market Solution and Efficiency; Market Failures; Problem of Externalities; Public goods and Public bads; Common Property Recourse; Non-convexities; Asymmetric Information.

UNIT-II

Economic of Pollution: Damage Functions and Abatement Cost Functions; Marginal Decision; Optimal Level of Pollution; Market Solutions and Government Actions; Economic Incentives and least-Cost Solution; Command and Control Policies.

UNIT-III

Valuing the Environment: Economic valuation of Environment Goods: Types of Environmental Values; Monetary Valuation Techniques; Non-Monetary Valuation Techniques; Comparing Methodologies. The Environmental Kuznets Curve.
UNIT-IV


International Environmental Issue: Economics of Climate Change: Trade & Environment.

**Economic Growth and Sustainable Development**: Economic Growth and Development; the Environmental Kuznets Curve; Economics of Sustainable Development.

**International Environmental Issues**: Economics of Climate Change; Trade and the Environment.

**Recommended Readings**:

**PAPER- V: ECONOMICS OF LABOUR**

Max. Marks : 100 marks  
Theory : 90 marks  
Internal Assessment : 10 marks  
Time : 3 Hours  

**COURSE OBJECTIVE:** Issues pertaining to the labour market, wage theories, employment policies, trade unions and collective bargaining in the globalized economy have become vitally important for developing countries. In a country like India where the bulk of the labour force is in the unorganized sector and the organized sector is witnessing “joblessness”, the importance of issues such as employment and social security for the growing millions continues to assume significance. This paper exposes students to theoretical as well as empirical issues relating to the labour market with special reference to India. The time–tested method of imparting verbal instructions through lectures would be used.

The objective of the course is to provide students with the basic economic tools needed to understand and analyze how earnings are determined, how labour markets work and how various government policies may affect labour market.

**INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:**

*The syllabus has been divided into four units.*

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

*The paper setter must put note (ii) in the question paper.*

**Unit I**

Nature and Scope of Labour Economics, Nature and Characteristics of Labour Markets in Developing Countries like India.  
Theories of Wages, Concept of Minimum Wage, Living Wage and Fair Wage in Theories and Practice.

**Unit II**

Wage Determination in various Sectors- Rural, Urban, Organized, Unorganized and Informal Sectors.  
Poverty and Unemployment in Developing Countries, Unemployment: Concept, Types and Employment Policy particularly in India.

**Unit III**

Impact of Rationalization, Technological Change and Modernization on Employment in Organized Private Industry and Public Sector; Employment in Agriculture Sector; Women and Child labour.
Unit IV

Role and Functions of Trade Unions, Growth, Pattern and Structure of Trade Unions in India, Achievements of Labour Unions, Collective Bargaining. Industrial Disputes: Causes of Industrial Disputes, Their Settlement and Prevention Mechanism.

BOOKS RECOMMENDED:


SUPPLEMENTARY READINGS:


Paper-VI: PUBLIC FINANCE

Max. Marks : 100 marks
Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

Objectives: Role and function of the Government in an economy have been changing with the passage of time. The term ‘Public Finance’ has traditionally been applied to the package of those policies and operations which involve the use of tax and expenditure measures while budgetary policy is an important part to understand the basic problems of use of resources, distribution of income etc. there are vast array of fiscal institutions- tax system, expenditure programmes, budgetary procedures, stabilization instruments, debt issues, levels of government etc., which raise a spectrum of issues arising from the operation of these institutions. Further, the existing of externalities, concern for adjustment in the distribution of income and wealth, etc. require political processes for their solution in a manner which combines individual freedom and justice. This paper combines a thorough understanding of fiscal institutions with a careful analysis of the issues which underline budgetary policies in general and Indian experience in particular.

The student would be evaluated at the end of each semester through subjective type questions/answer (both short and essay type). The scripts would be evaluated by the examiners having adequate graduate teaching experience in the paper/option concern.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:

The syllabus has been divided into four units.

(i) There shall be 9 questions in all. The first question is compulsory and shall be short answer type containing 12 short questions spread over the whole syllabus to be of answered in about 25 to 30 words each. The candidates are required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice of attempting one question from each Unit – 4 in all. Each question will carry 18 marks.

(ii) For private candidates, who have not been assessed earlier for internal assessment, the marks secured by them in theory paper will proportionately be increased to maximum marks of the paper in lieu of internal assessment.

The paper setter must put note (ii) in the question paper.

UNIT-I

The Principle of Public Finance – Subjective and Objective Criteria.


UNIT-II


UNIT-III


UNIT-IV

Balance and Unbalanced Budgets.
Mobilisation of Financial Resources for Planned Developments.

Suggested Readings:


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SOCIOLOGY

SEMESTER V

Methods and Techniques of Social Research

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

Note :

1. For written paper the students will be required to attempt five questions in all. Question No. I will be compulsory and cover the entire syllabus. In addition, students will attempt four essay type questions, one from each of the four units.

2. Question No. I will be compulsory comprising of short answer questions. It will consist of 12 short answer type questions of 2 marks each, out of which the students are required to attempt 9 short answer type questions (9 × 2 = 18 marks).

3. On an average, 15 hours are to be devoted to each unit.

4. Question Nos. II to IX will be long answer questions, two questions from each unit with internal choice, consisting of 18 marks each (4×18 = 72 marks).

Objective :

The students will be introduced with basic methods and techniques in social research. The objective of this course is to familiarize the students with the basic elements of scientific method, various methods of data collection and social measurement.

Course Content :

UNIT-I

Scientific Method : Features; Concepts; Stages of social research; Hypothesis.

UNIT-II

Sampling Technique: Meaning Population and Census, Sampling frame

UNIT-III

Techniques of Data Collection : Observation, Participant and Non-Participant Observation, Interview Schedule and Questionnaire (Structured/Unstructured); Case study method.

UNIT-IV

Measurement : Levels and Problems, Measures of Central Tendency: Mean, Mode, Median.
Essential Readings:


Further Readings:


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SOCIOLOGY
SEMESTER VI

Option (i) Social Demography

OR

Option (ii) Social Deviance

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

Option (i) Social Demography

Note :
1. For written paper the students will be required to attempt five questions in all. Question No. I will be compulsory and cover the entire syllabus. In addition, students will attempt four essay type questions, one from each of the four units.
2. Question No. I will be compulsory comprising of short answer questions. It will consist of 12 short answer type questions of 2 marks each, out of which the students are required to attempt 9 short answer type questions (9 × 2 = 18 marks).
3. On an average, 15 hours are to be devoted to each unit.
4. Question Nos. II to IX will be long answer questions, two questions from each unit with internal choice, consisting of 18 marks each (4 × 18 = 72 marks).

Objective :

The course exposes students to various components of population growth, data sources and basic theoretical problems of population. Concepts of mortality and fertility are discussed in general and with reference to India in particular. Students are apprised of the latest Population Policy in India.

Course Content :

UNIT-I


UNIT-II


UNIT-III

Concepts of Mortality : Causes of Mortality, Infant Mortality, Mortality Rate in India.

Fertility : Concept of Fertility, Factors affecting Fertility–Biological, Socio-Cultural and Psychological Fertility in India.

UNIT-IV

Population Policy in India, Female Foeticide (reference to PNDT Act).
Essential Readings:


Further Readings:

   (Latest Census Reports and Sample Registration Bulletins of the Government of India.)

OR

Option (ii) Social Deviance

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hrs.

Note:

1. For written paper the students will be required to attempt five questions in all. Question No. I will be compulsory and cover the entire syllabus. In addition, students will attempt four essay type questions, one from each of the four units.
2. Question No. I will be compulsory comprising of short answer questions. It will consist of 12 short answer type questions of 2 marks each, out of which the students are required to attempt 9 short answer type questions (9 × 2 =18 marks).
3. On an average, 15 hours are to be devoted to each unit.
4. Question Nos. II to IX will be long answer questions, two questions from each unit with internal choice, consisting of 18 marks each (4×18 = 72 marks).
Objective:
To understand the contemporary social problems in society, the students are exposed to the basic concept of deviance, its theoretical perspectives and control mechanisms.

Course Content:

UNIT-I

Deviance: Definition, Concept (Relative and Absolute) Distinction between deviant behaviour and deviant role. Pathological theories (Biological and Psychological).

UNIT-II


Structural-Functional Theories: Theory of Anomie (Emile Durkheim, Robert K. Merton), Differential Association (E. Sutherland and D.R. Cressey).


UNIT-III

Controlling Deviance: Socialization - means and agencies, Social Control: means and agencies, Social codes and customs; Sympathy: passive and active.

UNIT-IV


Essential Readings:

9. Ahuja, Ram,(2012) : Criminology, Jaipur Rawat Publications
10. Ahuja, Ram,(2015) : Social Problems in India, Jaipur, Rawat Publications
Further Readings:

2. Ian Robertson : *Sociology*, New York: Publisher Inc. (1977)
7. Sharma,Rajendra K,(1988) : *Social Disorganization, New Delhi:Atlantic Publications*
8. Byrne, David,(2009) : *Social Exclusion, Jaipur, Rawat Publications*

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PHILOSOPHY
B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-19
SEMESTER – V

Paper-A, Option (i) : PHILOSOPHY OF SCIENCE
OR
Paper-A, Option (ii) : SOCIAL AND POLITICAL PHILOSOPHY

Paper-A Option (i) : PHILOSOPHY OF SCIENCE

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<td>90 Marks</td>
<td>10 Marks</td>
<td>3 Hours</td>
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AIMS AND OBJECTIVES:
The aim of this paper is to analyse the concepts of philosophy and science, Einstein’s Theory of Relativity i.e. space, time and relativity; Nature of observational language and theoretical language; causality, prediction and probability; Principle of Complementarity.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:
The syllabus has been divided into four units.
There shall be 9 questions in all. First question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Course Contents:

UNIT-I
2. Einstein’s Theory of Relativity : Space, time, reality.

UNIT-II
5. Principle of Causality.
6. Causality as the existence of Laws.

UNIT-III
7. Causal Law and Statistical Laws.
8. Induction and Probability.

UNIT-IV
11. Popper & Kuhn
Essential Readings:

Suggested Readings:

OR

Paper – A, Option (ii) : SOCIAL AND POLITICAL PHILOSOPHY

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

AIMS AND OBJECTIVES:
The paper aims at understanding the nature of social and political philosophy and some of its fundamental concepts; its major social and political theories and Indian political thought.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:
The syllabus has been divided into four units.
There shall be 9 questions in all. First question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Course Contents:

UNIT-I

1. Nature and Scope of Social and Political Philosophy :
   (a) Relation between Social and Political Philosophy and Social Sciences such as Sociology and Political Science with special emphasis on the distinction between Philosophy and Science.
   (b) Empirical and Scientific study of society and politics as distinct from philosophical study of society and politics.

UNIT-II

2. Some Fundamental Concepts of Social and Political Philosophy :
   (i) Distinction between Natural Facts and Social Facts.
   (ii) Normative Aspects of Socio-Political Reality.
   (iii) State and Civil Society.
   (iv) Liberty, Equality and Fraternity.
   (v) Social Change and Social Progress.
   (vi) Tradition and Modernisation.
   (vii) Power and Authority.
   (viii) Reform and Revolution.
   (ix) Justice.
UNIT-III

3. Major Social and Political Theories
   (a) Liberalism.
   (b) Egalitarianism.
   (c) Anarchism.

UNIT-IV

4. Indian Political Thought: Chanakya, Vivekananda, Gandhi, Ambedkar.

Essential Readings:

Suggested Readings:
PHILOSOPHY

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-19
SEMESTER – VI

Paper -B, Option (i) : LOGIC
OR
Paper-B Option (ii) : PHILOSOPHY OF CULTURE
OR
Paper -B, Option (iii) : AESTHETICS

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

AIMS AND OBJECTIVES :

The paper aims at training the students in skills of critical reasoning by introducing laws of thought, criteria for validity of arguments, deductive and inductive reasoning.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.

There shall be 9 questions in all. First question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Course Contents :

UNIT-I

1. Nature and Scope of Logic.
2. Deductive Inference.
3. Laws of Thought.

UNIT-II

4. Aristotelian Classification of Propositions.
5. Immediate and Mediate Inference.

UNIT-III

7. Truth Tables.
8. Propositional Calculus.

UNIT-IV

11. Inductive Logic.
14. Law and Explanation
Essential Readings:


Suggested Readings:


OR

**Paper- B Option (ii) : PHILOSOPHY OF CULTURE**

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

**AIMS AND OBJECTIVES:**

This paper aims to introduce the problems like origin and meaning of culture, civilization, tradition, the role of ideology and Utopia, Indian cultural tradition.

**INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES:**

The syllabus has been divided into four units.
There shall be 9 questions in all. First question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

**Course Contents:**

UNIT – I

1. Origin and meaning of Culture.
2. Culture, Civilization and the Individual.

UNIT – II

3. Religion as an Apex of Culture.
4. Culture and Language.

UNIT – III

6. Sources of Indian Culture Tradition.

UNIT – IV

7. Role of Science and Technology in Cultural Evolution.
8. Inter – Cultural understanding and Hermeneutic Tradition.


Essential Readings:

4. Sneh Pandit Ed. : Perspectives on Philosophy of Culture, Delhi, S. Chand (1980)

Suggested Readings :


OR

Paper – B, Option (iii) : AESTHETICS

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

AIMS AND OBJECTIVES :

This paper aims at familiarizing the students with the meaning and scope of Aesthetics, art and society, aesthetic experience according to the Western and Indian tradition.

INSTRUCTIONS FOR THE PAPER-SETTER AND CANDIDATES :

The syllabus has been divided into four units.
There shall be 9 questions in all. First question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions i.e. 2 marks of each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all, of 18 marks each.

Course Contents :

UNIT-I
1. Aesthetics, its meaning and scope.

UNIT-II
3. The relation of art to society.
UNIT-III


UNIT-IV

5. Nature of Aesthetic experience according to the Western and Indian traditions.

Essential Readings:


Suggested Readings:


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PSYCHOLOGY

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-2019

SEMESTER V

PAPER: PSYCHOLOGICAL TESTING

Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

OBJECTIVES :

(I) Its aim is to introduce the students history, importance and classification of psychological testing and provide them with knowledge and procedure of test construction and standardization.

(II) Pedagogy of the Course Work :
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

INSTRUCTIONS FOR PAPER-SETTER AND THE CANDIDATES :

There shall be 9 questions in all. Five questions are required to be attempted. The first question shall be Short Answer type containing 12 short questions spread over the whole syllabus and the students are required to attempt nine short answer type questions in about 25-30 words each. It shall carry 18 marks and shall be compulsory question. Rest of the paper shall contain 4 Units. Each Unit shall have two essay type questions and the candidates shall be given internal choice, i.e. the candidates shall attempt one question from each Unit – 4 in all of 18 marks each.


UNIT-II : Item Writing and Item Analysis : Characteristics of a Good Item; Various types of Items; Item Difficulty; Item Discrimination.


UNIT-IV : Interpretation of Test Scores: Criterion Referenced Scores : Content Referenced and Outcome Referenced Scores; Norms Referenced Scores; Concept of Norms, Types of Norms (Percentile Scale and T. Scale).

Note : The use of non-programmable calculators and statistical tables is allowed in the examination.
Books Recommended

Suggested Readings:


Reference Books:


PSYCHOLOGY

B.A. (HONOURS) THIRD YEAR EXAMINATION, 2018-2019
SEMESTER VI

PAPER: Counselling and Organizational Psychology

Theory : 90 marks
Internal Assessment : 10 marks
Time : 3 Hours

OBJECTIVES:

(I) Its aim is to introduce the students history, importance and classification of psychological testing and provide them with knowledge and procedure of test construction and standardization.

(II) Pedagogy of the Course Work :
80% Lectures (including expert lectures).
20% assignments, discussion and seminars and tests.

INSTRUCTIONS FOR PAPER-SETTER AND THE CANDIDATES:

There shall be 9 questions in all. Five questions in all are required to be attempted. The first question shall be Short Answer type containing 12 short questions spread over the whole syllabus and the students are required to attempt nine short answer type questions in about 25-30 words each. It shall carry 18 marks, and shall be compulsory question. Rest of the paper shall contain 4 Units. Each unit shall have two essay type questions and the candidates shall be given internal choice, i.e. the candidates shall attempt one question from each Unit – 4 in all of 18 marks each.

UNIT-I : Concept of Counselling; Approaches to Counselling: Freudian, Experiential Client Centered, Gestalt, Existential, Cognitive Behaviour Therapy.


Books Recommended:

Suggested Readings:


Reference Books:


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GEOGRAPHY

B.A./B.Sc. (HONOURS) THIRD YEAR EXAMINATION, 2018

SEMESTER V

Paper : APPLIED GEOGRAPHY

Max. Marks: 100
(Terminal Exam: 90 Marks)
(Internal Assessment: 10 Marks)

Time: 3 Hours

Objectives:
To understand the prevalent issues in environment, society and economy and to provide a geographical interpretation with special reference to India

Course Content:

Unit- I

Applied Geography: Meaning and concepts:
Meaning, nature, scope and significance of Applied Geography. Concept of planning region.
Regionalisation scheme with reference to economic regionalization. (20 lectures)

Unit- II

Applied Geography: Methods and techniques:
Cartographic techniques of dot, choropleth, graduated circle; quantitative methods and techniques of crop combination; Quantitative methods and techniques of graduated circles. (20 lectures)

Unit- III

Applied Geography: Contributions:
Industrial location theory of Weber and its application in industrial planning.
Christaller’s Central Place Theory and its application in location of central places.
Von Thunen’s Agricultural Location Theory and its application in agricultural location.
Perroux’s Growth Pole Theory and its application in regional development planning.
Harris’ Functional classification of urban centres. (30 lectures)
UNIT- IV

Land use studies: Rural and Urban.

Rural Land Use: Survey and Classification.

Urban Land Use : Survey and Classification. (20 lectures)

Notes:
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part will carry 2 marks (total 20 marks).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. These will be in addition to the compulsory question at serial number 1.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.

Books Recommended

Essential Readings:

Further Readings:
3. Misra, V.C. & others : Essays in Applied Geography, University of Sagar, India.1976


Pedagogy:

- Exposure to media.
- National Five Year Plan documents and publications related to planning.
- Field work related to land-use and other socio-economic issues.
GEOGRAPHY

B.A./B.Sc. (HONOURS) THIRD YEAR EXAMINATION, 2019
Semester VI

Any one of the following options:

Option (i) : AGRICULTURAL GEOGRAPHY (An Elementary Course)
Option (ii) : POLITICAL GEOGRAPHY (An Elementary Course)
Option (iii) : ENVIRONMENTAL GEOGRAPHY (An Elementary Course)

Option (i) AGRICULTURAL GEOGRAPHY (An Elementary Course)

Max. Marks: 100
(Terminal Exam: 90 Marks)
(Internal Assessment: 10 Marks)

Time: 3 Hours

Objectives:

• To familiarise the students with the concepts and development of agriculture;
• To examine the role of agricultural determinants towards changing cropping patterns, intensity, productivity, diversification and specialisation. The course further aims to familiarise the students with the application of various theories, models and classification schemes of cropping patterns and productivity.
• Its objective is also to discuss environmental, technological and social issues in agricultural sector with special reference to India.

Course Content:

Unit- I

Nature, scope and significance of agricultural geography.
General landuse classification.
Physical determinants of agricultural landuse: Relief, climate, soils.

Unit- II

Social and cultural determinants of agricultural landuse, land tenure, size and fragmentation of holdings and labour.
Economic determinants of agricultural landuse: Marketing facilities, transport facilities, tariff and import restrictions, price incentives, credit.
Unit-III

A critical review of Whittlesey’s agricultural classification.
Characteristics and world patterns of the following:
Subsistence types of agriculture: Nomadic herding, shifting cultivation, rudimentary sedentary tillage, intensive subsistence tillage, subsistence crop and livestock farming.

Unit- IV

Commercial types of agriculture: livestock ranching, commercial plantation farming, commercial grain farming, mixed farming, commercial dairy farming.

Notes:

1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part will carry 2 marks (total 20 marks).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, 2 from each UNIT. The students will be required to attempt one question from each UNIT. These will be in addition to the compulsory question at serial number 1.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappearance/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

Books Recommended:

Essential Readings:


Further Readings:

**Pedagogy:**

The teacher should impress the students the overall importance of agriculture in the global perspective. The world is fast changing and its impact is felt on agriculture. Population is increasing and demand of agricultural products is also on the increase. Contrary to it, the farm lands are decreasing, that necessitates infusion of technology in agricultural sector. It is causing environmental pollution. The teacher should interact with students on said issues. Examples from neighbouring areas may be given to the students for better perceptions.

**Option (ii): POLITICAL GEOGRAPHY (An Elementary Course)**

Max. Marks: 100

(Terminal Exam: 90 Marks)

(Internal Assessment: 10 Marks)

Time: 3 Hours

**Objectives:**

- To familiarise the students with the geographical factors which have a bearing on the political/administrative organisation of space.
- To enhance awareness among the students of multi-dimensional nature of geo-political space.

**Course Content:**

**Unit- I**

Nature and scope of political geography, phases in the development of political geography. Physical elements of political geography: Location, size and shape, relief, climate, and seas and oceans.

**Unit- II**

Economic elements of political geography: Basic natural resources; food and power, minerals, industry, trade and transportation.

Human-cultural elements of political geography: Ethnographic structure of nations, language, religion, population, quantity and quality.

**Unit- III**

Concepts of frontiers and boundaries: Classification of boundaries.

Global distribution of political power: Views of Mackinder, Mahan and Spykman and their contemporary relevance.
Unit- IV

International tension: Identification of tension areas and factors contributing to tensions in different areas with special examples from Middle East and Indian Ocean.

Political Geography of the Indian Ocean.

Notes:
1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part will carry 2 marks (total 20 marks).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. These will be in addition to the compulsory question at serial number 1.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

Books Recommended:

Essential Readings:

Further Readings:
Pedagogy:
- Fieldwork to understand the political/administrative boundary configuration and people’s problems and their perceptions.
- Consult political maps (large scale, small scale).
- Atlases and archival records.
- Collect relevant newspaper items for group discussion.
- Prepare pin-up board for display of important events of geopolitical nature.

Option (iii): ENVIRONMENTAL GEOGRAPHY (An Elementary Course)

Max. Marks: 100
(Terminal Exam: 90 Marks)
(Internal Assessment: 10 Marks)
Time: 3 Hours

Objectives:
- To understand the significance of environment and its interrelationship with man.
- To understand the importance of soil and factors responsible for erosion.
- The importance of energy sources, forest and wildlife and their preservation to be studied.

Course Content:

Unit-I
Environment and Geography: Relationship between geography and environment; definition and scope of environmental geography; significance of environmental studies.

The Environment: Characteristics, components and functioning; concept of healthy environment.  
(6 + 6 = 12 lectures)

Unit- II
The Soil System: Origin and composition; horizons, texture, chemistry, factors influencing soil types; soil erosion, soil conservation; and soil pollution.

Energy: Energy flow in the ecosystem; environmental impact of both conventional and non-conventional energy sources.  
(6 + 4 = 10 lectures)

Unit- III
Forests: Significance; world reserves; deforestation; and conservation strategies.

Wildlife: Wildlife and environment relationship, regional distribution; conservation of wildlife; and wildlife in India.  
(5 + 5 = 10 lectures)
Unit- IV

Population and Environment: Basic issues, environmental impact of population growth and agenda for action.

Global Environmental Issues: Water contamination; atmospheric pollution; acid rain; noise pollution; and control strategies.

Legislative strategies, environmental issues and the international community; Rio-de-Janeiro Earth Summit of 1992; selected environmental protection laws in India; Environmental Protection Act, National Environmental Tribunal Act, Wildlife Protection Act, Forest Conservation Act, Air Act, Water Act.  

(6 + 6 + 6 = 18 lectures)

Notes:

1. A compulsory question containing 15 short answer type questions shall be set covering the whole syllabus. The student shall attempt any 10 parts in about 25-30 words each. Each part will carry 2 marks (total 20 marks).
2. The whole syllabus will be divided into 4 Units. Eight questions will be set out of the whole syllabus, 2 from each unit. The students will be required to attempt one question from each unit. These will be in addition to the compulsory question at serial number 1.
3. Internal assessment may include written assignments, snap tests, participation in discussion in the class, term papers, attendance etc.
4. For reappear/improvement candidate(s) who have not been assessed earlier for Internal Assessment, the question paper(s) in their case shall be of Maximum Marks allotted to the paper(s) concerned.

Books Recommended:

Essential Readings:

**Further Readings:**


**Pedagogy:**

- The interaction of teacher and students is must on issues related to environment, energy resources, forest and soil preservation.
- A field visit to those areas where soil erosion is a serious problem be arranged and methods of conservation be taught.

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PUBLIC ADMINISTRATION
SEMESTER -V

Paper- III : RESEARCH METHODS AND STATISTICS

Objective of the Paper :
The objective of the paper is to give the student an in-depth understanding about the nature and scope of Social Research, Methods of Social Research, data collection and data processing. It would also acquaint the students with basics of sampling and statistical methods including measures of central tendency, dispersion, correlation and Chi-Squares Test.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES :

➢ For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

➢ The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

UNIT-I
Meaning, Nature and Scope of Social Research.
Concepts; Hypotheses : Meaning, Types and Significance.
Research Design - Meaning, Types and Components.
Methods of Social Research - Experimental–Survey and Case Study.

UNIT-II
Methods of Data Collection—Documents, Observation, Interview and Questionnaire.
Data Processing-Editing, Coding and Tabulation, The Use of Computer.
Report Writing.
UNIT-III

Sampling – Meaning, Types, Merits and Demerits.
Frequency Distribution – Meaning and Steps.
Measures of Central Tendency – Mean, Median and Mode.

UNIT-IV

Measures of Dispersion – Standard Deviation.
Correlation – Karl Pearson.
Chi-Square

Essential Readings:

Further Readings:
PUBLIC ADMINISTRATION 
SEMESTER-VI

PAPER IV : The candidates have to select one out of the following four options:

Option (i) : Organisation Behaviour
Option (ii) : Cooperative Administration in India
Option (iii) : Public Enterprise Management (with special reference to India)
Option (iv) : Environment Administration in India
Option (v) : Emerging Issues in Public Administration

Paper- IV : OPTION (i) : ORGANISATION BEHAVIOUR

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective of the Paper:
The objective of the paper is to give the student an in-depth insight into the various aspects and factors affecting individual, interpersonal and group behaviors in organisations. The key areas include study of human behavior and concepts like Attitudes, Morale, Leadership, Motivation and Organizational Change.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES:

➢ For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

➢ The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

UNIT-I
Organisation Behaviour : Concept and significance
Individual Behaviour : Concept; Nature; Individual Factors
Interpersonal Relations : Meaning; Dimensions; Factors

UNIT-II
Team Development : Importance; Types of Teams
Attitudes : Concept, Types
Morale : Concept; Significance; Building up High Morale
UNIT-III

Groups : Concept; Types
Leadership : Styles of Leadership
Motivation : Concept; Determinants

UNIT-IV

Organisational Change : Concept; Resistance to change
Organisational Development : Concept; Need; Techniques
Organisational Effectiveness : Concept; Approaches

Essential Readings:

Paper- IV: OPTION (ii) : CO-OPERATIVE ADMINISTRATION IN INDIA

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective of the Paper:
The objective of the paper is to acquaint the students with the evolution of cooperatives in India and its Principles. It will also deal with Legislation on Cooperatives, Registration, structure and Administration at the Union and State level. Further the students will gain an understanding of the forms and Role of Cooperatives, their managerial & personnel aspects.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES:

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

- The Paper-Setter must put a note in question paper in this regard.

- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.
UNIT-I

Co-operation: Meaning, Significance and Evolution
Co-operative Principles
Co-operative Legislation: Government of India Act, 1912 and Punjab Co-operative Societies Act, 1961 (as amended from time to time)

UNIT-II

Registration of a Co-operative Society
General Body, Board of Directors and Committees
Chief-Executive: Appointment, Functions and Role
Co-operative Administration at Union Level – Organisation and Functions

UNIT-III

Co-operative Department at State Level – Organisation and Functions
Registrar Co-operative Societies: Appointment and Role
Forms of Co-operatives: Role of Apex Federations and Primary Co-operatives
Co-operative Education

UNIT-IV

Human Resource Management: Recruitment and Training
Financial Management

Essential Readings:

Further Readings:
Paper-IV: OPTION (iii): PUBLIC ENTERPRISE MANAGEMENT (WITH SPECIAL REFERENCE TO INDIA)

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective of the Paper:

The objective of the paper is to give the student a detailed understanding of the concept, evolution, types, role and problems of public enterprises in India. It would also give an insight into legislative and government control over public enterprises, performance and reforms of the public enterprises and the concept of privatization.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES:

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

  The Paper-Setter must put a note in question paper in this regard.

- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

UNIT-I

Public Enterprise: Meaning and Evolution
Public Enterprises in India: Rationale and Role
Administrative and Managerial Problems of Public Enterprises

UNIT-II

Organisational Patterns: Departmental Undertakings, Public Corporation and Government Company
Board of Directors: Rationale, Constitution, Types and Functions
UNIT-III

Legislative Control over Public Enterprises
Government Control over Public Enterprises
Performance of Public Enterprises

UNIT-IV

Public Enterprise Reforms since 1991
Memorandum of Understanding
Privatization: Meaning, Rationale, Achievements and Failures

Essential Readings:


Further Readings:

Ramanadham, V.V. The Structure of Public Enterprises and Economics in India. Bombay: Asia Publishing House.
Objective of the Paper:

The objective of the paper is to give the student an in-depth understanding of the concept and components of environment, environment administration and sustainable development. In addition, the students would be made aware of environment problems, threats and impact of development on environment. The student will also gain knowledge regarding the machinery for environment protection at the Union and State levels, Environmental Policy, priorities, global issues and role of NGOs in environment conservation would be dealt with.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES:

- For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

The Paper-Setter must put a note in question paper in this regard.

- The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

UNIT-I

Environment – Concept and Components
Environment Administration – Meaning, Nature and Scope
Sustainable Development – Concept, Issues and Strategy

UNIT-II

Environment Problems and Threats—Air, Water, Land, Human Settlements and Forests
Impact of Development, Urbanization and Industry on Environment
Organisation and Machinery of the Government at the Union Level for Environment Protection
Organisation and Machinery of the Government at the State Level for Environment Protection
UNIT-III

Pollution Control Boards—Organisation, Functions and Role

Environmental Policy with special reference to Water, Air and Forest; Constitutional Provisions; Legislative Measures

Environmental Priorities in India—Population Stabilisation; Forest Cover; Deforestation; Wildlife Protection; Recycling of Wastes

UNIT-IV

Environment and Global Issues—Conventions; Depletion of Ozone Layer; Global Warming

Environment Education, Awareness and Ethics; Role of NGOs in Environment Protection and Conservation

Essential Readings:


Further Readings:


PAPER- IV: OPTION (V): Emerging Issues in Public Administration

Max. Marks: 100
Theory: 90 Marks
Internal assessment: 10 Marks
Time: 3 Hours

Objective of the Paper:
The purpose of this course is to familiarize the students with the emerging issues in Indian Administration. At the end of the course the students will have an understanding of the concepts of disaster management, human rights, regulatory administration in India, consumer protection, right to information, new areas of governance in India.

INSTRUCTIONS FOR PAPER-SETTERS AND CANDIDATES

➢ For Private/University School of Open Learning (USOL) students, who have not been assessed earlier for the internal assessment, the marks secured by them in the paper will proportionately be increased in lieu of the internal assessment.

➢ The Paper-Setter must put a note in question paper in this regard.

➢ The candidate shall attempt 5 questions in all (one compulsory and one each from four units). The first compulsory question shall comprise of 12 short-answer type questions, covering the whole syllabus, to be answered in 25-30 words each, out of which the candidate would be required to attempt any 9. Each question will carry 2 marks. Rest of the paper shall contain 4 units, each unit having two questions, out of which the candidate would be required to attempt one. Each question will carry 18 marks.

Unit I
Good governance – Concept and significance
E- governance – Concept and significance
Regulatory Administration - Concept and significance

Unit II
Transparency and Accountability in Administration – Significance
Mechanism – Social Audit, Results Framework Document (RFD)
Ethics and Integrity in Administration

Unit III
Human Rights - Concept and significance
Women Empowerment with special reference to National Mission for Empowerment of Women (NMEW)
Youth Empowerment with special reference to Pradhan Mantri Kaushal Vikas Yojana (PMKVY)
Unit IV

Sustainable Development - Concept and significance
Environment Administration - Concept and significance
Disaster Management - Concept and significance

Suggested Readings:

Centre for Good Governance. *Social Audit Tool Kit*,”n.d” from www.cgg.gov.in
Food & Agricultural Organization (F.A.O.). *A handbook for trainers on participatory local development: The Panchayat & Training Module on social Audit*
Government of India. (2006,June). *Second ARC – First Report (Right to Information- Master Key to Good Governance).*

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ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

SEMESTER – V

Note : The students shall have to opt for one paper for Semester - V examination out of the following two papers:

Outlines of Test :

Paper V : Archaeology
Paper VI : Spread of Indian Culture In Central Asia, China And Tibet

Paper-V: ARCHAEOLOGY

Total Marks : 100
Theory : 90
Internal assessment : 10
Time : 3 Hours

Objectives :

This course is a survey of the pre and proto-historic background to Indian history from the beginning of man to the early historical period. Excavated sites are studied for an insight into the growth of early Indian culture.

Note :

1. The paper setter is required to set 9 questions in all.
2. The candidates are required to attempt five questions in all.
3. All questions shall carry equal marks.
4. The first question shall be short answer type containing 15 short questions spread over the entire syllabus. The candidates are required to attempt 9 short questions in about 25 to 30 words each. It shall carry 18 marks and shall be a compulsory question.
5. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit i.e. 4 in all, of 18 marks each.

UNIT-I:
The Palaeolithic, Mesolithic and Neolithic cultural sequences in various parts of the Indian subcontinent.

UNIT-II:
(a) The background and the phenomenon of the Harappan civilization.
(b) The Chalcolithic cultures of western and southern India

UNIT-III:
The beginning of iron technology and the Painted Grey Ware Culture.
UNIT-IV:
Excavations of early historic cities of:
(a) Northern India and Gangetic doab: Taxila and Hastinapura.
(b) Eastern India: Sisupalgarh and Chandraketugarh.
(c) Southern India: Arikamedu and Brahmagiri.

Pedagogy of the Course Work:
The students are made familiar with prehistoric, proto historic and historical sites through visits. Slides, photographs of relevant sites, their significance in establishing chronologies is also discussed in the class. Visits to museums is also an important aspect through which students are made familiar with the material evidence.

Essential Readings:
7. Tripathi, V.: The Painted Grey Ware An Iron Age Culture of Northern India Concept, Publisher Corporation, Delhi, 1976.

Paper VI: SPREAD OF INDIAN CULTURE IN CENTRAL ASIA, CHINA AND TIBET

Max. Marks : 100
Theory : 90 Marks
Internal Assessment : 10 Marks
Time : 3 Hours

Objective:
1. The primary aim of this paper is to make the students study the spread of Indian culture and ideas in Central Asia, China and Tibet, generally termed in history as ‘Greater India’. This forms an important phase of India’s contribution to the world culture.
2. Pedagogy of the Course Work:
   It is expected to acquaint the students with the background of Indian culture’s spread and the factors responsible for it. While outlining the spread of Indian culture and religion, the spread of art, architecture and literature should also be taken care of. Visual aids wherever required should be used to familiarize students with Indian art and its influence in these countries.
INSTRUCTIONS FOR THE PAPER-SETTER AND THE CANDIDATES:

The syllabus has been divided into four units.

There shall be 9 questions in all. All questions carry equal marks. The first question shall be short answer type containing 15 short questions spread over the whole syllabus and each to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions. It shall carry 18 marks i.e. 2 marks of each and shall be compulsory question. Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall attempt one question from each Unit – 4 in all.

UNIT-I:

Spread of Indian Culture in the Central Asian States.

UNIT-II:

Introduction of Buddhism in China and the early contacts.

UNIT-III:

Chinese pilgrims in India – Fahien, Hiuen Tsang and I-Tsing.

UNIT-IV:

(a) Spread of Buddhism in Tibet up to 12th century A.D. with special reference to the missions of Padma Sambhava.
(b) Lamaism.

Essential Readings:

ANCIENT INDIAN HISTORY, CULTURE & ARCHAEOLOGY

SEMESTER – VI

Note : The students shall have to opt for one paper for Semester - VI examination out of the following two papers :

Outlines of Test :

Paper VII : Epigraphy and Numismatics
Paper VIII : Spread of Indian Culture in South-East Asia upto 12th Century A.D.

Paper-VII : EPIGRAPHY AND NUMISMATICS

Total Marks : 100
Theory : 90
Internal Assessment : 10
Time : 3 Hours

Objectives :

The paper is aimed to prepare students to handle the original source material – inscriptions and coins, which make the backbone of Ancient Indian History, as without the knowledge of epigraphy and numismatics, the subject cannot be mastered.

Note : 1. The paper setter is required to set 9 questions in all.
2. The candidates are required to attempt five questions in all.
3. All questions shall carry equal marks.
4. The first question shall be short answer type containing 15 short questions spread over the entire syllabus. The candidates are required to attempt 9 short questions in about 25 to 30 words each. It shall carry 18 marks and shall be a compulsory question.
5. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit i.e. 4 in all, of 18 marks each.

UNIT-I:

(a) Origin and antiquity of writing in India with special reference to the origin of Brahmi script.
(b) Origin and antiquity of coinage in India.

UNIT-II:

(a) Ashokan inscriptions – Pillar Edicts I to IV: Girnar Rock Edicts I, II and XIII. (Both for study and decipherment).
(b) Besnagar Pillar inscription of Heliodorus; Nasik Cave Inscription of Queen Balasri; Sarnath Buddha Image inscription of Kanishka’s year 3; Junagahr Rock inscription of Rudradaman I, Saka year 72. (Study only). Gupta inscriptions—Allahabad Pillar inscription of Samudragupta, Mehrauli Iron Pillar inscription of Chandra, Bhitari Stone Pillar inscription of Skandagupta (Study only).

(c) Post-Gupta inscriptions: Mandasor Stone inscription of Malava Samvat 589, Banskhera Copper-plate of Harshavardhana, Pehowa inscription of Bhojadeva (Study only).

UNIT-III:

(a) Coins as source of ancient Indian history.
(b) Study of Punch marked coins.

UNIT-IV:

(a) Coins of the Kushanas.
(b) Coins of the Guptas.

Pedagogy of the Course Work:

Students should be familiarized with the details of the topics in the syllabus with stress on the contents of each topic. Visual aids like the photographs/slides of the coins and inscriptions should be used regularly. The decipherment of Asokan inscriptions should be taught with the help of plates and paleographic charts.

Essential Readings:

3. Buhler, G. : Indian Paleography, Munshiram Manoharlal, New Delhi, 2004
Paper-VIII : SPREAD OF INDIAN CULTURE IN SOUTH-EAST ASIA UPTO 12TH CENTURY A.D.

Total Marks : 100
Theory : 90
Internal Assessment: 10
Time : 3 Hours

Objectives:

This course enlightens the students about the spread of Indian culture in Burma, Indonesia, Combodia and Champa. In order to teach the students about the elements of Indian Culture, which made its impact felt in those countries, it is, therefore, necessary to discuss the political history, art, architecture and religion of those regions.

Note : 1. The paper setter is required to set 9 questions in all.
       2. The candidates are required to attempt five questions in all.
       3. All questions shall carry equal marks.
       4. The first question shall be short answer type containing 15 short questions spread over the entire syllabus. The candidates are required to attempt 9 short questions in about 25 to 30 words each. It shall carry 18 marks and shall be a compulsory question.
       5. The rest of the paper shall contain 4 Units. The entire syllabus has been divided into 4 Units. Each unit shall have two questions and the candidate shall be given internal choice i.e. the candidate shall attempt one question from each Unit i.e. 4 in all, of 18 marks each.

UNIT-I:
(a) Beginning of Indianisation in Burma.
(b) Art and Religion of Burma.

UNIT-II:
(a) Beginning of Indianisation in Indonesia.
(b) Study of Indo-Javanese Art.

UNIT-III:
(a) Beginning of Indianisation in Cambodia.
(b) Art of Cambodia.

UNIT-IV:
(a) Beginning of Indianisation in Champa.
(b) Study of Art and Archaeological remains of Champa.
Pedagogy of the Course Work:

The students are taught with the help of slides, photographs and maps. In addition to it, lectures, workshops, seminars, written assignments and class discussions, term papers etc. are essential parts of it. The students should be made familiar with the outline of the topics mentioned in above units.

Essential Readings:

POLICE ADMINISTRATION

SEMESTER V

Semester V: Police Procedures and Investigation-I

(A) Course Objectives:
The course has been designed to impart students knowledge about the procedures followed and investigation done by the police after the incidence of crime. The students will be taught about the crime scene, its importance, inspection of crime scene and its preservation along with the investigation officer and his/her role. Further the students would be made aware about investigation, interrogation and interview techniques with a focus on witnesses, women and juvenile offenders.

(B) Pedagogy of the Course Work:
90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of :

1. Internal Test-5%;
2. Academic activities (Seminar, Project, Assignment)-3%;
3. Attendance-2%

(C) Instructions for Paper Setters and Candidates:
• The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.
• Time allowed will be 3 hours.
• There shall be 9 questions in all.
• The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9x2 = 18 marks).
• Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks)

(D) Course Content:

Unit-I
Investigating Officer: Power of observation and its importance in Investigation; and Qualities of investigating officer.

Unit-II
Crime Scene: importance of crime scene; inspection of crime scene; and preservation of crime scene.

Unit-III
Investigation; interrogation; and interviews.

Unit-IV
Examination of witnesses; interrogation of women accused; and interrogation of juvenile offenders.
Essential Readings:


Further Readings


*********************
POLICE ADMINISTRATION

SEMESTER VI

Semester VI: Police Procedures and Investigation-II

(A) Course Objectives:

The objective of this course is to introduce to the students about the use of scientific techniques in the field of investigation. After providing knowledge in death, types of death and bodily changes after death, the students would be imparted information on how to preserve finger prints, footprints, knowledge about handling of physical evidences, along with their packing and forwarding. In addition knowledge about the modern tools of investigation would also be provided.

(B) Pedagogy of the Course Work:

90 per cent of the Course Content would be delivered through Lecture Method and rest 10 per cent would comprise of :

   i. Internal Test-5%;
   ii. Academic activities (Seminar, Project, Assignment)-3%;
   iii. Attendance-2%

(C) Instructions for Paper Setters and Candidates:

   • The maximum marks for the paper will be 100. The question paper will be of 90 marks and internal assessment of 10 marks.

   • Time allowed will be 3 hours.

   • There shall be 9 questions in all.

   • The first question shall be compulsory and be short answer type containing 12 short questions spread over the whole syllabus and to be answered in about 25 to 30 words. The candidate is required to attempt any 9 short answer type questions carrying 2 marks (9x2 = 18 marks).

   • Rest of the paper shall contain 4 units. Each unit shall have two questions and the candidates shall be given internal choice i.e. the candidates shall have two questions and the candidates shall attempt one question from each unit i.e. four questions in all. Each question will carry 18 marks (4x18 = 72 marks).
(D) Course Content:

**Unit-I**

Death; Types of death- death due to suffocation hanging, drowning, accident, suicide and murder.
Bodily changes after death.

**Unit-II**

Preservation of finger prints, footprints, and blood at the scene of crime.

**Unit-III**

Physical evidence, handling packing and forwarding of physical evidence, and types of opinion to be obtained from physical evidence.

**Unit-IV**

Photography and its importance in police work; Polygraph; Brain mapping; and Narco Analysis.

**Essential Readings:**

### Further Readings

1. **Singh, S.P.**

2. **Dutta, K.K.**

3. **Ghosh, S.K. and Rustamji, K.F.**

4. **Vadackumchery, James**

5. **Vadackumchery, James**
   - Police, the Court and Injustice, A.P.H. Publishing Corporation, New Delhi, 1997.

6. **Sharma, R**
MUSIC (VOCAL AND INSTRUMENTAL)
SEMESTER-V

General Instructions:-
1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
3. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
4. There will be ten questions in five units. The candidates will be required to attempt any five questions selecting at least one from each unit.
5. Separate Practical paper shall be set for each session from the syllabus prescribed for Practical Paper- B.
6. There should not be more than eight students in a batch for practical examination.
7. There would be upto ten students in one section in practical class.

Paper:-( Theory)

<table>
<thead>
<tr>
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<th>Marks</th>
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<tr>
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<tr>
<td>Theory</td>
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</tr>
<tr>
<td>Time</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Note: There will be 10 questions in all and a student will attempt five questions choosing at least one from each unit.

UNIT-I
1. Definition with full explanation of the following :-
   Sthai, Antra, Krintan, Badhat, Jod-Alap, Lag Daat, Jugalbandi, Layakaries ( Adi, Kaudi, Biadi)
2. Establishment of Swaras on strings of Veena.

UNIT–II
1. Definition of Aesthetics in context of Indian Music
2. Rasa Sidhanta of Bharat

UNIT–III
1. Topics of Essay: - (i) Sangeet Sammelan
2. Knowledge of good qualities of a music performer ( Vocalist or an Instrumentalist)
3. Elementary Knowledge of Harmonium, Tabla, Veena
UNIT-IV

1. Description of Detailed & Non-detailed Ragas:-
   1. Detailed Raga :-
      i) Marwa (ii) Madhmad Sarang
   2. Non-detailed Raga: -
      (i) Sohni (ii) Megh
   3. Talas:- Tivra, Sultal

UNIT-V

The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each

Paper B: Practical (Choice & Viva) : 45 Marks

Internal Assessment : 05 Marks
Time : 45 Minutes

(a) Choice (Solo performance) : 22.5 Marks
(b) Practical Test : 22.5 Marks
   (i) Tuning : 5 Marks
   (ii) Capacity to play Talas on Tabla : 2.5 Marks
   (iii) Capacity to play Harmonium : 2.5 Marks
   (iv) Viva : 12.5 Marks

Part-A: (CHOICE OF THE CANDIDATE)

(a) A candidate has to demonstrate in the Raga of his/her choice from the prescribed ragas with detailed elaborations:
   (i) A Vilambit Khayal : 7.5 marks
   (ii) A Drut Khayal : 5 marks

OR

   (i) A Vilambit Gat : 7.5 marks
   (ii) A Drut Gat : 5 marks

(b) One Dhamar in Gayaki Anga and /one drut gat in ekatal 2.5 marks
(c) Any one of the following:-
    Bhav-Geet, Bhajan, Shabad or Dhun 2.5 marks
Part-B: (VIVA)
(a) List of Detailed Ragas:
   (i) Marwa
   (ii) Madhang Sarang

(b) Non-detailed Ragas, description with Aroh, Avroh and pakad in the following Ragas:
   (i) Sohni
   (ii) Megh

(c) Talas : Tivara, Sultal on Tabla.
   (i) One slow khayal with extempore Alaps and Tanas in any of the detailed Ragas.

   OR

   One slow Gat with extempore Alaps and Toras in any of the detailed Ragas.

   (ii) Two fast khayals or two fast gats with elaboration in each of the prescribed Ragas.
   (iii) Ability to recite Tivra, Jhoomra, and Punjabi talas in single.
   (iv) Tuning of your instrument.
   (v) Capacity to play on Tabla the Talas prescribed in the course.
   (vi) Capacity to play on the Harmonium any raga from the choice.

Books Recommended:
1. Sangeetanjali : Pt. Onkar Nath Thakur
2. Abhinav Geetanjali : Pt. Ramashray Jha
3. Saras Sangeet : Pradeep Kumar Dixit
4. Aakashvani Evam Hindustani : Dr. Suchismita
   Shastriya Sangeet
5. Sangeet Visharad : Basant
6. Raag Parichay : Harish Chandra Srivastav
7. Sangeet swarit : Dr. Ramanand Dwivedi
8. Sangeet Prabodhika : Dr. Parmanand Bansal
   Dr. Gyan Chand
MUSIC (VOCAL AND INSTRUMENTAL)

SEMESTER-VI

General Instructions:-
1. In case of the private candidates, there will be no internal assessment and the marks obtained in the external assessment of the practical examination shall be proportionately increased.
2. Harmonium will not be allowed as accompaniment in vocal music, but harmonium can be used while singing Alankars.
3. While sending the syllabus to paper-setter in theory, the syllabus prescribed for the practical paper also to be sent.
4. There will be ten questions in five units. The candidates will be required to attempt any five questions selecting at least one from each unit.
5. Separate Practical paper shall be set for each session from the syllabus prescribed for Practical Paper- B.
6. There should not be more than eight students in a batch for practical examination.
7. There would be upto ten students in one section in practical class.

Paper-:-Theory

<table>
<thead>
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<td>Theory</td>
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<td>Internal Assessment</td>
<td>10 Marks</td>
</tr>
<tr>
<td>Time</td>
<td>3 Hours</td>
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</table>

UNIT – I

1. Definition with full explanation of the following :-
   Kalavant, Vaggeykar, Swarsthan Niyam

UNIT-II

1. Essays:- i  Role of Music in National Integration
   ii  Lok Sangeet
   iii  Music Appreciation

UNIT-III

1. Impact of Western Music on Indian Music
2. Study of Western Instruments:- Guitar, Keyboard, Octopad
1. Detailed study of Dakshini Music System of the following:-
   
i      Swara
   ii     Raga
   iii    Tala

UNIT-IV

1. Description of Detailed & Non-detailed Ragas: -

1. Detailed Raga: - (i) Patdeep
   (ii) Megh Malhar

2. Non-detailed Ragas: - (i) Bhimpalasi
   (ii) Bahar

3. Talas: - Tilwada, Adachautal

Unit -V

The ninth question of unit V is compulsory & it consists of 13 short answer questions (covering entire syllabus i.e. theory and practical) out of which students have to attempt 09 questions of carry 01 marks each

Paper B: Practical (Choice & Viva)  45 Marks

<table>
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<tr>
<th></th>
<th>Internal Assessment : 05 Marks</th>
<th>Time : 45 Minutes</th>
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<tbody>
<tr>
<td>(a) Choice (Solo performance)</td>
<td>: 22.5 Marks</td>
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</tr>
<tr>
<td>(b) Practical Test</td>
<td>: 22.5 Marks</td>
<td></td>
</tr>
<tr>
<td>(i) Tuning</td>
<td>: 5 Marks</td>
<td></td>
</tr>
<tr>
<td>(ii) Capacity to play Talas on Tabla</td>
<td>: 2.5 Marks</td>
<td></td>
</tr>
<tr>
<td>(iii) Capacity to play Harmonium</td>
<td>: 2.5 Marks</td>
<td></td>
</tr>
<tr>
<td>(iv) Viva</td>
<td>: 12.5 Marks</td>
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</tbody>
</table>

Part-A: (CHOICE OF THE CANDIDATE)

(a) A candidate has to demonstrate in the Raga of his/her choice from the prescribed ragas with detailed elaborations:

(i) A Vilambit Khayal : 7.5 marks
(ii) A Drut Khayal : 5 marks

OR

(i) A Vilambit Gat : 7.5 marks
(ii) A Drut Gat : 5 marks
(b) Tarana or one Fast Gat in Ektal  
2.5 marks
(c) Any one of the following:-  
Bhav-Geet, Bhajan, Shabad or Dhun  
2.5 marks
(a) Ability to write notation of the Vilambit and Drut Gat of Ragas prescribed in the course:-  
Patdeep, Megh Malhar

Part-B: (VIVA)
(a) List of Detailed Ragas:
(i) Patdeep
(ii) Megh Malhar

(b) Non-detailed Ragas, description with Aroh, Avroh and pakad in the following Ragas:
(i) Bhimpalasi
(ii) Bahar

(c) Talas : Tilwada, Adachartala on Tabla.
(i) One slow khayal with extempore Alaps and Tanas in any of the detailed Ragas. 7.5 marks

OR
One slow Gat with extempore Alaps and Toras in any of the detailed Ragas.

(d) Geet Ghazal

(ii) Two fast khayals or two fast gats with elaboration in each of the prescribed Ragas. 2.5 marks

(iii) Tuning of your instrument. 2.5 marks

(v) Capacity to play on Tabla the Talas prescribed in the course. 2.5 marks

(vi) Capacity to play on the Harmonium any raga from the choice. 2.5 marks

Books Recommended:

1. Bhatkhande Sangeet Shastra : Pt. Bhatkhande
2. Abhinav Geetanjali : Pt. Ramashray Jth
4. Raag Parichay : Harishchandra Srivastav
5. Sangeet Visharad : Basant
6. Sawars Sangeet : Pradeep Kumar Dixit
7. Sangeet Swarit : Dr. Ramanand Dwivedi
8. Sangeet Prabodhika : Dr. Parmanand Bansal
   Dr. Gyan Chand
9. Art Education : Janardan Prasad

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HOME SCIENCE

The syllabus of Home Science for B.A./B.Sc. (Honours) Third year (SEMESTER SYSTEM) has been KEPT IN ABYANCE.
PHYSICS

B.Sc. (HONOURS) THIRD YEAR (5th and 6th Semester) EXAMINATION, 2018-19

SEMESTER-V

Paper V: Physics of Semiconductors

Unit I

Crystal Properties and Growth of Semiconductors: Semiconductor materials, Crystal lattices, Ge and Si crystal structure, production of electronic grade Si, Bulk crystal growth, Epitaxial growth.
Bonding forces and energy bands in solids, Metals, semiconductors and insulators, Direct and Indirect semiconductors, intrinsic and extrinsic semiconductors, compensation, Electrons and holes, effective mass, Fermi level, Conductivity and mobility, temperature dependence of Carrier concentration, effect of temperature, doping and field on mobility, Hall effect, Invariance of Fermi level at equilibrium.
Excess carriers in semiconductors: Optical absorption, Photoluminescence, Electroluminescence, Carrier lifetime and photoconductivity, photoconductive devices.

Unit II

Diffusion and drift of carriers: Einstein relation, built-in fields in semiconductors with different doping profiles, energy band diagrams. Steady state carrier injection, diffusion length, Haynes-Shockley experiment (qualitative discussion).
pn junction energy band diagrams, forward and reverse-biased junction, calculation of contact potential and depletion width in abrupt junction, diffusion and drift currents, Reverse-bias breakdown, Zener and Avalanche diode. Diffusion and depletion capacitance of pn junction, varactors.
Metal-semiconductor contacts, energy band diagrams of ohmic and rectifying contacts, Schottky diodes.

Recommended Books:

Paper VI: Computational Physics

Note: The Computational Physics paper will consist of two parts (a) written examination of one hour duration and (b) Practical examination of two hours duration. Both the parts carry equal marks.


Unit I

C Programming Language

Types of Computer Systems and Operating Systems.
I/O Statements : printf, scanf, getc, getch, getchar, getche, etc.
Manipulators for Data Formatting: setw, width, endl and setprecision etc. ASCII Files I/O.
Preprocessor : #include and #define directives.

Unit II

Design of algorithm and computer programs based on the numerical techniques read in Paper III “Statistics and Numerical Techniques”.
Programs : (a) Data handling: find standard deviation, mean, variance, moments etc., (b) the least squared fitted curve for a data set, (c) roots of quadratic equations, (d) first order derivative at given x for a data set using Lagrange interpolation, (e) numerical integration on 1-D function using Simpson methods, (f) solving a differential equation using Euler/Runge-Kutta method, (g) Sum, Difference and Product of Matrices, (h) determinant of a matrix - its eigenvalues and eigenvectors.(h)Plotting and evaluation of mathematical functions.

Recommended Books:
PHYSICS
SEMESTER-VI

Paper VII: Nuclear Radiations and Detection

Unit I

Radiation Sources:

Radioactive decays: Alpha decay, β−, β+ and EC decays, Radioactivity units, gamma rays, Internal conversion, X-rays, Auger electron, Bremsstrahlung, Annihilation radiation.
Neutron sources- fission, radioisotope based sources and photoneutron sources, Accelerator based sources.
Radiation Interactions: Interaction of light and heavy Charged Particles, Stopping power, energy and range straggling.
Interaction of Fast Electrons - ionsation and radiative loss, backscattering.
Interaction of Gamma rays, photoelectric absorption, Compton scattering and pair production. Attenuation coefficient.
Interaction of Neutrons, Slowing down power, thermal neutrons.
Sources of Background: Natural radioactivity, Air borne radioactivity, Primary and secondary Cosmic rays.

Unit II

General Properties of Radiation Detectors: Modes of detector operation, Current mode, pulse mode, Pulse Height Spectra, Energy Resolution, Detection Efficiency, Dead Time-paralyzable and non-paralyzable models.
Radiation Detectors:
Ionization process in gases, Ion pair formation, fano factor, diffusion, charge transfer and recombination, Charge Migration and Collection.
Gas-filled detectors: Gas Multiplication, avalanche formation, Regions of detector operation.
Proportional Counters, fill gases and choice of geometry.
Geiger-Mueller counter, Fill Gases and Quenching mechanism, Recovery time and dead time, detection of charged particles, gamma and neutrons rays with G.M. counter.
Scintillation Detectors: Organic and Inorganic Scintillators; Characteristics and parameters associated with Gamma ray spectrum
Semiconductor detectors.
Detection of slow and fast neutrons by neutron-induced reactions.
Recommended Books:

Paper VIII: Physics Practical

Note: The students are expected to perform any 6 experiments taking at least 3 from each section.

Unit I

1. Measurement of vacuum using the pirani/thermocouple gauge made using electric bulb filament.
2. To study Poisson and Gaussian distributions using a GM Counter.
3. To study absorption of gamma rays in Pb and Fe absorbers.
5. To study regulated power supply and voltage multiplier circuits (using breadboard).

Unit II

6. To design an Astable multivibrator of given specifications using 555 Timer IC.
7. To design a monostable multivibrator of given specifications using 555 Timer IC and to measure the pulse-width of its output.
8. To study logic gates and clocked JK Master-Slave flip flops using IC’s.
9. Study of photon intensity variation through crossed polaroids and diffraction spectrum from diffraction grating using LDR/Photodiode.
10. To measure resistivity of semiconductor at different temperatures using four probe method and the deduce band gap of the semiconductor.

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CHEMISTRY

B.Sc. (HONOURS) THIRD YEAR (SEMESTER SYSTEM) EXAMINATION, 2018

SEMESTER- V

Outlines of Tests

<table>
<thead>
<tr>
<th>Paper</th>
<th>Subject</th>
<th>Lecture Hours</th>
<th>Theory</th>
<th>Internal Assessment</th>
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<td>Inorganic Chemistry-A</td>
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<tr>
<td>VI</td>
<td>Physical Chemistry-A</td>
<td>20</td>
<td>45</td>
<td>05</td>
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</tbody>
</table>

Paper V: INORGANIC CHEMISTRY-A

Total Marks : 50
Theory : 45
Internal Assessment : 5
Total Lectures : 20

OBJECTIVE OF THE COURSE

To teach the fundamental concept of Chemistry and their applications. The syllabus pertaining to B.Sc. (HONOURS) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills

Unit-I

Inorganic Chains:
(a) Chains : Catenation including heterocatenation, silicate minerals, intercalation, One dimensional sulphur-nitrogen conductor.

Unit II

Inorganic Rings and Cages :
(a) Rings : Borazines, phosphazenes and phosphazene polymers.
(b) Cages : Simple cage molecules; Phosphorus–oxygen and phosphorus-sulphur cages; introduction to carboranes and metallocarboranes
Unit III

Organometallics-I : (5 lectures)
Formation and reactions (i) carbonylate ions (ii) metal-carbonyl hydrides & (iii) metal carbonyl halides.

Unit IV

Organometallics-II : (5 lectures)
Transition metal-carbon multiple bonds : Chemistry of :
Alkylidene Complexes.
Alkylidyne complexes including bridged molecules.
Metallocumulenes.

Instructions for paper setters and candidates:

i. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. All questions carry equal marks.

Suggested Books:

OBJECTIVE OF THE COURSE

To teach the fundamental concept of Chemistry and their applications. The syllabus pertaining to B.Sc. (HONOURS) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills.

Unit-I

Transport Properties-I:

Recapitulation of Collision Properties of gases such as collision cross section, collision diameter, collision number, collision frequency and mean free path.

Unit-II

Transport Properties-II:


Unit-III

Dynamic Electro-Chemistry:

Processes at electrodes. The electric double layer (Gouy-Chapman, Helmholtz and Stern models- qualitative ideas. The potential difference, Rate of charge transfer, Bulter Volmer equation, Tafel plot, Overpotential Polarisation, Polarography, Fuel cells, Corrosion, Inhibition of Corrosion.
Unit-IV

Surface Chemistry : (5 Lectures)


Instructions for paper setters and candidates:

i. Examiners will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

ii. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

iii. All questions carry equal marks.

Suggested Books:

CHEMISTRY

SEMESTER VI

Outlines of Tests

<table>
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<th></th>
<th>Lecture Hours</th>
<th>Marks</th>
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<tr>
<td></td>
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<td>Theory</td>
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<tr>
<td>Paper VII</td>
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<td>45</td>
</tr>
<tr>
<td>Paper VIII</td>
<td>20</td>
<td>45</td>
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</tbody>
</table>

Paper VII: INORGANIC CHEMISTRY-B

Total Marks : 50
Theory : 45
Internal Assessment : 5
Total Lectures : 20

OBJECTIVE OF THE COURSE

To teach the fundamental concept of Chemistry and their applications. The syllabus pertaining to B.Sc. (HONOURS) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills

Unit-I

(5 lectures)

Complexes of aromatic systems with transition metals. M.O. description of bonding in Ferrocene.
Study of coordinative unsaturation, oxidative addition,

Unit-II

(5 Lectures)

Insertion reactions in Organometallics.
Phenomenon of Fluxionality in Organometallics and its characterization.
Unit-III

Reaction Mechanism: (5 lectures)

Nature and classification of ligand substitution reactions, application of V.B. & C.F. theories to predict the substitution reactions. Mechanism of ligand replacement reactions, substitution in octahedral complexes: acid hydrolysis, base hydrolysis, acid-catalysed, acid hydrolysis and acid hydrolysis for chelates.

Unit-IV (5 lectures)

Substitution in square planar complexes. The trans-effect & its Synthetic applications, M.O. theories and trans-effects. Electron transfer reactions & their mechanism. Molecular rearrangements, mechanistic pathways of substitution.

Instructions for paper setters and candidates:

iv. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

v. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

vi. All questions carry equal marks.

Suggested Books:

Paper VIII: PHYSICAL CHEMISTRY-B

Total Marks : 50
Theory : 45
Internal Assessment : 5
Total Lectures : 20

OBJECTIVE OF THE COURSE

To teach the fundamental concept of Chemistry and their applications. The syllabus pertaining to B.Sc. (HONOURS) in the subject of Chemistry has been upgraded as per provision of the UGC module and demand of the academic environment. The course contents have been revised from time to time as per suggestions of the teachers of the Chemistry working in the Panjab University, Chandigarh and affiliated colleges. The syllabus contents are duly arranged unit wise and contents are included in such a manner so that due importance is given to requisite intellectual and laboratory skills

Unit-I

Colloids-I : (5 Lectures)

The colloidal state; preparation of colloidal solutions, Methods of purification of colloidal systems, dialysis, electro-dialysis, filtration, Ultra-filtration. Classification of colloidal systems, their typical properties with special reference to optical properties (Tyndall effect).

Unit-II

Colloids-II : (5 Lectures)

Unit-III

Quantum Chemistry-I : (5 Lectures)


Unit-IV

Quantum Chemistry-II : (5 Lectures)

Molecules :


Instructions for paper setters and candidates:

iv. Examiner will set total of NINE questions comprising TWO questions from each unit and ONE compulsory question of short answer type covering whole syllabi.

v. The students are required to attempt FIVE questions in all, ONE question from each unit and the Compulsory question.

vi. All questions carry equal marks.

Suggested Books:

# BOTANY

## B.Sc. (Honours) Botany Fifth and Sixth Semester Syllabus

(Examination 2018-2019)

<table>
<thead>
<tr>
<th>Fifth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int</th>
<th>Max Assess.</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper- A: Biology of Cryptogams and Seed Plants</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Theory Paper-B: Genetics, Plant Breeding, Biochemistry, Molecular Biology and Biotechnology</td>
<td>3 hrs</td>
<td>36</td>
<td>4</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs</td>
<td>18</td>
<td>2</td>
<td>20</td>
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</table>

<table>
<thead>
<tr>
<th>Sixth Semester</th>
<th>Time</th>
<th>Theory</th>
<th>Int</th>
<th>Max Assess.</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theory Paper- A: Microbiology and Plant Pathology</td>
<td>3 hrs.</td>
<td>36</td>
<td>4</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Theory Paper-B: Systematics of Angiosperms and Environmental Biology</td>
<td>3 hrs</td>
<td>36</td>
<td>4</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>One practical pertaining to entire syllabus included in both theory papers</td>
<td>3 hrs.</td>
<td>18</td>
<td>2</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**Total** 200

**Note:**

1. The number of teaching hours for theory and practical per semester shall be 60 hrs. and 100 hrs. respectively.

2. There will be two theory papers (A&B) in each semester. Each paper will consist of nine questions. Question No.1 will be compulsory and will consist of 12 parts (one mark each) comprising 6 MCQ and the rest 6 parts will be of fill-in the blanks covering the entire syllabus in both the theory papers A&B. The remaining 8 questions in papers A&B shall include two questions from each unit. Candidates shall be required to attempt one question from each unit. Question No. 1 will carry 12 marks and the rest of 8 questions will be of 6 marks each.
B.A./ B.Sc. (HONOURS) THIRD YEAR (SEMESTER SYSTEM) SYLLABUS 2018-2019

BOTANY

B.Sc. (Honours) Fifth Semester (Examination December, 2018)

PAPER-A: BIOLOGY OF CRYPTOGRAMS AND SEED PLANTS

Max. Marks : 40
Theory : 36
Internal Assessment : 04

Objective : The basic objective of this paper is to make the students understand the diversity in various life forms of plant kingdom. It provides knowledge about evolution of simpler forms to complex ones along with their morphology, anatomy and reproduction.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

BIOLOGY OF CRYPTOGRAMS

Algae: Occurrence and distribution; thallus organization and evolutionary tendencies; ultrastructure of algal cell; criteria for classification, structure and life history of Oedogonium (Chlorophyceae), Vaucheria (Xanthophyceae), Ectocarpus (phaeophyceae), Batrachospermum (Rhodophyceae) and economic importance of algae.

Fungi: Occurrence and distribution; ultrastructure of fungal cell, cell wall composition, modern concepts in the classification of fungi; nutrition, reproduction, structure and life history of Rhizopus (Zygomycetes), Peziza, Saccharomyces (Ascomycetes), Alternaria (Deuteromycetes), Agaricus (Basidiomycetes); types of fungal spores and mode of their liberation and economic importance of fungi.

UNIT-II

Bryophytes: Comparative account of morphology, anatomy and reproduction in Riccia, Marchantia, Anthoceros, Funaria; evolution of sporophyte and gametophyte; classification, ecological aspects and economic importance.

Pteridophytes: The primary vascular plants; classification, comparative account of morphology, anatomy and reproduction in Rhynia, Lycopodium, Selaginella, Equisetum, Marsilea, Pteris; Telome theory; stelar evolution; heterospory and seed habit.
UNIT-III
SEED PLANTS

Phanerogams, the seed bearing plants: General characteristics and types.

The Living Cycads: Distribution; vegetative organography and anatomy; reproductive cycle – sporophytes and sporangia, gametophytes, fertilization, embryogeny and seed development of Cycas.

The Coniferales: General organography and anatomy; foliage leaves; strobilli and sporangia; reproductive cycle – sporogenesis, gametophytes, fertilization, embryogeny and seed development of Pinus.

The Gnetales: Habit and distribution; vegetative organography and anatomy; reproductive cycle – the strobilli, sporogenesis, male and female gametophytes, pollination, fertilization and embryogeny of Ephedra.

UNIT-IV


Flower: Evolution, concept of flower as a modified determinate shoot and functions of flower.

Structure of Anther: Microsporogenesis: formation of pollen grains (male gametophyte); pollen germination; pollen tube growth.

Structure of Pistil: Ovules; megalasporogenesis; development of embryo sac (female gametophyte).

Mechanisms and Agencies of Pollination: Pollen-stigma interaction; self-incompatibility; double fertilization, apomixis.

Seed and Fruit: Development of endosperm and embryo in monocotyledons and dicotyledons; storage of reserve materials and desiccation in seeds; dormancy and seed germination; fruit maturation; ripening and dispersal.

Suggested Readings


Suggested Laboratory Exercises (Biology of Cryptogams)

1. Comparative study of algal genera with reference to the classes mentioned in theory.
2. Comparative study of fungal genera with reference to the classes mentioned in theory.
3. Comparative study of morphology, anatomy and reproductive structures in Riccia, Marchantia, Anthoceros and Funaria.
4. Comparative study of different members of Pteridophytes mentioned in the theory syllabus.
5. Comparative anatomical structure of stem/wood of Cycadales, Coniferales, Ephedrales, Gnetales and angiosperms, from sections and macerations.
6. Comparative structure of the male and female cones of Cycads (Cycas), Conifers (Pinus) and Ephedrales (Ephedra).
7. Comparative structure of leaf, leaf appendages, venation and stomata of gymnosperms and angiosperms.
8. Diversity in pollen grain structure among Cycads, Conifers, Ephedrales and angiosperms with respect to size, exine sculpturing, germ spore number, number of constituent cells and any other features.
9. Microsporogenesis and male gametophyte development in angiosperms through microtome sectioning and acetocarmine squash technique.
10. Pollen grain germination by hanging-drop and sitting-drop techniques in Impatiens, Catharanthus roseus (= Vinca rosea) or any other suitable material.
11. Diversity in the structure of stigma, style, stigmatic papillae and transmitting tissue of style.
BOTANY

SEMESTER – V

PAPER-B: GENETICS AND PLANT BREEDING, BIOCHEMISTRY, MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Objective: The course work of this paper deals with basic concepts of genetics, plant breeding, molecular biology and biotechnology. It deals with various types of plant reproduction and methods of plant improvement. It provides knowledge of molecular and cellular basis that would enable the students to understand the hereditary and evolutionary trends in plants kingdom.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

GENETICS

Cell division - Mitosis and Meiosis.

Mendel’s Experiments and Principles of Inheritance: Backcross and test cross; gene interactions and modified dihybrid ratios – complementary, supplementary, duplicate and epistatic factors.

Quantitative Genetics: Quantitative traits and quantitative genetics; the multiple factor hypothesis; descriptive statistics.

Linkage and Recombination: Coupling and repulsion phases; two and three point testcrosses with their significance in chromosome mapping; interference and co-efficient of coincidence.

Maternal Influence on Inheritance: Shell coiling in snails and Kappa particles in Paramecium; cytoplasmic inheritance in yeast (mitochondria) and Mirabilis jalapa (plastids).

Alterations in the Genetic make up – changes at Genetic Level: Spontaneous and induced mutations; mutagens – types and mode of action; transitions, Transversions and frame-shift mutations; detection of mutations.

Alterations in Genetic makeup – changes in Chromosome Structure: Origin, types and effects of duplications, deletions, inversions and translocations; meiosis in structural heterozygotes.

Alterations in Genetic makeup – changes in Chromosome Number: Origin, types and effects of auto and allopolyploidy; origin and meiosis in nullisomics, monosomics and trisomics.
UNIT –II

PLANT BREEDING

Methods of Plant Improvement: Pure line and mass selection; hybridization in self and cross pollinated crops; introduction and acclimatization; hybrid vigour.

Mutations and polyploidy as methods of plant improvement.

UNIT-III

BIOCHEMISTRY, MOLECULAR BIOLOGY AND BIOTECHNOLOGY

Nucleic Acids: Composition of nucleic acids and synthesis of nucleotides; DNA structure; A,B and Z forms of DNA; denaturation and renaturation of DNA; chromatin structure; DNA replication and recombination; DNA polymerases; different forms of RNA and their role.

Amino Acid and Protein Metabolism: Structure, characteristics and classification of amino acids; protein and non-protein amino acids; amino acid biosynthesis; GS/GOGAT cycle; transamination; peptide bond and polypeptide chain; primary, secondary, tertiary and quaternary structure of proteins; protein biosynthesis and its regulation; post-translational modification of proteins; protein targeting; protein degradation.

Carbohydrate Metabolism: Classification; structure of some representatives examples of monosaccharides, disaccharides, polysaccharides; stereoisomers, enantiomers and epimers; biosynthesis and degradation of sucrose and starch.

Lipid Metabolism: Saturated and unsaturated fatty acids; fatty acid biosynthesis; oxidation of fatty acids; storage and mobilization of fatty acids and lipids.

UNIT-IV

Gene Structure, Expression and Regulation: Gene organization in prokaryotes and eukaryotes; operon concept; gene regulation in prokaryotes and eukaryotes; inducible, repressible, positive and negative gene regulation; interrupted genes in eukaryotes; RNA splicing; mRNA stability.

Recombinant DNA Technology: Restriction endonucleases: prokaryotic and eukaryotic cloning vectors; genomic and cDNA libraries; southern and northern analysis; various techniques of gene mapping and DNA fingerprinting (RFLP, RAPD, AFLP); chromosome walking; polymerase chain reaction; DNA sequencing.

Plant Biotechnology: Cellular differentiation and totipotency; organogenesis and embryogenesis; protoplast isolation and culture; somatic hybridization; clonal propagation; genetic engineering of plants; vectors for gene delivery; selectable markers and reporter genes; methods of gene delivery; Agrobacterium – the natural genetic engineer; salient achievements in crop biotechnology (with suitable examples) and prospects.
Suggested Readings:


Suggested Laboratory Exercises:

1. Determination of chromosome count from dividing pollen mother cells and root tips.
2. Preparation of karyotypes from dividing root tip cells and pollen grains.
3. Determination of intraspecific variation in chromosome number from locally available taxa.
4. Correlation of floral structure with pollination system (e.g. Salvia, Sesamum, pea, Lathyrus, wheat, rice, maize).

5. Field exploration for detection of male sterile plants and estimation of their pollen fertility in locally grown crop plants e.g. Sorghum, tomato and Linum.

6. Estimation of pollen ovule ratio and its bearing on pollination system.

7. Emasculation and bagging of flowers of Brassicaceae, Poaceae, Papilionaceae, Malvaceae and Linaceae, pollinating them manually and estimating fruit and seed set.

8. Chemical tests to demonstrate the presence of starch, sugar, fat and protein in plant material.

9. To identify the amino acids in a mixture by resolving through paper chromatography or TLC.

10. To prepare the standard curve for protein and determine the protein content in unknown samples by Biuret method.


13. Isolation of plant genomic DNA and its spooling.


15. Preparation of tissue culture media, sterilization and inoculation of plant material.


17. Isolation of plant protoplasts (e.g. Tobacco, Petunia) using enzymes available commercially and estimation of their yield.

**Note:** In the practical classes, emphasis should be given on basic principles of spectro-photometry, chromatography, electrophoresis and rDNA technology and related fundamentals.

**Guidelines for Botany Practical Examination:**

<table>
<thead>
<tr>
<th>Max Marks</th>
<th>Practical</th>
<th>Int. Assessment</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>18</td>
<td>2</td>
<td>3 hrs.</td>
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</tbody>
</table>

Q.1 Identify classify & write illustrated morphological note on specimens A & B (unit I – III of paper A) 4

Q.2 Demonstrate and perform the experiment C (Biochemistry/Biotechnology) and show it to the examiner. 5

Q.3 Identify slides D & E giving at least two reasons for each. 4

Q.4 Practical note book 2

Q.5 Viva-Voce 3
BOTANY

B.Sc. (Honours) Sixth Semester (Examination May, 2019)

PAPER-A: MICROBIOLOGY AND PLANT PATHOLOGY

Objectives: The basic objective of this paper is to make students familiar with the systematic position of microorganisms, their ultrastructure, classification and industrial application. It also deals with the important aspects of plant diseases, their pathogens and disease management.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

(MICROBIOLOGY)

General account of Microorganisms and their characteristics features.

Ultrastructure of Microorganisms: Prokaryotic microorganisms; fine structure of prokaryotic cell; eukaryotic microorganisms; viruses – properties and classification; characteristic features of host-virus interaction; bacteriophage T4; tobacco mosaic virus; general account of mycoplasma and actinomycetes.

Industrial Application of Microorganisms: Organic acids, alcohol, food processing, milk products, antibiotics and biopesticides.

UNIT-II

Genetic Recombination in Prokaryotes: Conjugation, transformation and transduction.

Role of Microorganisms in biogeochemical cycling of nitrogen and carbon; Biological N₂ fixation.

UNIT-III

(PLANT PATHOLOGY)

Major Diseases of Plants, their symptoms and Control: Blast and brown spot of rice, rust and smuts of wheat, downy mildew and green ear disease of bajra, white rust of crucifers, late blight of potato, wilt of pigeon pea, damping off seedlings of tomato/mustard/chilies, Tikka or leaf spot of groundnut, citrus die back, powdery mildews of cucurbits and grapes, red rot of sugarcane.

Plant Disease Management: Chemical, biological; IPM systems; development of transgenics; biopesticides; plant disease clinics.
UNIT-IV


Plant Disease Epidemiology: Transmission and spread of plant pathogens; disease cycles, epidemics; modeling and disease forecasting.

Suggested Readings:


Suggested Laboratory Exercises

2. Cultivation media for autotrophic and heterotrophic microorganisms (cleaning of glasswares, mineral media, complex media, solid media, sterilization).
3. Isolation of microorganisms: streaking on agar plates/pour plate method, isolation of clones, preservation.
4. Preparation of Winogradsky column using pond bottom mud, observations on temporal sequence of appearance of microbes. (visual appearance, microscopic observations)
5. Observation on virus infected plants (symptoms).
6. Fermentation by yeast (inverted tube method, use of different substrates, e.g. glucose, fructose, cane sugar, starch)
7. Study of histopathology of various plant diseases included in theory.
8. Isolation and culture of plant pathogens (e.g. Colletotrichum, Fusarium, Alternaria) and establishment of Koch’s postulates and their pathogenicity.
9. Study on antagonism between isolated antagonists and plant pathogens and test of biological control.
10. Demonstration of the assay of prohibitins (phytoalexins).
11. Demonstration of biopesticides (essential oils, neem, turmeric and garlic) against some pathogens.

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BOTANY

SEMESTER – VI

PAPER-B: SYSTEMATICS OF ANGIOSPERMS AND ENVIRONMENTAL BIOLOGY

Objective: This paper deals with taxonomy and species concept of plants. It provides a knowledge about identification, nomenclature and classification which forms the basis of future research work. It also deals with inter-relations of plants and environment as well as various environmental problems, role of national and international organization in environmental management.

Teaching Methodology: Teaching methodology includes series of lectures, making use of charts, transparencies, LCD, Models, slides, practical demonstrations, extension lectures from experts, field visits, discussions, quiz competitions etc. In practicals, students would be provided with fresh/preserved materials for their morphological and anatomical studies making use of microscopes and binoculars and hands-on tools/equipment etc.

UNIT-I

ANGIOSPERM SYSTEMATICS

Introduction: Aims and components of systematics, introduction to identification, nomenclature, phylogeny and classification.

Systematics in Practice: Importance of herbarium specimens and their preparation; role of herbaria and botanical gardens; documentation (floras, monographs, manuals, journals, abstracts, indices and dictionaries); keys for identification of plants.

Taxonomic Hierarchy: Taxonomic category, taxonomic groups; concepts of species, genus and family.

Botanical Nomenclature: Principles and rules; ranks and names; type method; principle of priority and its limitations; names of hybrids and cultivars; concept of biocode.

UNIT-II

General characters of Angiosperms.

Systems of Classification: Bentham and Hooker’s system. Engler and Prantl’s system and Takhtajan’s system.

Modern Taxonomy: Supporting evidences/inputs for taxonomy; taxonomy in relation to anatomy, embryology, palynology, ecology, cytology (cytotaxonomy), secondary metabolites in plants (chemotaxonomy).

A brief account of following families: Ranunculaceae, Brassicaceae, Rutaceae, Fabaceae, Cucurbitaceae, Apiaceae, Asteraceae, Asclepiadaceae, Solanaceae, Lamiaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae.
UNIT-III

ENVIRONMENTAL BIOLOGY

Introduction: Inter-relationship between the living world and the environment; the components and dynamism; homeostasis; relevance to man.

Earth as a System: The biosphere, the hydrosphere, the atmosphere and the lithosphere; components within biosphere (Biomes); parameters delimiting individual biomes.

The Environment: Soil, water and atmosphere – general account and adaptations.

Organismal Ecology/Biotic components: Individuals, species, population communities and their characteristics.

Ecosystems: Concepts of ecosystem; homeostasis; structure of ecosystem; functions of ecosystem; transfer of energy and minerals via grazing and detritus chains and role of micro-organisms; cycles (hydrologic, gaseous); role of humans in maintaining biogeochemical cycles.

Diversity of Ecosystem: Aquatic (fresh water); terrestrial (forest/grassland); man-made ecosystems.

UNIT-IV

Human Ecology and Ecological Management: The human population; renewable and non-renewable natural resources and their management; conservation of biodiversity; endangered species; conventional and non-conventional energy sources.

Impact of human activities: Pollution of air, water and soil; a brief account of environmental toxicology; incidence of noise; thermal and radioactive pollution; prevention and control of pollution; global warming, desertification and ozone depletion.

Impact of human activities: Pollution of air, water and soil; a brief account of environmental toxicology; incidence of noise; thermal and radioactive pollution; prevention and control of pollution; global warming, desertification and ozone depletion.

Suggested Readings

**Suggested laboratory Exercises**

Description of the following flowers belonging to the various families included in theory syllabus:

1. Ranunculaceae: *Ranunculus, Delphinium*
2. Brassicaceae: *Brassica, Iberis*
3. Rutaceae: *Citrus, Murraya*
4. Fabaceae: *Lathyrus, Cassia, Mimosa* and *Acacia*
5. Cucurbitaceae: *Luffa*
6. Apiaceae: *Coriandrum*
8. Asclepiadaceae: *Calotropis.*
9. Solanaceae: *Solanum, Petunia*
10. Lamiaceae: *Ocimum, Salvia*
11. Chenopodiaceae: *Chenopodium*
12. Euphorbiaceae: *Euphorbia, Phyllanthus*
13. Liliaceae: *Asphodelus, Asparagus*

**Suggested laboratory Exercises (Environmental Biology)**

1. Mechanical analysis of soils by sieve method
2. Determination of water holding capacity and field capacity of soil.
3. Determination of permeability (capillarity and percolation) of different types of soils.
4. Determination of species area curve by minimal quadrat size.
5. Analysis of the herbaceous vegetation for frequency, density and abundance.
7. Field visit: students should be taken for field visits to places of ecological/environmental interest. They should submit detailed report of the visit in the form of project report in the final practical examination for evaluation. The report shall carry marks.

**Note to teachers:**

The students are to be familiarized with the families listed above in the practical classes with representative’s species or any other that may be available locally. However, questions pertaining to these may be asked in the theory examinations.
Guidelines for Botany Practical Examination:

Max Marks : 20
Practical : 18
Int. Assessment : 2
Time : 3 hrs.

Q.1 Describe specimen A in technical terms & proper sequence. Draw F.D and V.S of the flower. Cut T.S of ovary and V.S of the flower and show it to the examiner. Write its F.F. as well. 6

Q.2 Identify specimen B and write Histopathological note on it. 3

Q.3 Identify slides C by giving at least two reasons. 2

Q.4 Field Diary 2

Q.5 Practical note book 2

Q.6 Viva-Voce 3

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ZOOLOGY

SEMESTER – V

PAPER I: REPRODUCTIVE BIOLOGY AND HUMAN WELFARE-I

PAPER II: AQUATIC BIOLOGY-I

PAPER I: REPRODUCTIVE BIOLOGY AND HUMAN WELFARE-I

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hrs.

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT -I
Structure and functions of testis, epididymis, vas deferens.

UNIT –II
Seminal vesicle and prostate gland.
Semen composition, sperm maturation and capacatation.

UNIT -III
Structure and functions of ovary, oviduct, uterus and vagina.

UNIT -IV
Oestrous and menstrual cycles.
Fertilization, implantation, gestation, parturition and lactation.

Books Recommended:

PAPER II: AQUATIC BIOLOGY-I

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hrs.

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT -I
Physico-chemical characteristics of marine environment

UNIT -II
Zonation in marine habitat: Pelagic and benthic zone and their flora and fauna.

UNIT -III
Freshwater zonation in a lake and stream: Supralittoral, littoral, sublittoral, profundal & limnetic zones of a lake. Pool zone and rapid zone of a stream.

UNIT -IV
Classification of freshwater habitats: Streams, ponds, lakes, marshes and swamps.

Books recommended

PRACTICALS

Practical based on both theory papers I & II:
I. Demonstration of male and female reproductive systems and their associated glands in rat/rabbit through charts.
II. Histology of testis, epididymis, vas deferens, prostate, seminal vesicle, ovary, uterus and vagina through permanent slides.
III. Study of permanent slides of the vaginal smear of human menstrual cycle and rat/mice oestrous cycle.
IV. Determination of the different phases of the oestrous cycle in living rat through permanent slides.
V. Study of mammalian sperm through slides/charts.
VI. Histological examination of placenta through slides/charts.
VII. Freshwater zonation in lake/stream and study of different communities (plankton, nekton, neuston, benthos and lotic communities).
Scheme for Conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks

Note:
1. Practical will be of 4 hrs. duration.
2. The students will be required to submit in writing the principles, methods employed and precautions to be observed wherever necessary within 1 hr. of the start of examination.

I. Draw a labeled sketch of given system and show to examiner/Spot parts of system on the charts/models. (3)

II. Identification of phases of oestrous cycle. (1)

IV. Record biota in a given sample from a lake. Make labeled sketches and demonstrate them to the examiner. (2)

V. Examine the water sample for various communities from different zones of a lake and draw labelled sketches. (2)

VI. Identify the specimens/slides/charts A-D. Give reasons of the identification. (4)

VII. Note book and charts. (3)

VIII. Viva-Voce. (3)

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ZOOCYLOGY
SEMESTER – VI

PAPER I: REPRODUCTIVE BIOLOGY AND HUMAN WELFARE-II

PAPER II: AQUATIC BIOLOGY-II

PAPER I: REPRODUCTIVE BIOLOGY AND HUMAN WELFARE-II
Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hrs.

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT –I
Neuro-Hormonal Regulation of production of Gonadal and Gonadotropic hormones.

UNIT –II
Neuro-Hormonal Regulation of production of Hypothalamic factors and Structural behaviour.

UNIT –III
Fertility Regulation

Contraception and modern contraceptive technology-natural, mechanical, chemical immunological and surgical methods and Fertilization in vitro (Test tube baby).

UNIT -IV
Application of fertility regulation in live stock:
   i. Artificial insemination in farm animals.
   ii. Milk yield.
   iii. Egg production in poultry.

Books Recommended:
PAPER II: AQUATIC BIOLOGY-II

Max. Marks : 40
Theory Exam. : 36 marks
Internal Assessment : 4 marks
Time : 3 hrs.

Note: Nine questions are to be set. Question No.1 is compulsory consisting of short answer type questions covering the whole syllabus. It will have 8 parts of 1 mark each. Two questions are to be set from each Unit. One question is to be attempted from each Unit. In all, Five questions are to be attempted including compulsory one. 50% of the questions are to be split up into 2-4 sub-parts.

UNIT -I


UNIT -II

Physico-chemical characteristics of freshwater environment: Temperature, light, current of water, density, pH, dissolved oxygen, carbon dioxide and nutrients.

UNIT -III

Productivity: Concepts of productivity, primary, secondary and tertiary productivity, yield and carrying capacity.

UNIT -IV

Ecological succession: Succession, kinds of succession, changes in animal life during hydrarch concept of climax. Adaptations of aquatic organisms.

Books recommended

PRACTICALS

Practical based on both theory papers I & II:

I. Study of permanent slides of mammalian ovary and testis.
II. Study of different techniques of contraception through charts/models/video clippings.
III. Study of artificial insemination, egg production through charts/models/video clippings.
IV. Study of components of lake ecosystem and grazing type of food chain.
V. Physico-chemical characteristics of freshwater environment. Temperature, Light, turbidity, current of water, density, pH, dissolved O2, CO2 and nutrients.
VI. Ecological succession in an aquatic habitat in the laboratory.
Scheme for Conduct of Practical Examination

Max. Marks : 20
Practical Exam. : 18 marks
Internal Assessment : 2 marks

Note:
1. Practical will be of 4 hrs. duration.
2. The students will be required to submit in writing the principles, methods employed and precautions to be observed wherever necessary within 1 hr. of the start of examination.

I. Draw a labeled sketch of techniques of contraception/artificial insemination. (3)
II. Determine the physico-chemical factors in a given sample of fresh water. Write the procedure followed. (4)
III. Draw labeled diagram of food chain (in aquatic/terrestrial environment) (2)
IV. Identify the cells/part in slides A & B. Give reasons for identification and name the hormone secreted by it. (3)
V. Note book and charts (3)
VI. Viva-Voce. (3)