

SYLLABUS

FOR

B.A./B.Sc.

(12+3 SYSTEM OF EDUCATION)
(Semester–V)

Examinations: 2014–15



GURU NANAK DEV UNIVERSITY AMRITSAR

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SEMESTER–V

POLITICAL SCIENCE

COMPARATIVE POLITICAL SYSTEMS (UK & USA)

Time: 3 Hours

Max Marks: 100

Instructions for the Paper Setter:

The question paper will consist of five Sections: A, B, C, D and E. Section A, B, C and D will have two questions from the respective portion of the syllabus and will carry 20 marks each. Section E will consist of 10 short answer type questions to be set from entire syllabus i.e. Sections A, B, C & D and will carry 20 marks in all, such short answer type questions carry 2 marks.

Candidates are required to attempt one question, from each Section A, B, C and D of the question paper and the entire section E. The candidates are required to answer the short questions in not less than 50 words.

Section–A

Theoretical Framework

1. Meaning and Scope of Comparative Government and Politics.
2. Comparative Method.
3. **Systems Approach:** David Easton and Almond and Powell.

Section–B

1. Features of British Political System.
2. Features of US Political System.
3. Executive in US: President, Powers, Position and Role,
4. Executive in UK: Monarchy, PM, Powers, Positions and Role.

Section–C

1. Legislatures in US & UK.
2. Political Parties and Pressure Groups in US and UK.

Section–D

1. **Judicial System in USA and UK:** Judicial Review in USA and Rule of Law in UK.
2. Unitary v/s Federal System, USA and UK.

Books Recommended:

1. Rod Hague and Martin Harrop, *Comparative Government and Politics*, New Delhi, Palgrave Macmillan, 2007.
2. G.A. Almond, G.B. Powell, K. Strom, R.J. Dalton, *Comparative Politics Today: A World View*, New Delhi, Pearsons, 2006.
3. J.C. Johari, *New Comparative Government*, New Delhi, Lotus Press, 2006, 4263/3, Ansari Road, Daryaganj, New Delhi-110002.
4. A.C Kapur and K.K. Misra, *Selection Constitutions*, New Delhi, S. Chand, 2006 (Sixteenth Revised Edition).
5. A.C. Kapur and K.K. Misra, *Selection Constitutions*, New Delhi, S. Chand, 2006 (Sixteenth Revised Edition).
6. S.N. Ray, *Modern Comparative Politics: Approaches, Methods and Issues*, New Delhi, PHI, 1999.
7. M.V. Pylee, *Select Constitutions of the World*, New Delhi, Universal Law Publishers, 2006 (Revised).

SEMESTER-V

HISTORY

HISTORY OF THE WORLD (1500-1956 AD)

Time: 3 Hours

Max. Marks: 100

Note: The question paper will consist of two sections as follows:-

Section-A: The examiner will set **ten** questions and the candidates will attempt **Six** questions carrying **Six** marks each. Answer to each question will be in 15 to 20 sentences. The total weightage of the section will be **36** marks.

Section-B: The examiner will set 8 questions, **two** from each Unit. The candidate will attempt 4 questions selecting one from each Unit with at least 5 pages each. Each question will carry 16 marks. The total weightage of this Section will be 64 marks.

Important Note: Paper Setters must ensure that questions in **Section-A** do not cover more than one point, and questions in **Section-B** should cover at least 50 per cent of the theme.

UNIT-I

- 1. Emergence of the Modern World:** Renaissance and reformation; Causes, effects of Renaissance in Europe; Martin Luther's Protestantism;
- 2. French Revolution:** Causes; National Assembly; National Convention, Napoleon's rise to Power, Civil Works and Codes, Continental System, Downfall of Napoleon, Vienna Settlement.

UNIT-II

- 3. Rise of Nationalism in Europe:** Impact of Industrial Revolution, Unification of Italy, Unification of Germany.
- 4. The World War-I:** Causes, Course of the war, Treaty of Versailles; League of Nations.

UNIT-III

- 5. Russian Revolution:** Causes, February Revolution, October Revolution; New Economic Policy.
- 6. Rise of China and Japan:** The revolution of 1911; Rise of Communism in China; the Revolution of 1949; Opening up of Japan; Meiji restoration and the Modernization of Japan.

UNIT-IV

- 7. Rise of USA as World Power:** Entry in the First World War; 14 points of President Wilson; New Deal of Roosevelt; 2nd World War and the USA.
- 8. Causes & Results of 2nd World War:** Fascism in Italy; Nazism in Germany; Course of World War II; the UNO; the Cold War: NATO and the Warsaw Pact.

Suggested Reading

1. Lowe, Norman, *Mastering Modern World History*, Macmillan, New Delhi, 1997
2. Chakarbarti, Ranjan, *A History of the Modern World*, Ratan Sagar Private Limited. 2012
3. Rao, B.V. , *History of Modern World*, Sterling Publication Pvt. Ltd. New Delhi, 2012

SEMESTER-V

**JOURNALISM AND MASS COMMUNICATION
(VOCATIONAL)**

ADVERTISING

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:

Section-A: The examiner will set 10 questions. Candidate will attempt 7 questions carrying **4 Marks** in 10-15 sentences each. The total weightage of this Section will be **28 Marks**.

Section-B: The examiner will set 8 questions which will cover the entire syllabus. Candidate will attempt any 4 questions in at least 4-5 pages each. Each question will carry **18 Marks**. The total weightage of this Section will be **72 Marks**.

Definition, need, concept and role; Difference in Publicity, Advertising, Propaganda, Types of advertising, Ad agencies-Organisational setup and functions, Copy Writing, Parts of an advertisement, Attributes of an effective copy, types, design and layout. Advertising and its impact. Modes of advertising, Appeals. Advertising Code, Advertising in Various media.

Book Recommended:

Advertising Sontakki 1994, Kalayani Publishers, New Delhi.

SEMESTER-V

MASS COMMUNICATION & VIDEO PRODUCTION (VOCATIONAL)

VIDEO FOR COMMUNICATION

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setter:

Section-A: The examiner will set 10 questions. Candidate will attempt 7 questions carrying 4 marks in 10-15 sentences each. The total weightage of this Section will be **28 marks**.

Section-B: The examiner will set 8 questions which will cover the entire syllabus. Candidate will attempt any 4 questions in at least 4-5 pages each. Each question will carry **18 marks**. The total weightage of this Section will be **72 marks**.

Question paper will be set in English only but the medium of examination will be English, Punjabi and Hindi.

Video Camera

- Basic Design (Lens, Zoom, Aperture, Focal Length, Shutter)
- Camera Angles, Movements, Shots & Mountings
- Types of Cameras (VHS), Umatic, Betacam, High Eight, Video Eight)

Camera Crew (Director, Producer, Production Manager, Floor

Manager, Art Director, Makeup Man, Dress Designer, Choreographer

Lighting (Types, Luminants, accessories, lamps, & lighting problems) Programme Proposal

Budgeting

Location Survey

Shooting Script

Pre & Post Production Meeting

Single Camera & Multicamera Shooting

Indoor & Outdoor Shooting

**SEMESTER-V
SOCIOLOGY**

SOCIAL THOUGHT

Time: 3 Hours

Max. Marks: 100

Note: Question Paper may consist of two sections as follows:-

Section-A: It will consist of 10 very short answer questions to each question upto five lines in length. All questions will be compulsory. Each question will carry two marks; total weightage being 20 marks.

Section-B: It will consist of short answer questions with answer to each question upto 3 pages in length or in 500 words. The examiner will set fifteen questions (at least 7 from each unit) and the candidates will attempt eight (four from each unit). Each question will carry ten marks. Total weightage of the section being 80 marks.

UNIT-I

- a) Auguste Comte: Law of three stages, Positivism
- b) Herbert Spencer: Social Darwinism and types of Society.
- c) Karl Marx: Dialectical Materialism, Historical Materialism and class struggle.

UNIT-II

- a) Max Weber: Theory of Social action, types of Authority, Protestant Ethic and Spirit of Capitalism.
- b) Emile Durkheim: Nature and Characteristics of Social facts and Division of Labour in Society and Theory of Suicide.
- c) Concepts and Feature of Functionalism, Conflict, Theory and Social Action – General Understanding.

Books Recommended:

1. Aryon Raymond: *Main Currents in Sociological Thought*, Vols. I, II, Penguin, Harmondsworth, 1968.
2. Abraham, M. Francis: *Contemporary Sociology*, Oxfrod University, New Delhi, 2006.
3. Ashley, David, Orenstein, D.M.: *Sociological Theory*, Dorling Kindersly, Delhi, 2007.
4. Coser, Lewis A: *Master of Sociological Thought*, Harcourt Brace Jovanovich, New York, 1971.
5. Jammu I.S.: *Samajak Vigyan Pattar*, No.-26-28, Punjabi University, Patiala, 1998.
6. Kapila, S.: *Fundamentals of Sociology*, Vol. III, Panchkula, Kapila Publishers, 2006.
7. Paramjit Singh Judge: *Samaj Vigyanik Drishtikon te Sidhant*, Panjabi University, Patiala, 1997.

**SEMESTER-V
PSYCHOLOGY**

**ABNORMAL PSYCHOLOGY-I
(THEORY)**

Time: 3 Hours
Pass Marks: 35% of the subject
(Theory and Practical Separately)

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:

The question paper will consist of three sections: A, B and C.

Section-A: It will consist of 10 very short answer type questions with answers to each question up to five lines in length. All questions will be compulsory. Each question will carry 1½ marks; total weightage of the section being 15 marks.

Section-B: It will consist of short answer type questions with answers to each question up to two pages in length. Six questions will be set by the examiner and four will be attempted by the candidates. Each question will carry 9 marks: total weightage of the section being 36 marks.

Section-C: will consist of essay type questions with answer to each question up to five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two; Each question will carry 12 marks. Total weightage of the section being 24 marks. The questions are to be set to judge the candidates' basic understanding of the concepts.

Note:

1. The use of Non-Programmable calculators and Statistical Tables are allowed in the examination.
2. Only one numerical question is to be set either of nine marks (from Section-B) or of twelve marks (from Section-C).

Abnormality: Concept and Criteria of Abnormality. Myth and Misconceptions regarding Abnormal Behaviour. DSM IV classification of Abnormal Behaviour- Advantages and disadvantages

Theoretical Perspectives of Psychopathology: Psychoanalytic, Cognitive Behavioural, Humanistic and Interpersonal (Sullivan).

Causes of Abnormal Behaviour: Primary, Predisposing, Precipitating reinforcing. Biological Causes–(Genetic defects, constitutional liabilities, Brain dysfunction & Physical deprivation). Psycho-Social Causes–(Self-perception and cognitive maps, early deprivation, Inadequate parenting, pathogenic family structures, maladaptive peer relationship. Socio-Cultural Causes–(Socio-Cultural Environment and Pathogenic societal influences).

Stress & Coping: Categories of Stressors, Factors Predisposing an individual to stress. Coping strategies.

Stress Related Disorders: Coronary Heart Disease (CHD), Hypertension Ulcers & Migraine Pain: Symptoms Causes and general treatment of stress related, disorders.

Alcoholism: Misconception about Alcohol & Alcoholism, Clinical Picture, Causes. Treatment & Outcomes.

Drug Addiction: Clinical Picture, Causes and Treatment of Opium and its Derivatives, Sedatives (Barbiturates) Stimulants (Amphetamines & Cocaine): Hallucinogens (LSD & related drugs) Marijuana, Caffeine & Nicotine.

Readings:

1. Carson, R.C., Butcher, J.N. and Mineka, S. (1997), *Abnormal Psychology and Modern Life*, New York: Harper Collins.
2. Davison, G.C. and Neale, J.M. (1998), *Abnormal Psychology*, New York: John Wiley and Sons.
3. Sarason, I.G. and Sarason, B.R. (1996), *Abnormal Psychology*, New Delhi: Prentice Hall of India.
4. Singh, A. Asadharan Manovigyan, Punjabi University, Patiala.
5. Alloy, L.B., Riskind, J.H. & Manso, M.J. (2006), *Abnormal Psychology* Tata McGraw Hill Publishing Company, New Delhi.

SEMESTER–V**PSYCHOLOGY****(PRACTICAL)****Marks: 25****Instructions for the Practical Examination:**

Students are supposed to perform five practicals out of 6 mentioned in the syllabus. Practical examination will be of 3 hours duration. External examiner will conduct the practical examination. The students will perform one practical in the exam carrying 25 marks. Evaluation of the practical would be done on the basis of write-up of file book (5 Marks), performance and viva-voce (20 Marks) relating to the practicals. In case students have not completed 5 practicals, the examiner will deduct marks at the rate of 5 for each left practical out of total evaluation of the student. No reappear will be allowed in the practical examination. Fail in the practical will be considered fail overall in the subject.

Five Practical have to be performed out of the following:

1. Word Association Test.
2. Adjustment Inventory.
3. Raven's Progressive Matrices/Cattell's Culture Fair Intelligence Test.
4. Measurement of Attitudes.
5. Measurement of Interests.
6. Locus of Control.

SEMESTER-V
DEFENCE AND STRATEGIC STUDIES

INDIA'S NATIONAL SECURITY (THEORY)

Time: 3 Hours

Max .Marks: 100

Theory Marks: 80

Practical Marks: 20

Instructions for the Paper Setters:

Section-A: The examiner shall set 10 short answer type questions from the entire syllabus and the candidates will attempt 7 questions carrying 4 marks each. Answer to each question shall not exceed half of the page. The total weightage of this section shall be 28 marks.

Section-B: The examiner shall set 8 questions from the entire syllabus—two from each Unit. The candidate shall attempt four questions, one from each Unit. Each question shall carry 13 marks. The total weightage of this Unit shall be 52 marks.

Note: *Practicals are only meant for the regular students. For the private students the two papers shall be of 100 marks each. For the private students, each question in Section B will be of 18 marks.*

UNIT-I

i) National Security: Conceptual Aspects.

ii) Elements of National Security:

- a) Geography
- b) Mineral resources
- c) Social, Political and Economic factors
- d) Scientific and Technological Development
- e) Military preparedness

iii) India's Security Problems since Independence

- a) Geo-political effects of partition
- b) Security problems related to Pakistan
- c) Security problems related to China

UNIT-II

i) Indian Ocean and India's Security:

- a) Geo-strategic importance of the Indian Ocean
- b) India's Economic, Political and Security stakes in the Indian Ocean
- c) Role of Indian Navy & Coast Guards

ii) Nuclear Policy of India.

UNIT-III

(i) Internal Dimension of India's Security:

- a) Militancy in Jammu & Kashmir
- b) Insurgency in North eastern states

(ii) Disaster Management in India.

UNIT-IV

- (i) Economic Mobilisation for national defence with reference to mobilization of Physical and Fiscal resources.
- (ii) Planning and Production for national defence.
- (iii) Major defence production Industries in India.

Suggested Readings:

1. Buzan, Barry (1987) : People Fear and State: New Delhi, Transasia Publications.
2. Bajpai, U.S. (1986) : India and its Neighbourhood: New Delhi, Lancer International.
3. Baranwal, S.P.(1984) : Measures of Civil Defence in India: New Delhi, Guide Publications.
4. Bobbing, Ross and Gordon, Sandy (eds.) (1992) : India's Strategic Future: Delhi, Oxford University Press.
5. Chatterjee, R.K. (1978) : India's Land Borders-Problems and Challenges: New Delhi, Sterling Publishers.
6. Chadhury, Rahul Roy (1995) : Sea Power and India's Security, London, Brassey's.
7. Dass S.T. (1987) : National Security in Perspective: Delhi, Gian Publishers.
8. Karnard, Bharat (1994) : Future Imperiled: New Delhi, Viking.
9. Kavic, Lorne J. (1967) : India's Quest For Security: Defence Policies 1947- 1965: Los Angeles, University of California Press.
10. Khera, S.S. (1968) : India's Defence Problems: New Delhi.
11. Menon, V.P. (1961) : The Story of the Integration of Indian States: New Delhi, Orient Longmans.
12. Misra, R.N. (1986) : Indian Ocean and India's Security: Delhi, Mittal Publications.
13. Nayar, V.K. (1992) : Threats From Within: New Delhi, Lancer Publications.
14. Rao, Ramakrishna and Sharma, R.C. (ed) (1991) : India's Borders: New Delhi, Scholars' Publishing Forum
15. Rao, P.V.R. (1970) : Defence Without Drift: Bombay, Popular Prakashan.
16. Singh, Jaswant (1999) : Defending India: Bangalore, Macmillan India Ltd.
17. Singh Nagendra (1974) : The Defence Mechanism and the Modern State: New Delhi, Asia Publishing House.
18. Venkateshwaran (1967) : Defence Organisation in India: New Delhi, Ministry of Information and Broadcasting, Government of India.

SEMESTER-V
DEFENCE AND STRATEGIC STUDIES

PRACTICAL

Time: 3 Hours

Teaching Hours: 3 Periods a Week

Written: 1 Hour

Marks: 20

Written: 10

Discussion: 05

Record and Viva-Voce: 05

Note: The paper for written test is to be given by the external examiner on the spot. Internal examiner has to assist him in the conduct of the examination.

Group – A

10 Marks

1. Relief features and their representation on the Map.
2. Types of slopes and their representation on the Map.
3. Study of field craft with reference to the following:
 - (a) Ground
 - (b) Cover
 - (c) Camouflage
 - (d) Concealment
 - (e) Observation.

Group – B: Group Discussion (Topics)

05 Marks

- (a) India's Nuclear Policy.
- (b) Maritime Security of India.
- (c) Sino-India Relations

Group – C

Record and Viva-Voce

05 Marks

**SEMESTER-V
GEOGRAPHY**

**WORLD REGIONAL GEOGRAPHY-I
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 70
Practical Marks: 30**

Objectives:

To provide an understanding of:

- * The geographic dimensions of the world regions in terms of their political and administrative characteristics.
- * The physical and human resource base and their interface with economic development.
- * Development problems and prospects.

Note: Instructions for the Paper Setters and Candidates

1. Question will be put on region(s) as a whole and not on individual country. The question should focus on regional perspective.
2. A compulsory question containing 15 short answer type questions will be set covering the whole syllabus. The students will attempt any 10 parts in about 40-50 words each. Each part will carry 3 marks. **(Total 30 marks)**
3. 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 four questions selecting one from each unit. This will be in addition to the compulsory question at note number 2. **(Total 40 marks).**

Course Contents:-

Study of the following regions of the world in terms of the aspects mentioned in each unit.

1. Anglo America
2. South Asia
3. Africa South of Sahara

UNIT-I

- | | |
|-----------------------|---------------------------------|
| a) Location | b) Physiographic divisions |
| c) Drainage & Climate | d) Soils and Natural Vegetation |

UNIT-II

- a) Major minerals b) Agricultural crops & related occupations

UNIT-III

- a) Industries

UNIT-IV

- a) Demographic Characteristics
- b) Trade and Transport
- c) Problems and Prospects

Books Recommended:

Essential Readings:

1. Blij, Harm J.de Peter, O. Muller: *Geography: Regions and Concepts*, John Wiley, New York, 1993.
2. English, Paul Ward & James, A. Miller: *World Regional Geography: A Question of Place*, John Wiley, New York, 1989.
3. Jackson, Richard H. & Lloyd E. Hudman: *World Regional Geography Issues for Today*, John Wiley, New York, 1991.
4. Kromm, D.E.: *World Regional Geography*, Saunders Publishing, New York, 1980.

Further Readings:

1. Don R. Hoy (Ed.): *Essentials of Geography and Development*, Macmillan, New York, 1980.
2. Mankoo, Darshan Singh: *A Regional Geography of the World*, Kalyani Publishers, Ludhiana.
3. Singh, Malkiat : *World Regional Geography*, Rasmeet Prakashan, Jalandhar, (Pb.)
4. Trikha, R.N. and Bali P.K. and Sekhon, M.S.: *World Regional Geography*, New Academic Publishers, 2002.

Pedagogy

Teaching should involve maximum use of detailed maps of the countries, Students should be encouraged to use atlas in classrooms. Video shows about culture, physiography and economy of these countries may be arranged if possible.

**SEMESTER-V
GEOGRAPHY**

**MAP PROJECTIONS
(PRACTICAL)**

Time: 3 Hours

**Maximum Marks: 30
Written: 16
Practical: 7
Viva: 7**

Instructions:-

1. There will be total four questions (two questions each from Unit-I and Unit-II).
2. The students are required to attempt one question each from both the units.
3. All Questions carry eight marks.

Objectives:

- To Provide an analytical understanding of use of common map projections.
- To acquaint the students with the importance of field work as one of the methodologies in geography.
- To sensitize the students about pre-field work and post-field work i.e. data processing and analysis and writing of field work report.

UNIT-I

General introduction and classification of projections, constructions, properties, limitations and use of projections, general principles of identification and choice of projections.

Construction, properties and limitations of following map projections:

Cylindricals: Plate canee, Equal-Area and Mercator's.

Conicals: One Standard Conic, Two Standard Conic, Bonne's Polyconic and International.

UNIT-II

Construction, properties and limitations of following map projections:

Zenithals: Gnomonic, Stereographic, Orthographic, Equi-distant and Equal- Area (Polar cases only).

Introduction to Sinusoidal and Molleweide's Projections.

Books Recommended:

Essential Readings:

1. Kellaway, George P.: *Map Projections*, Methue and Co., London.
2. Singh, Gopal: *Mapwork and Practical Geography*, Surjeet Book Depot, Delhi, 1993.
3. Singh, Malkiat: *Cartography*, Rasmeeet Prakashan, Jalandhar, 2006.
4. Singh, L.R.: *Practical Geography*, Chaitanya, Publishing House, Allahabad, 2006.

**SEMESTER-V
PUBLIC ADMINISTRATION**

LOCAL GOVERNMENT (WITH SPECIAL REFERENCE TO PUNJAB)

Time: 3 Hours

Max. Marks: 100

(Instructions to Mass Communication)

The question paper will consist of two sections as per following pattern:

Section-A: The examiner will set 10 questions. Candidate will attempt 7 questions carrying 4 marks in 10-15 sentences each. The total weightage of this Section will be **28 marks**.

Section-B: The examiner will set 8 questions which will cover the entire syllabus. Candidate will attempt any 4 questions in at least 4-5 pages each. Each question will carry 18 marks. The total weightage of this Section will be **72 marks**.

UNIT-I

Introduction:

Meaning and Significance of Local Government. History of Local Government in India. Main Features of 73rd and 74th Constitutional Amendments, State-Local Government Relations; Role of State Finance Commission.

UNIT-II

Urban Local Government:

Main features of Urban Local Government in Punjab, Types of Urban Local Bodies, Municipal Corporation, Organisation and Functions, Municipal Commissioner, Mayor, Provincialisation of Municipal Services.

Municipal Council: Organisation and Functions; President, Executive Officer.

UNIT-III

Rural Local Government:

Main features of Panchayati Raj System in Punjab; Gram Sabha. Village Panchayats-Structure, Finance and Functions. Recommendations of Punjab Finance Commission. Panchayat Samitis-Structure, Finance and Functions. Zila Parishads-Structure, Finance and functions.

UNIT-IV

State Control:

Organisation of Department of Local Government in Punjab. Relation of Local Government Institutions with District Administration. State control over Panchayati Raj Institutions and Urban Local Government.

Suggested Readings:

1. Dubey V.P., Urban Development and Administration, Deep & Deep Publication Pvt. Ltd., 1990.
2. Goel S.L., Urban Administration in India, New Delhi, Deep & Deep Publication Pvt. Ltd., 2003.
3. Hoshiar Singh, Theory and Practice of Local Government, Allahabad, Kitab Mahal, 1999.
4. Maheshwari S.R., Local Government in India, Agra, Lakshmi Narain Aggarwal, 2005.
5. Sachdeva Pardeep, Urban Local Government in India, Allahabad, Kitab Mahal, 2002.
6. Sahib Singh and Swinder Singh, Local Government in India, Jalandhar, New Academic Publishing Co., 2005.
7. Sachdeva D.R., Sathanak Sarkar: Punjab De Sandarbh Vich, Publications Bureau, Patiala, 2003.

SEMESTER-V**ECONOMICS****ECONOMICS OF DEVELOPMENT****Time: 3 Hours****Max. Marks: 100****Instructions for the Paper-Setters/Examiners:**

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

UNIT-I

Economic Development: Meaning and Measurement, Economic and Non-Economic Factors, Nature of Underdevelopment, Characteristics of Undeveloped Countries. Human Development Index.

Dualism: Social and Technological Dualism, Lewis Model of Unlimited Supply of Labour, Problems of Unemployment and Disguised Unemployment.

UNIT-II

Models of Growth: Classical, Marxian, Schumpeter's, Harrod-Domar and Solow's Growth Models.

Unit-III

Rostow's Stage Theory, Strategies of Economic Development-Balanced vs. Unbalanced Growth; Theory of Big Push; Libenstein's Critical Minimum Efforts Thesis, Export Promotion and Import Substitution.

UNIT-IV

Capital Formation – Meaning and Sources. Choice of Technique, Role of Planning in Under Developed

Countries, Need, Objective, Strategy, Types and Problems of Planning.

Suggested Readings:

1. Rostow W.W.: Stages of Growth
2. G.M. Meier: Leading Issues in Economic Development.
3. Micheal Todaro: Economic Development in the Third World.
4. Higgins: Economic Development: Theory and Politics.
5. Meier, G.M.: Leading Issues in Economic Development, Oxford University Press, New Delhi, 1995.
6. Thirlwall, A.P.: Growth and Development, Macmillan, London, 1999.
7. Todaro, M.P.: Economic Development in Third World, Oxford University, London.
8. Yotopoulos, P.A. and Nugent, J.: Economics of Development, Harper and Row, New York.

SEMESTER-V
INDUSTRIAL ECONOMICS

INDUSTRIAL ECONOMICS-V

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper-Setters/Examiners:

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

UNIT-I

Pattern and Rationale of Industrialisation in Developing Economy Like India; Factors Promoting and Inhibiting Industrialisation.

Industrialisation in India—Evolution of Modern Industry, Evolution of Industrial Policy—1948, 1951, 1956, 1991 and onwards.

UNIT-II

Role of Public Sector; Recent Trends in Indian Industrial Growth—Liberalization and Privatization; Small Scale Industry in India.

UNIT-III

Regional Industrial Growth in India; Industrial Concentration: Meaning, Measurement and Remedial Measures.

Issues in Industrial Proliferation and Environmental Preservation; Pollution Control Policies.

UNIT-IV

Institutional Industrial Finance: IDBI, ICICI, SFC, SIDC and Commercial Banks

Recommended Readings:

1. Sutcliffe, R.B.: *Industry and Under-development*, Addison Wesley, London.
2. Kuchhal, S.C: *The Industrial Economy of India chaitanya*, Allahabad, 1969.
3. Gadgil, D.R.: *The Industrial Evolution of India in recent time 1860-1939*, Oxford University Press, Delhi, 1979.
4. Ahluwalia, I.J.: *Industrial Growth in India Stagnation Since mid 1960's*.
5. Goyal S.K.: *Monopoly Capital Public Policy*, Allied, New Delhi, 1979.
6. Chadha, V. and G.S. Bhalla: *Indian Industrial Development: The Post Reform Scene*.
7. Brahmananda, P.R. and V.R. Panchmukhi: *The Development Process of the Indian Economy*, Vikas Publications, New Delhi, 1979.
8. Datta, B.: *Indian Planning at the Crossroads*.
9. Savdesara, T.C.: *Industrial Policy and Planning–1947-91: Tendencies, Interpretation and Issues*.
10. Kelkar, V.C. and V.V. Bhanoji Rao: *Indian Development Policy Imperatives*.

SEMESTER-V
QUANTITATIVE TECHNIQUES
QUANTITATIVE TECHNIQUES-V

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper-Setters/Examiners:

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

UNIT-I

Sampling Distributions: Derivation of properties of Z, T, Chi Square and F distributions.

UNIT-II

Statistical Inference: Point & Interval Estimation; Properties of a Good Estimator, Maximum Likelihood Method of Estimation, its applications for Binomial, Poisson and Normal distributions. Basic Concepts of Null and Alternative Hypotheses, Types of Errors; One Tailed and Two Tailed Tests, Power of Test, Critical Region.

UNIT-III

Tests of significance based on normal deviate (Z), T, Chi square and F statistics.

UNIT-IV

Analysis of Variance: Introduction, Assumptions, Techniques of Analyzing Variance, Analysis of Variance of one-way and two-way classified data.

Books Recommended:

1. Sukhatne and Sampling Theory of Surveys with Sukhatme Applications (1970).
2. Goon, Gupta and An Outlines of Statistical Theory, DASS Gupta Vol. 1(1977).
3. Kapur and Gupta Fundamentals of Mathematical Statistics, Sultan Chand, New Delhi.
4. Murry, R. Spiegel Statistics: Theory & Practical (1972), McGraw Hill, New York.

SEMESTER-V
AGRICULTURAL ECONOMICS AND MARKETING

AGRICULTURAL ECONOMICS-III

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper-Setters/Examiners:

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

UNIT-I

Mobilisation and Determinants of Agricultural Surpluses; Terms of trade between Agriculture and Industry. Farmers terms of trade with special reference to Punjab and their implication for development.

UNIT-II

Income and Price Elasticities of Agricultural Commodities, Cobb-Webb Model. Price Expectations and Uncertainties, Market Risk, Price Stabilization Measures.

UNIT-III

Food System and Food Safety, Food and Nutritional Security, Food Security Nets, Foodgrain losses at different stages. Measures to contain foodgrain losses. Food Subsidies, Global Environmental Change and Food Security.

UNIT-IV

Marketable and Marketed Surplus, Supply Response of Marketed surplus to prices, size distribution of marketable surplus. Backward bending supply curve. Price expectations and uncertainties, market risk, price stabilization measures.

Recommended Readings:

1. Mamoria, C.B., Agricultural Problems of India, Kitab Mahal, 1985.
2. Kaur, Rajbans, Agricultural Pricing Policies in Developing Countries, Kalyani Publishers, 1984.
3. Chand, Mahesh and Srivastava, A.K., Economics Analysis and Management in Agriculture, Oriented Publishers, 1978.
4. Kainth, G.S., Foodgrain Marketing System in India, Associated Publishing House, 1982.

SEMESTER-V
RURAL DEVELOPMENT

RURAL DEVELOPMENT-V

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper-Setters/Examiners:

- (i) First question consisting of 10 short answer type based upon the entire syllabus, (Each Carrying 2 Marks) will be compulsory.
- (ii) Students will attempt 1 out of 2 questions from each of the four units (20 marks each).

UNIT-I

Rural industries: Meaning and Importance; Problems and Difficulties, Measures for Development; Government Policy.

Agro-Industries: Meaning and features; Importance and Present status; Problems and Remedies.

UNIT-II

The nature of agricultural and industries production system and their relationships; Public and Private delivery system and their importance.

UNIT-III

Delivery system for supplies of inputs like seeds, fertilizers, insecticides etc. Agricultural supply chains, Public Distribution System.

UNIT-IV

Rural Poverty: Problems and Magnitude; Causes and Remedies; Government Policies.

Role of irrigation and power in rural development; Forests and Forestry Development; Major Problems; Lines of Development; Government Policy.

Suggested Readings:

1. Aggarwal, A.N. and Kundan Lal: Rural Economy of India.
2. Mukerjee, K.B.: Community Development in India.
3. Desai, A.R.: Rural Sociology in India.
4. Jammu, P.S. (ed) Pendu Punjab vich Samajak Parvartan (special issue of Samajik Vigyan Pattar) Punjabi University, Patiala.
5. Jammu, P.S. Hindustan Vich Samuda Vikas, Punjabi University, Patiala.
6. Bhattacharya, S.N.: Rural Industrialization in India.
7. Dhese, A.S. and Gurmail Singh: Rural Development in Punjab, A success story going astray, Routledge, New Delhi, 2008 (Edited book).

SEMESTER-V

**OFFICE MANAGEMENT AND SECRETARIAL PRACTICE
(VOCATIONAL)**

**OFFICE PRACTICE
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 60
Practical Marks: 40**

Note: The candidates are allowed to use simple (Non-Scientific) calculators.

Section-A: The examiner will set 8 short questions from the entire syllabus. The candidate will have to attempt 6 questions out of 8 questions. Each question carrying 2 marks

(6x2=12 Marks)

Section-B: The examiner will set 8 long questions in four parts, 2 questions from each unit. The candidate will have to attempt 4 questions selecting at least one from each unit. Each question carrying 12 marks.

(4x12=48Marks)

UNIT-I

Office Stationery: Types of papers and envelopes, control of consumption of papers, ink typewriting ribbons, carbon papers, pins, clips, erasers etc. issue thereof, stock and stock record.

UNIT-II

Duplication Methods:

Photocopying

Meeting: Notice, agenda, physical facilities, quorum, providing secretarial assistance.

UNIT-III

Using Information:

Using knowledge of making use of Information from different sources. Telephone Directory, Post Office Guide, Railway Time Table, Teleprinter, Telex, Fascimile Telegraphy.

UNIT-IV

Making Travel Arrangement: Preparing tour programme, railways and air reservation, booking hotel accommodation, filling of form for tour advance, preparing T.A. Bills.

SEMESTER–V

**OFFICE MANAGEMENT AND SECRETARIAL PRACTICE
(VOCATIONAL)**

(PRACTICAL)

1. **Practice on Operating the following machines:-**

- Duplicator	6 hours
- Photocopier	6 hours
- Wood Processor	20 hours
- Scanner	8 hours

2. **Working in the Office:**

- Maintenance of Register
- Preparation of notice, agenda, resolutions

3. **Telephone Handling**

**SEMESTER-V
TRAVEL & TOURISM**

WORLD TRAVEL GEOGRAPHY

Time: 3 Hrs.

Max. Marks: 100

Instructions for the Paper Setters:

The Theory paper consists of two Parts A and B (short questions and long questions).

Part-A: The examiner will set 12 short questions, 3 questions from each section of 02 marks each. The candidate will have to attempt 10 questions out of 12 questions.

(10x02=20 Marks)

Part-B: The examiner will set 8 long questions, 2 questions from each section of 20 marks each. The candidate will have to attempt 4 questions out of 8 question.

(04x20=80 Marks)

UNIT-I

Chapter 1. Fundamentals of Geography

Importance of Geography in tourism,
Climatic variations, climatic regions of world

Chapter 2. Study of Maps

Longitude & latitude,
International Date Line,
Time variations and time difference

UNIT-II

Chapter 3. Popular Destinations-1

United States of America and Europe
African Wildlife

Chapter 4. Popular Destinations-2

Islamic Middle East
South East Asia and Australia

UNIT-III

Chapter 5. Seven Wonder of the World

Great Pyramid of Giza, Hanging Gardens of Babylon,
Statue of Zeus at Olympia, Temple of Artemis at
Ephesus, Mausoleum of Maussollos at Halicarnassus,
Colossus of Rhodes, Lighthouse of Alexandria.

Chapter 6. Modern Wonders

Great Wall of China, Petra (Jordan). Christ the
Redeemer (Brazil), Machu Picchu (Peru), Chichen
Itza (Mexico), Roman Colosseum (Italy), Taj Mahal (India).

UNIT-IV

Chapter 7. Globalisation and Tourism

Globalisation and Tourism in India,
Incredible India campaign

Chapter 8. Heritage and Challenges to Growth of Tourism

What is Heritage and why should it be conserved
World Heritage Monuments of India
Reasons for slow growth rate of Tourism in India.

Suggested Readings:

1. Allchin, B. Allchin, F.R. et al. (1989) Conservation of Indian Heritage, Cosmo Publishers, New Delhi.
2. Ashworth, G.T. (2000), The Tourist Historic City. Retrospect and Prospect of Managing the Heritage City, Pergamon, Oxford.
3. Dixit, M. Tourism Products, Royal Publishers.
4. Hall, CM and Page, SJ. The Geography of Tourism and Recreation, Routledge.
5. New Inskip, Edward, Tourism Planning: An Integrated and Sustainable Development Approach (1991) VNR, New York.
6. Pearce, D.G. and Butler, R.W. Contemporary issues in tourism development, Routledge.
7. UNESCO-IUCN (1992) Eds. Masterworks of Man and Nature, Pantoga, Australia.

SEMESTER-V**TOURISM AND HOTEL MANAGEMENT
(THEORY)****Time: 3 Hours.****Max. Marks: 100****Theory Marks: 80****On the Job Training Marks: 20****Instructions for the Paper Setter:**

The following pattern of setting of question paper shall be observed. The question paper covering the entire course shall be divided into three sections as follows:

Section-A: This section will consist of 7 very short answer type questions with answers to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being **14 marks**.

Section-B: This section will consist of short answer type questions with answers to each question upto two pages. Nine questions will be set by the examiner and the candidates will be expected to attempt six questions. Each question will carry six marks; total weightage of the section being **36 marks**.

Section-C: This section will consist of essay type questions with answer to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 15 marks, total weightage of the section being **30 marks**.

UNIT-I**Front Office**

- I. Front office as an operational department.
- II. Job description of front office assistant.
- III. Lobby:
 - Duties & responsibilities of lobby manager.
 - Organization of bell desk and functions.
 - Left luggage handling.
 - Guest errand cards.
 - Mail Message handling.
 - Wakeup call procedure.
- IV. Check in-Check out procedure, Guest folio, safety locker management.
- V. Processing housekeeping discrepancy.

UNIT-II

Housekeeping

- I. Housekeeping department-recruitment & selection.
- II. Floor linen room
 - Type of linen and use.
 - Par stock, safety stock, lead time quantity, Max. Qty, Min. Qty.
 - Inventory control.
 - Exchange of linen and uniforms.
- III. Interior Decoration, color, furniture, fixture and lighting in hotel.
- IV. Laundry Service.
- V. Housekeeping Practice.
 - Lost & found procedure.
 - Pest control.
 - Turn down service.
 - Key Control.

UNIT-III

Food and Beverage Production:

- I. Work Method in food preparation.
- II. Different type of soups.
- III. Curry powder used in Indian Cookery:
 - Gram masala, Pulao masala, Sambar masala, Rasam powder, Chaat masala, Meat masala.
- IV. Vegetables and salads.
- V. Meat (lamb, beef, pork) Poultry.
- VI. Basic Indian Gravies :
 - Yellow gravy.
 - White gravy.
 - Butter gravy.
 - Onion tomato masala.

UNIT-IV

Food and Beverage Service:

- I. Organization structure of F & B Service Deptt.
- II. Preparation for Service:
 - Mise-en-essance
 - Mise-en-place
 - Side board
- III. Type of Services:
 - English service.
 - French service.
 - Russian service.
 - American service.
 - Room service.
 - Geuridon service.

- IV. Briefing and check point for supervisor.
- V. Beverages (alcoholic, Non-alcoholic)
 - Procedure for serving table wine.
- VI. Cheese

Students has to go for two months of specialized industrial training in a travel agency or in a hotel.

Specialized Industrial Training of 8 weeks

The final year students are supposed to undertake practical training either in a hotel or a travel agency for at least two month. The project report will be submitted to college before examination and will be evaluated by external examiner.

The internal assessment shall be based on periodical tests, written assignment and behaviour in the class.

Suggested Readings:

- 1 Andrew Sudhir, *Food and Beverage Service*, Tata McGraw Hill Publications, New Delhi, 38th Edition, 1991.
- 2 Andrew Sudhir, *Front Office Training Manual*, Tata McGraw Hill Publications, New Delhi.
- 3 Koontz, H. Wandrich *Essentials of Management*, Tata McGraw Hill, Publishers, New Delhi, 1990.
- 4 Sudhir Andrew, *Hotel House Keeping*, Tata McGraw Hill Publishing Co. Ltd.
- 5 Negi Jagmohan *Hotels for Tourism Development*, Metropolitan, New Delhi, 2nd Edition, 1997.
- 6 Arora, Krishna, *Victory of Cookery*, Frank Bros. & Co. Publishers Ltd.

SEMESTER-V

**TAX PROCEDURES AND PRACTICE
CENTRAL EXCISE-PROCEDURE & PRACTICE**

Time: 3 Hours

Max. Marks: 100

Periods/week: L T
3 3

Instructions for the Paper Setters:

The following pattern of setting of question paper shall be observed:

The question paper covering the entire course shall be divided into three sections as follows:-

Section-A: This section will consist of 8 very short answer questions with answer to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being **16 marks**.

Section-B: This section will consist of short answer questions with answer to each question upto two pages. Nine questions will be set by the examiners and the candidates will be expected to attempted six question. Each question will carry eight marks, total weightage of the section being **48 marks**.

Section-C: This section will consist of essay type questions with answers to each question upto 5 pages. Four questions, will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 18 marks; total weightage of the section being **36 marks**.

UNIT-I

1. Nature and meaning of Central Excise-Excise and Central Excise. Distinction between Central Excise duties and Customs, Sales Tax, Octroi Duty.
Basic of Excise Duty- Specific duty, advalorem duty levy of slabs, compounded duty.
Leviability on what duty is leviable and who is liable to discharge the duty liability.
Kinds of excise duty-Basic, additional duty of excise, special duty
2. Organisation of Central Excise in India-Administration and operational authorities.
3. Regulatory Framework-An overview of Central Excise and Sale Act, 1944;
An overview of Central Excise Tariff Act 1985; Central Excise Rule, 1944.
Important terms and definitions-Assessee, Assessable value, excisable goods, manufacture, manufacturer

UNIT-II

4. General procedure under Central Excise.
- A) Registration for Central Excise–Purpose and procedure thereof, exemption from registration filling of declaration for claiming exemption, forms of application for registration and filling of the same.
 - B) Classification lists-filling and submission or classification lists and its approval, Form I– Classification lists of excisable goods provided.
 - C) Price lists when prior approval of price lists required, when submission of price lists not required; submission of price lists under Part I and Part VII. Valuation of excisable goods-Items included and excluded in the value.
 - D) Maintenance of production records–RG 1 Register of daily production; Stock register for Issue of raw materials under Form N RG 23 A (Part I) Account of raw material in Form No. 4.

UNIT-III

Clearances

Type of Clearances

Clearances of excisable goods under physical control, self-removal procedure, compounding scheme; clearance of nonexcisable goods; removable of goods for home consumption; removal of goods for exports.

- (i) Removal of goods for home consumption
 - (a) Clearance under physical control–marking an application under Form No. AR 1 to Circle Inspector before removal of goods.
Preparation of T R 6 and depositing of duty, removal of excisable goods; under GPI.
 - (b) Removal of goods under compounded levy scheme–Application for Exercise of this option.
 - (c) Self removal procedure–applicability and its salient features–Record based control and production based control.
Depositing of excise duty under challan TR 6.
Preparation of GP 1 and Maintenance of other records of removal like P.L.A., TG 23 A Part II Register.
 - (d) Clearance of non-excisable goods
- (ii) Removal of goods for exports

Export of excisable goods, excise concession in case of exports.
Type of exporters–Manufacturer exporter and merchant exporter.
Export of excisable goods under claim for rebate, export under bond and procedures thereof, Form No. A4 and A4A.

UNIT-IV

Modvat

What is MODVAT, salient features of MODVAT.

MODVAT declaration under Rule 57 G for claiming MODVAT under Rule 57 A.

Small Scale Industry

- i) Eligibility of SSI which are exempted from licensing control.
- ii) SSI availing concession rate of duty. General exemption in small scale exemption Scheme under Notification No 175/ 86/.

Books of Accounts, Records and their Preservation–

- a) Records-RG I , EB-4 for daily production and clearance.
- b) Account of Principal raw material-Form No. 4
- c) MODVAT and Proforma Credit Record.
RG 23 A (Part I)
RG 23 A (Part II)
- d) Personal Ledger Account
- e) Goods received for reprocessing-Form No. 5
- f) Excise Control Code No.

Return

RT-5 Periodical/Quarterly Return of material used

RT-11 For obtaining excisable goods for special industrial purposes without payment of whole or part of the duty and state the nature and quantity of such goods used for finalised products.

RT-12 Monthly return under S.R.P.

Reference Books:

1. Darey V.S. (2006 Tax mann's indirect Taxes Law Practice Taxmann. Publications Pvt. Ltd., New Delhi.
2. Taxmann's indriect Tax Laws as amended by Finance act 2007. Taxmann Allied Service Pvt. Ltd., New Delhi, 2004.
3. www.incomtaxindia.govt.in/

SEMESTER-V**ADVERTISING, SALES PROMOTION AND SALES MANAGEMENT****MANAGEMENT OF THE SALES FORCE****Time: 3 Hours****Max. Marks: 100**

The following pattern of setting of question paper shall be observed.

Instructions for the Paper Setters:

Section-A: This section will consist of 8 very short answer questions with answer to each question upto 5 lines. All questions will be compulsory. Each question will carry two marks; total weightage of the section being 16 marks.

Section-B: This section will consist of short answer questions with answer to each question upto two pages. Nine questions will be set by the examiners and the candidates will be expected to attempted six question. Each question will carry eight marks, total weightage of the section being 48 marks.

Section-C: This section will consist of essay type questions with answers to each question upto 5 pages. Four questions will be set by the examiner and the candidates will be expected to attempt two questions. Each question will carry 18 marks; total weightage of the section being 36 marks.

UNIT-I

Importance of the sales force and its management

Functions of Sales Manager

Recruitment and Selection

UNIT-II

Training and Direction

Motivation and Compensation

Appraisal of Performance

UNIT-III

Sales force size, organisation of the sales department: Geographic, Product Wise, Market based.

Sales Planning and Central: Market analysis and Sales for Casting. Methods of forecasting sales.

Sales Budget: Importance, Process of sales budget, uses of sales budget.

UNIT-IV

Sales territory: Considerations in allocation of sales territory.

Sales quota: Objectives, principles of selling sales quota administration of sales quota. Uses of Sales quota.

Sales and cost analysis: Uses and Methods.

Suggested Readings:

1. Johnston, Mark W. & Greg W. Marshall, Sales Force Management, McGraw Hill, 2008.
(Richard D. Irwin).
2. Kotler, Philip, K.L. Keller, Abraham Koshy & Mithileshwar- Jha, Marketing Management PHI, 13th ed., 2007.

SEMESTER-V**COMMERCE**

ANY ONE OF THE FOLLOWING:-

OPT. (I) COMPUTER AIDED ACCOUNTING

OPT. (II) MATERIALS MANAGEMENT

OPT. (III) TYPING AND SHORTHAND

OPTION (I): COMPUTER AIDED ACCOUNTING

Time: 3 Hours

Max. Marks: 100

Note: i) The candidates are allowed to use simple (Non-Scientific) Calculators.
ii) Each question paper will consist of three sections as follows:-

Section-A: It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 2 marks; total weightage of the section being **20 marks**.

Section-B: It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the Examiner and eight will be attempted by the candidates. Each question will carry 6 marks. The total weightage of the section being **48 marks**.

Section-C: It will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will be carry 16 marks; total weightage of the section being **32 marks**.

UNIT-I

Introduction to Computers: Early developments, Computer generations; information representation and storage; basic concepts of Boolean algebra; Binary arithmetic operations; hardware and software; Concepts of data and information; fields, records, files.

UNIT-II

Definition of data processing, types of data processing; data processing cycle; common data processing operations; data capture and validation; data validation techniques; introduction to data storage devices.

UNIT-III

Problem Solving basic Programming

Problem solving on computers: Algorithms and flowcharts; programming languages and BASIC: Introduction to BASIC language; constants, variables and expressions; Communication with the computer.

UNIT-IV

Program control, Commands; repetitive computations, arrays and subscripted variables; functions and subroutines; string data manipulation, graphics commands.

Software Lab: Accounting Problems based on the above syllabus. The students are required to develop programmes for various accounting problems.

Suggested Readings:

1. Martin and Seymour: Data Processing (Schaum Series, McGraw Hill, 1984).
2. Gotterfried: Programming with BASIC (Schaum Series, McGraw Hill, 1986).
3. Pradeep K. Sinha, Priti Sinha: Computer Fundamentals, BPB Publications, 2005.
4. Grover: Programming in BASIC (Allied Publishers, New Delhi, 1987).

SEMESTER-V**COMMERCE****OPTION (II): MATERIALS MANAGEMENT****Time: 3 Hours****Marks: 100****Teaching Hours: 80****Period of 45 minutes each****Note:** i) The Candidates are allowed to use simple (Non-Scientific) Calculators.

ii) Each question paper will consist of three sections as follows:-

Section-A: It will consist of 10 very short-answer questions with answers to each question upto Five lines in length. All questions will be compulsory. Each question will carry two marks; Total weightage of the section being **20 marks**.

Section-B: It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry 6 marks; total weightage of the section being **48 marks**.

Section-C: It will consist of essay type questions with answer to each question upto five pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will carry 16 marks; total weightage of the section being **32 marks**.

UNIT-I

Nature and scope of materials management, objectives and functions of materials management; organization of materials management, interdepartmental relationships

Purchasing Management Introduction, Objectives and functions organisation for purchasing, responsibilities of purchase department, determination of purchase, requirements. Purchase procedures inviting tenders and quotations selecting a source, placing an order and follow up; purchasing records and their maintenance; purchasing through approved sources and through D.G.S. and T.D.

UNIT-II

Stores Management : Identification of stores, classification and codification of materials on alphabetical, nemonic, numerical, alpha-numerical and column making systems, advantage of classification and codification; stores organisation; receiving section layout and location system, substores, material handling and storage equipment, store accounting.

UNIT-III

Inventory Management: Definition scope and objectives of inventory control, ABC analysis, factors requirement of an item, lead time, carrying or holding costs, set up or ordering , costs, shortage or stock out costs re-order point, safety stock, economic order quantity (without shortages), EOQ for price discounts.

UNIT-IV

Distribution Management: Definition of physical distribution, factors affecting distribution, elements of transport system, pros and cons of various modes of transportation, transportation and non transportation costs. Inter-state tariffs documentation, carrier and consigners liabilities, packing and package costs, packaging fragile, perishable and dangerous goods.

Recommended/Suggested Books:

1. Gopalkrishnan, "Handbook of Material Management", Prentice Hall of India, 2007.
2. Menon K.S. "Stores Management", Mac Millan of India Ltd., 2007.
3. Arnold and Ramkrishnan, "Introduction to Materials Management", Pearson Education, 2007.
4. Nair N.K., "Purchasing and Materials Management", Vikas Publications, 2007.
5. Goyal B.C., "Production Management", Pragati Prakashan, 2007.

SEMESTER–V

COMMERCE

COMMERCE (ELECTIVE)

OPTION (III): TYPING AND SHORTHAND

Time: 3 Hours

Max. Marks: 100

Theory Marks: 70

Practical Marks: 30

Note: The question paper covering the entire course shall be divided into three sections as follows:-

Section–A: It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry 1½ marks; Total weightage of the section being **15 marks**.

Section–B: It will consist of short answer questions with answer to each question upto two pages in length. Twelve questions will be set by the examiner and eight will be attempted by the candidates. Each question will carry 4 marks. The total weightage of the section being **32 marks**

Section–C: It will consist of essay type questions with answer to each question upto 5 pages in length. Four questions will be set by the examiner and the candidates will be required to attempt two. Each question will be carry 11½ marks; total weightage of the section being **23 marks**

Theory

Practical

Unit–I

1. Nature, Scope and importance of typewriting. Sitting posture, introduction of basic principles, knowledge of essential parts of a typewriter and their usage.
2. Manipulation of fingers on key board– Introduction of basic lesson (all the four rows) including operation of side shift keys.

Satisfy the curiosity of the students by making him sit on the typewriter in a required manner by inserting and removing the paper and by observing the action of keys when pressed.

Mastery of key-board, practice of basic lesson on all the four rows. Practice of “quick brown fox jumps straight over the lazy dog” lesson.

Unit–II

3. Speed development importance of accuracy over speed.
4. Care and upkeep of typewriter. Typewriting accessories, change of ribbon, use of punctuation signs and space to be left after punctuation marks carbon manifold.

Introduction and manipulation of side shift keys and their use.

Practice from exercises, after completion of basic lessons to attain speed @ 15 w.p.m.

Unit-III

- | | |
|---|---|
| 5. Instructions for stencil cutting. Use of correcting fluid. | Practice from book exercises @ 15 w.p.m. daily for atleast five minutes and practice in cutting stencils. |
| 6. Display of tabulation work and balance sheets. | Typing in printed forms, telegrams and tabulated statements etc. |

Unit-IV

- | | |
|---|---|
| 7. How to type printed forms, telegrams, minutes notices and legal matters. | Development of speed @ 25 w.p.m. with daily practice. |
| 8. Revision of theory. | |

Note: There would be one paragraph of 125 words to be typed @ 25 w.p. m. for 5 minutes carrying 10 marks and their would be 5 marks for sessional work. (The candidate is required to maintain his file through out the year.)

Books Recommended: (Typewriting Theory)

1. Typewriting made easy.
2. General instructions regarding typewriting and stencil cutting.
3. A handbook of type writing.

Typewriting Practical:

1. Speed and accuracy.
2. Comprehensive course in touch typewriting.
3. Weekly test papers.
4. Any other book suitable to students.

THEORY

1. Nature, scope, importance of shorthand (this includes basic instructions and introduction).
2. Explanation of consonant and vowel sounds, their indication and their use in shorthand.

PRACTICAL

Teacher would be required to teach students basic principles of shorthand and practice of constant and vowels (initial lessons.)

Practice from books and reading back at initial Speed it will be required for the whole of the year.

B.A./B.Sc. (Semester System) (12+3 System of Education)
(Faculty of Economics & Business)

- | | |
|--|---|
| 3. Gramalogues—explanation and their usage in shorthand. | Dictation and reading back from further exercises,. Transcription from written shorthand would start from this stage. |
| 4. Explanation of diphthongs hooks (initial and final) halving and doubling principles. | |
| 5. Diphones, medial semicircles and compound words-general contractions. | Practice from book exercise, reading back and Transcription. 5 minutes para dictation and transcription at nominal speed till last examination. |
| 6. Intersections, advanced phraseography and special contractions including legal phraseography. | Dictation from seen and unseen passage (from shorthand book) reading back and transcriptions at normal speed. |
| 7. Quick revision of theory note making techniques—common errors in shorthand of English words. | Dictation from any exercise of shorthand book. Reading of printed shorthand outlines from Shorthand book. |
| – Introduction of new and advance shorthand outlines. | The candidate would be required to attain speed @ 60 w.p.m. and transcribe the same @ 12 w.p.m. |
| 8. Dictation from instructor exercises and preparation for examination. | |

Note: There would be one paragraph of 5 minutes of 300 words to be dictated @ 60 w.p.m. and to be typed @ 12 w.p.m. carrying 15 marks.

‘Shorthand Instructor’ is required to give practical knowledge of all the exercises of the book to the learners. Questions for theory would be from the prescribed syllabus but practical (shorthand test) would be from the whole of the book.

SEMESTER-V

TOURISM AND TRAVEL MANAGEMENT (VOCATIONAL)

EMERGING CONCEPTS FOR EFFECTIVE TOURISM DEVELOPMENT

Time: 3 Hours

Max. Marks: 100

Internal assessment will be based on Periodical test, Presentations, Assignments, Group discussions, and Grooming skills

Instructions for the Paper Setters:

Section-A: It will consist of 15 questions from the entire syllabus of the paper with answer to each question should up to 50 words. Students will be required to attempt any 10 questions. Each question will carry 2 marks. This section will be of 20 marks

Section-B: It will consist of 8 essay type questions, 2 from each unit with answer to each question should up to 5pages. Students will be required to attempt any 4 questions. Each question will carry 20 marks. This section will be of 80marks.

Note:- The candidates are allowed to use simple (Non-Scientific) Calculators.

Part-I

Relevant concepts and approaches for effective tourism development.

- National Development Council Report on Tourism Development.
- National Action Plan, 1992.
- New Policies on Tourism and Civil Aviation.
- Tourism traffic and its Improvisations
- Destination development.
- Sustainable development.

Part-II

- Man Power Development Needs.
- Management Strategies.
- Tourism Policy Analysis.
- Tourism Legislation a Necessity.

Suggested Readings:

1. National Development Council Report.
2. National Action Plan, 1992.
3. Reports of World Tourism Organisation.
4. Report Workshop on Tourism Legislation - August 10-11, 1987 IITTM, New Delhi.
5. Report Workshop on Tourism Legislation - February 23, IITTM, New Delhi.

**SEMESTER-V
MATHEMATICS**

PAPER-I: VECTOR CALCULUS AND SOLID GEOMETRY

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section-A and Section-B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.

Section-A

Vector differentiation, Gradient, divergence and curl operators, line integrals, Vector identity, Vector integration, Theorems of Gauss, Green, Stokes and problems based on these.

Section-B

Equation of surface of revolution obtained by rotating the curve $f(x, y) = 0$ about the z-axis in the form of $f(x^2 + y^2, z) = 0$. Equation of ellipsoid, hyperboloid and paraboloid in standard forms. Surfaces represented by general equation of 2nd degree $S = 0$. Tangent lines, tangent planes and Normal plane.

Books Recommended:

1. Narayan, S.: Analytical Solid Geometry, Sultan Chand & Sons (2005).
2. Kreyszig, E.: Advanced Engineering Mathematics.
3. Spiegel, M.R.: Introduction to Vector Calculus and Tensor.
4. Spiegel, M.R.: Vector Analysis.

**SEMESTER-V
MATHEMATICS**

PAPER-II: LINEAR ALGEBRA

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section-A and Section-B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.

Section-A

Definition of groups, rings and fields with illustrations. Definition of a vector space, subspaces with examples. Direct sum of subspaces. Linear span, Linear dependence, Linear independence of vectors. Linear combination of vectors, Basis of a vector space, Finitely generated vector spaces. Existence theorem for basis. Invariance of the number of elements of the basis set. Dimension of sum of two subspaces. Quotient space and its dimension.

Section-B

Linear transformation. Algebra of linear transformation. Rank- Nullity theorem, Isomorphism and Isomorphic spaces, Matrix of a linear transformation. Changes of basis, Linear operator.

Books Recommended:

1. K.Hoffman & R. Kunze, Linear Algebra, 2nd Edition, Prentice Hall, New Jersey, 1971.
2. V. Krishnamurthy, V. P. Mainra and J.L. Arora, An Introduction to Linear Algebra, East West Press.
3. Shanti Narayan & P.K. Mittal, A Text Book of Matrices, 10th Edition (2002), S. Chand & Co.
4. Surjit Singh: Linear Algebra

**SEMESTER-V
STATISTICS**

PAPER-I: LINEAR MODELS AND DESIGN OF EXPERIMENTS

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section-A and Section-B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.
4. The non-programmable scientific calculator is allowed.

Section-A

Linear models, the fixed effect models, the distribution of minimum error sum of squares and the conditional minimum error sum of squares, tests of general linear hypotheses.

Analysis of one way classified data under the fixed effect model. Analysis of the two way classified data with one observation per cell under the fixed effect models, Analysis of the two way classified data with multiple but equal observation in cell under the fixed effect models, expectations of various mean sum of squares in one way and two way classified data.

Section-B

Terminologies in experimental designs, basic principles of design of experiment: randomization, replication and local control, completely randomized design, randomized block design and the latin square design, balanced incomplete block design and their advantages, disadvantages and analysis.

Factorial experiments, the concept of main effects and interactions in 2^2 and 2^3 factorial experiments and the sum of squares due to them. Yates method of computing the sum of squares due to the main effects and interactions in 2^2 and 2^3 factorial designs, statistical analysis of these experiments (excluding confounding).

Books Recommended:

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. Fundamentals of Statistics, Vol. II, World Press, 2005.
2. Das, M.N. and Giri, N.C. Design and Analysis of Experiment, New Age International Publisher, 2003.
3. Gupta, S.C. and Kapoor, V.K., Applied Statistics, Sultan Chand and Company, 2007.

**SEMESTER-V
STATISTICS**

PAPER-II: THEORY OF SAMPLE SURVEYS

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section-A and Section-B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.

Section-A

Introduction to design of sample surveys, census and sample surveys, basic principles of sample surveys, planning a sample survey, sampling and non sampling errors.

Simple random sampling (WR and WOR) and its results, estimation of mean: its mean and variance and its estimate, and estimation of proportion: its mean and variance, stratified random sample (WOR): estimation of mean: its mean and variance and its estimate (under WOR), proportional. Neyman and optimum allocations.

Section-B

Ratio, product and regression estimates of population mean: their approximated (under large sample) expected values and variances under SRSWOR, comparisons with mean per unit estimate (under SRSWOR)

Books Recommended:

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. Fundamentals of Statistics, Vol. II, World Press, 2005.
2. Singh, D. and Chaudhary, F.S., Theory and Analysis of sample survey design, New Age International Publisher, 2002.
3. Mukhopadhyar, P., Theory and Methods of Survey Sampling, Prentice Hall, 2000.
4. Gupta, S.C. and Kapoor, V.K., Applied Statistics, Sultan Chand and Company, 2007.

**SEMESTER-V
APPLIED STATISTICS**

PAPER-I: ESTIMATION AND TESTING OF HYPOTHESIS

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section-A and Section-B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.
4. The non-programmable scientific calculator is allowed.

Section-A

Estimators and estimates, unbiased, consistent, efficient estimators. Estimation Method based on moments, Maximum likelihood estimators for the parameters of Binomial, Poisson Hyper geometric and Normal Exponential Uniform distribution. Confidence intervals.

Section-B

Tests of a statistical hypothesis, two types of errors, power of test. Tests for the parameter of the Binomial, Poisson and normal distributions, Chi-square tests: Test of goodness of fit, Test of independence of attributes, Z transformation of the sample correlation, tests regarding the population correlation coefficient based on the Z-transformation. Non parametric test. Test of randomness, Wilcoxon and sign tests.

Book Recommended:

1. Goon, Gupta and Das Gupta: Fundamental of Statistics, Vol. I and II, World Press, 2005.
2. Hogg. R.V., Mckean, J.W. and Craig. A.T., Introduction to Mathematical Statistics, Pearson Education, 2007.
3. Miller, I. and Miller, M. Mathematical Statistics with Applications, Seventh Edition, Pearson Education, 2007.

SEMESTER–V
APPLIED STATISTICS

PAPER–II: DESIGN OF EXPERIMENTS AND MULTIVARIATE STATISTICS

Time: 3 Hours

Marks: 50

Instructions for the Paper Setters:

1. Syllabus of this paper is split into two Parts: Section–A and Section–B. Five questions will be set from each Section.
2. The student will attempt five questions in all selecting at least two questions from each section.
3. Teaching time for Mathematics would be six periods per week for each paper.
4. The non-programmable scientific calculator is allowed.

Section–A

Principles for design of experiments: randomization, replication and local control. Completely randomized design, randomized blocks design. latin square design, balanced incomplete block design and their advantages, disadvantages and analysis.

Section–B

Multivariate Statistics (upto 4 variable only): Introduction of multivariate normal distribution, maximum likelihood estimators of mean vector and variance, covariance matrix of multivariate normal distribution, multiple regression, multiple correlation and partial correlation.

Book Prescribed:

1. Goon, Gupta and Das Gupta: Fundamental of Statistics, Vol. I and II, World Press, 2005.
2. Hogg. R.V., Mckean, J.W. and Craig. A.T., Introduction to Mathematical Statistics, Pearson Education, 2007.
3. Miller, I. and Miller, M. Mathematical Statistics with Applications, Seventh Edition, Pearson Education, 2007.

**SEMESTER-V
CHEMISTRY**

**INORGANIC CHEMISTRY-IV
(THEORY)**

Time: 3 Hrs
45 Hrs. (3 Hrs./week)

Marks: 35

The question paper shall consist of two parts as detailed below:-

Part-A :- (Compulsory)

It shall consist of 8 very short answer type questions (Q. Nos. 1 to 8) from the entire syllabus and the maximum length of each question may not exceed $1/3^{\text{rd}}$ the page. Each question will be carrying one mark.
8 x 1 = 8 Marks

Part-B :-

It shall consist of three sections (Section 1, II & III). It shall consist of 9 questions (Q. Nos. 9 to 17) from the entire syllabus. Each question will consist of 3 questions from each Unit of syllabus. The maximum length of each question may not exceed 5 pages. The candidate will attempt two questions from each section. Each question will be carrying $4\frac{1}{2}$ marks.

6 x $4\frac{1}{2}$ = 27 Marks

Section-I

1. Metal-ligand Bonding in Transition Metal Complexes (10 Hrs)

Limitations of valence bond theory, an elementary idea of crystal-field theory, crystal field splitting in octahedral, tetrahedral and square planar complexes, factors affecting the crystal-field parameters.

2. Magnetic Properties of Transition Metal Complexes (5 Hrs)

Types of magnetic behaviour, methods of determining magnetic susceptibility, spin-only formula. L-S coupling, correlation of μ_s and μ_{eff} values, orbital contribution to magnetic moments, application of magnetic moment data for characterization of 3d-metal complexes.

Section-II

3. Thermodynamic and Kinetic Aspects of Metal Complexes (5 Hrs.)

A brief outline of thermodynamic stability of metal complexes and factors affecting the stability, substitution reactions of square planar complexes.

4. Electronic Spectra of Transition Metal Complexes (10 Hrs)

Spectroscopic ground states for d^1 - d^{10} electronic configurations.

Types of electronic transitions, selection rules for d-d transitions, spectroscopic ground states.

Section–III

5. Organometallic Compounds: (15 Hrs)

Definition, nomenclature and classification of organometallic compounds. EAN rule, Preparation, properties, and applications of alkyls aryls of lithium and aluminium, Bonding in metal-ethylenic complexes, Mechanism of homogeneous hydrogenation reactions.

**SEMESTER-V
CHEMISTRY**

**PHYSICAL CHEMISTRY-III
(THEORY)**

Time: 3 Hrs
45 Hrs. (3 Hrs./week)

Marks: 35

The question paper shall consist of two parts as detailed below:-

Part-A :- (Compulsory)

It shall consist of 8 very short answer type questions (Q. Nos. 1 to 8) from the entire syllabus and the maximum length of each question may not exceed $1/3^{\text{rd}}$ the page. Each question will be carrying one mark.
8 X 1 = 8 marks

Part-B :-

It shall consist of three sections (Section 1, II & III). It shall consist of 9 questions (Q. Nos. 9 to 17) from the entire syllabus. Each question will consist of 3 questions from each Unit of syllabus. The maximum length of each question may not exceed 5 pages. The candidate will attempt two questions from each section. Each question will be carrying $4\frac{1}{2}$ marks.

6 X $4\frac{1}{2}$ = 27 Marks

Section – I

1. Electrochemistry-I (7 hrs.)

Electrical transport-conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of equivalent and specific conductance with dilution. Migration of ions and Kohlrausch law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law, its uses and limitations. Debye-Huckel-Onsager's equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf method and moving boundary method. Applications of conductivity measurements: determination of degree of dissociation, determination of K_a of acids, determination of solubility product of a sparingly soluble salt, conductometric titrations.

2. Electrochemistry – II (8 hrs.)

Types of reversible electrodes-gas metal ion, metal ion, metal insoluble salt-anion and redox electrodes. Electrode reactions. Nernst equation, derivation of cell E.M.F. and Single electrode potential, standard hydrogen electrode, reference electrodes, standard electrode potential, sign conventions, electrochemical series and its significance. Electrolytic and Galvanic cells-reversible and irreversible cells, conventional representation of electrochemical cells.

EMF of a cell and its measurements. Computation of cell. EMF, Calculation of thermodynamic quantities of cell reactions (ΔG , ΔH and K), polarization, over potential and hydrogen overvoltage. Concentration cells with and without transport, liquid junction potential, application of concentration cells, valency of ions, solubility product and activity coefficient, potentiometric titrations.

Definition of pH and pKa, determination of pH using hydrogen, quinhydrone and glass electrodes, by potentiometric methods. Buffers-mechanism of buffer action, Henderson-Hasselbalch equation, Hydrolysis of salts. Corrosion-types, theories and methods of combating it.

Section–II

3. Nuclear Chemistry (15 Hrs.)

Introduction: Radioactivity, Nuclear Structure, Size of Nucleus, Mass Defects and Binding Energy, Nuclear Stability, Nuclear Forces, Nuclear Spin and Moments of Nuclei, Nuclear Models, Nuclear Decay Processes, The Laws of Radioactive Decay, Soddy-Fajans Group Displacement Law, Rate of Nuclear Decay and Half Life Time (Kinetics of Radioactive Decay), Induced Nuclear Reactions, Types of Nuclear Processes, High Energy Nuclear Reactions, Nuclear Reaction Cross-Section, Artificial radioactivity, Detection and Measurement of Radioactivity, Nuclear Fission, Nuclear Fusion, Applications of Radioactivity.

Section–III

4. Spectroscopy (15 Hrs.)

Introduction: Electromagnetic radiation, regions of the spectrum, basic features of different spectrometers, statement of the Born-Oppenheimer approximation, degrees of freedom.

5. Rotational Spectrum

Diatomic molecules. Energy levels of a rigid rotor (semiclassical principles), selection rules, spectral intensity, distribution using population distribution (Maxwell-Boltzmann distribution) determination of bond length, qualitative description of non-rigid rotor, isotope effect.

6. Vibrational Spectrum

Infrared spectrum: Energy levels of simple harmonic oscillator, selection rules, pure vibrational spectrum, intensity, determination of force constant and qualitative relation of force constant and bond energies, effect of anharmonic motion and isotope on the spectrum, idea of vibrational frequencies of different functional groups.

Raman Spectrum: Concept of polarizability, pure rotational and pure vibrational Raman spectra of diatomic molecules, selection rules.

7. Electronic Spectrum

Concept of potential energy curves for bonding and antibonding molecular orbitals, qualitative description of selection rules and Franck-Condon principle.

Qualitative description of s, p, and n M.O., their energy levels and the respective transitions.

**SEMESTER-V
CHEMISTRY**

(PRACTICAL)

**Duration: 3½ Hrs.
6 Period/week**

Marks: 30

(I) Synthesis and Analysis

- (a) Preparation of Sodium trioxalatoferate (III)
- (b) Preparation of Ni-DMG Complex
- (c) Preparation of Copper tetrammine complex
- (d) Preparation of cis-bisoxalatoaquachromate (III) ion

(II) Physical Chemistry

(a) Conductometric Titrations

- (i) Determine the end point of the following titrations by the conductometric methods.

Strong acid-Strong base

Strong acid-Weak base

Weak acid-Strong base

Weak acid-Weak base

- (ii) Determine the composition of a mixture of acetic acid and the hydrochloric acid by conductometric titration.

(b) (i) Molecular Weight Determination of acetanilide, naphthalene, using camphor as solvent (Rast's methods).

- (ii) To determine the molecular weight of a polymer by viscosity measurements.

(c) Adsorption (i) To study the adsorption of acetic acid oxalic/acid from aqueous solutions by charcoal.

(d) Phase Equilibria to determine the distribution coefficient of iodine between CCl₄ and water.

(e) Refractometry

- (i) Determination of refractive index of a liquid by Abbe refractometer, and hence the specific and molar refraction.

- (ii) To determine the composition of unknown mixture of two liquids by refractive index measurements.

Practical Examination

1) Inorganic Synthesis	10
2) Physical experiment	13
3) Viva- Voce	04
4) Note Book	03

**SEMESTER-V
PHYSICS**

**PAPER-A
CONDENSED MATTER PHYSICS
(THEORY)**

Time: 3 Hours

Marks: 35

Instructions for the Paper Setters:

There will be five sections. Section A will consist of seven short answer type questions covering the whole syllabus and is compulsory. Sections B, C, D and E will consist of two questions each. The candidates are required to attempt one from each section. All questions carry equal marks.

UNIT-I

Crystal structure, Symmetry operations for a two and three dimensional crystal, Two dimensional Bravais lattices, Three dimensional Bravais lattices, Basic primitive cells, Crystal planes and Miller indices, Diamond and NaCl structure.

UNIT-II

Crystal Diffraction: Bragg's law, Experimental methods for crystal structure studies, Laue equations, Reciprocal lattices of SC, BCC and FCC, Bragg's law in reciprocal lattice, Brillouin zones and its construction in two and three dimensions, Structure factor and atomic form factor.

UNIT-III

Lattice vibrations, Concepts of phonons, Scattering of photons by phonons, Vibration and mono-atomic, linear chains, Density of modes, Einstein and Debye models of specific heat.

UNIT-IV

Free electron model of metals, Free electron, Fermi gas and Fermi energy, Band Theory: Kronig-Penney model, Metals and insulators, Qualitative discussion of the following: Conductivity and its variation with temperature in semiconductors, Fermi levels in intrinsic and extrinsic semiconductors, band gap in semiconductors.

Books Suggested:

1. Introduction to Solid State Physics by C. Kittel (Wiley Eastern)
2. Elements of Modern Physics by S.H. Patil (TMGH, 1985).
3. Solid State Physics by Puri and Babbar.

**SEMESTER-V
PHYSICS**

**PAPER-B
ELECTRONICS
(THEORY)**

Time: 3 Hours

Marks: 35

Instructions for the Paper Setters:

There will be five sections. Section A will consist of seven short answer type questions covering the whole syllabus and is compulsory. Sections B, C, D and E will consist of two questions each. The candidates are required to attempt one from each section. All questions carry equal marks.

UNIT-I

Concepts of current and voltage sources, p-n junction, Biasing of diode, V-I characteristics, Zener diode, Rectification: half wave, full wave rectifiers and bridge rectifiers, Filter circuits (LC and filters), Efficiency, Ripple factor, Voltage regulation.

UNIT-II

Junction transistor : Structure and working relation between different currents in transistors, Sign conventions, Amplifying action, Different configurations of a transistor and their comparison, CB and CE characteristics, Structure and characteristics of JEFT, Transistor biasing and stabilization of operating point, Voltage divider biasing circuit.

UNIT-III

Working of CE amplifier, Amplifier analysis using h-parameters, Equivalent circuits, Determination of current gain, Power gain, Input impedance, FET amplifier and its voltage gain, Feed back in amplifiers, Different types, Voltage gain, Advantage of negative feed back, Emitter follower as negative feed back circuit.

UNIT-IV

Barkausen criterion of sustained oscillations, LC oscillator (tuned collector, tuned base Hartley), RC oscillators, phase shift and Wein bridge.

Books Suggested:

1. Basic Electronics and Linear Circuits by N.N. Bhargave, D.C. Kulshreshtha and S.C. Gupta.
2. Foundations of Electronics by D. Chatopadhyay, P.C. Rakshit, B. Saha and N.N. Purkit.
3. Basic Electronics by D.C. Tayal (Himalaya Pub.)

**SEMESTER-V
PHYSICS**

(PRACTICAL)

Marks: 30

General Guidelines for Practical Examination:

- I. The distribution of marks is as follows :

i) One experiment	15 Marks
ii) Brief Theory	5 Marks
iii) Viva-Voce	5 Marks
iv) Record (Practical file)	5 Marks
- II. There will be one sessions of 3 hours duration. The paper will have one session. Paper will consist of 8 experiments out of which an examinee will mark 6 experiments and one of these is to be allotted by the external examiner.
- III. Number of candidates in a group for practical examination should not exceed 12.
- IV. In a single group no experiment be allotted to more than three examinee in any group.

List of Experiments

- i. Measurement of reverse saturation current in p-n-junction diode at various temperatures and to find the approximate value of energy gap.
- ii. To draw forward and reverse bias characteristics of a p-n junction diode and draw a load line.
- iii. Study of a diode as a clipping element.
- iv. To measure the efficiency and ripple factors for (a) halfwave (b) full wave and (c) bridge rectifier circuits.
- v. To draw the characteristics of a Zener diode.
- vi. To study characteristics of Common Base transistor and determine h-parameters of a given transistor.
- vii. To study characteristics of Common Emitter transistor.
- viii. To study the gain of an amplifier at different frequencies and to find Band width
- ix. To study the reduction in the ripple in the rectified output with RC, LC and filters.

SEMESTER-V

B.SC. GEOGRAPHY (GEOPHYSICS)

**GEOPHYSICS-I
(GEOPHYSICAL METHODS)
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 70
Practical Marks: 30**

Instructions for the Paper Setters:

There will be five sections. Section A will consist of seven short answer type questions covering the whole syllabus and is compulsory. Sections B, C, D and E will consist of two questions each. The candidates are required to attempt one from each section. All questions carry equal marks.

Section-A

Gravity Methods:

Gravity of the Earth, Gravity Anomalies, Gravity Instruments, Measurements of Gravity, Gravity Field Surveys.

Section-B

Magnetic Methods:

Magnetism of the Earth, Field Instruments for Magnetic measurements, Magnetic Surveys, Field Examples.

Section-C

Resistivity Methods:

Resistivity of Rocks and Minerals, Fundamentals of the current flow in the Earth, Electrode arrangement and field procedures, Resistivity Survey Instruments and Field Procedure.

Section-D

Seismic & Radiometric Method:

Methods of Seismic Prospecting viz. the reflection and refraction methods. Basis of radiometric prospection. Radiometric Surveys viz Air borne, Automobile and foot Surveys, Radiometers, Role of radiometry in Geophysical prospecting. Analysis of Uranium Thorium and Potassium in ores and rocks.

References:

1. Geophysical Methods in Geology by P.V. Sharma. Elsevier Science Publishing Company, New York.
2. Applied Geophysics by W.M. Telford, L.P. Geldart, R.E. Sheriff and D.A Keys. Cambridge University Press Cambridge, New York.
3. Principles and Method of Nuclear Geophysics by Bhimasankaram. Venkat Rao, Srirama Murti and Savenko Published by Association of Exploration Geophysicists, Center of Exploration Geophysics, and Osmania University Hyderabad, India.
4. Principles and Method of Nuclear Geophysics by Bhimasankaram. Venkat Rao, Srirama Murti and Savenko Published by Association of Exploration Geophysicists, Center of Exploration Geophysics, and Osmania University Hyderabad, India.
5. Radiometric Methods of Exploration by VLS Bhimasankaram.
6. Radiation Detectors Measurements by G.F. Knoll.

SEMESTER-V**B.SC. GEOGRAPHY (GEOPHYSICS)****PRACTICAL****Marks: 30**

1. To find the operating voltage of a Geiger Muller Counter.
2. To find the value of absorption coefficient of beta particles for aluminium.
3. Use of LR-115 plastic track detector for radon measurement in soil.
4. Gamma ray survey using scintillometry.

SEMESTER-V**HOME SCIENCE****FOODS AND NUTRITION & CHILD DEVELOPMENT
(THEORY)****Time: 3 Hrs.****Teaching Periods: 6/week****Max. Marks: 100****Theory Marks: 60****Practical Marks: 30****Internal Assessment: 10****Instructions for the Paper Setters:**

The question paper will consist of five sections A, B, C, D & E. Section A, B, C, D will have two Questions from the respective sections of the syllabus and will be of 12 marks each. Section E will consist of short type questions covering the entire syllabus uniformly and will be of 12 marks.

Instructions for the Candidates:

Candidates are required to attempt one question each from section A, B, C, D and section E is compulsory

Section-A

1. Importance and functions of food:
 - a) Physiological
 - b) Psychological
 - c) Social
2. Essential food Constituents: Carbohydrates, Proteins and Fats; functions, sources, requirements and Deficiency and excess.
3. Methods of cooking: Boiling, steaming, frying, baking, roasting and micro-wave cooking.

Section-B

4. Food nutrients: Functions, recommended allowances, deficiency and sources of:
 - a) Vitamins- B-1, B-2, Niacin, A, C, D
 - b) Minerals-Calcium, Iron, Iodine
5. Food Preservation: Definition, Importance & Principles.
Causes of food spoilage.

Household methods of preservation.

Sun drying, use of salt, oil, spices, sugar & chemical preservatives.

Section-C

1. Definition and importance of Child Development.
2. a) Differences between growth and development.
b) Principles of development.
3. Physical development of the child from infancy to late childhood and factors affecting the same.

Section–D

4. Motor Development from infancy to late childhood.
 - a) Pattern of motor development.
 - b) Factors affecting motor development.

5. Emotional Development
 - a) Characteristics of children emotions.
 - b) Common childhood emotions fear, anger, jealousy, love and affection, anxiety and curiosity.

6. Language Development
 - a) Stages of language development
 - b) Factors affecting language development

HOME SCIENCE
SEMESTER-V

FOODS AND NUTRITION
(PRACTICAL)

Time: 3 Hours

Teaching: 6 Periods/week

Marks: 30

1. Preparation of minimum of three dishes by using various methods of cooking (e.g. boiling, steaming, baking), frying (deep & shallow) and roasting with different food groups e.g. cereal, pulses & vegetables groups and their combinations.
2. Food preservation-Pickle, chutneys, jams, squashes, sherbets, sauce (at least two each).

SEMESTER–V**COSMETOLOGY (ELECTIVE)****(THEORY)****Time: 3 hrs.****Periods/Week: 4****Max. Marks: 100****Theory Marks: 35****Practical Marks: 50****College Lab Training Marks: 15****Instructions for the Paper Setters:****Note: There will be 2 sections.****Section–A:** It will consist of 5 short type questions, and candidate will be required to attempt 3 of them. Each question carry 5 marks each.**Section–B:** It will consist of 4 essay type questions, and candidate will be required to attempt 2 of them. Each question carries 10 marks each.**1. Bacteriology**

- a) What is Bacteria?
- b) How Bacteria grows and reproduce?
- c) Types of Bacteria
- d) Infections and Disease

2. Sterilization & Sanitations

- a) Methods of Sterilization & Sanitations
- b) Commonly used disinfectants
- c) Knowledge of common antiseptics
- d) General suggestions for sanitations

3. Chemical Treatment of Hair

- a) Rebonding
- b) Smoothing

SEMESTER-V**COSMETOLOGY
(PRACTICAL)****Time: 3 Hrs.****Marks: 50****Periods/Week: 6**

Note: Lab training should be taken in college cosmetology lab. And report with picture profile should be submitted by each student with the remarks of lab instructor.

1. Make-up

- a) Cosmetics used in make-up, how to choose the correct colour, selecting base shades, how to determine facial balance.
- b) Bridal Makeup - day & night
- c) Corrective make-up

2. Hair Styling: Formal and casual**3. Draping of Formals & Causals:** Saree and Lehngas

SEMESTER-V**CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)****COMMUNITY NUTRITION
(THEORY)**

Time: 3 Hours
Periods: 6/week

Max. Marks: 100
Theory Marks: 60
Practical Marks: 40

Instructions for the Paper Setters:

1. Theory paper will be of 3 hrs. duration.
2. Question paper should cover all the topics of the syllabus.
3. There will be 8 questions in all student need to attempt 5 questions (12 marks for each)
4. Question 1 is compulsory. Which contains short answer type question.

Objectives:

To impart nutrition education to community.

Content:

1. (a) Nutrition and Health in National Development.
(b) Nutritional Problems confronting our country. The causes of Malnutrition in India– Balance between food to population growth.
2. Method of Assessment of Nutritional Status.
(a) Sampling techniques.
(b) Identification of risk group.
(c) Direct assessment–Diet surveys anthropometry, Clinical and Biochemical estimations.
(d) Indirect assessment–Food balance sheets and agricultural data, Ecological parameters and vital statistics.
(e) Use of growth charts.
3. Nutrition intervention schemes in the community, lecture and method demonstration, nutrition exhibitions and visual aids.
4. National and international agencies in community nutrition ICDS, SNP, ANP, Mid-day meal programme, FAO, WHO, UNISEF, CARE, AID, ICMR, ICAR, CSIR, NIN, CFTRI.
5. Breast-feeding and its implications. Hazards of bottle feeding.
6. Weaning foods–Planning, formulating and preparing importance of correct and timely weaning.
7. Immunization and its importance.
8. Recent advances in community nutrition research–Fortification, enrichment of food.

References:

1. Essential Preventive Medicine A Clinical and Applied Orientatia, Ghai, O.P. Gupta Pijush, New India Vikas Publisher, 1999.
2. Hygiene and Public health, Ghosh B.N., Atma Ram & Sons, 1969.
3. Introduction to Home Science, Arvinda chandra, Metropolitan Publisher, New Delhi, 1978.
4. Nutrition for Developing Combries, King Publisher, Oxford University, 1978.
5. Mat Nutrition in Cludian Bans, Harmesh Singh, Tata McGraw Hill Publisher, 2000.
6. Nut A Health Promotion Approach, Webb, Geoterry, London Arna Publisher, 2002.

SEMESTER-V

CLINICAL NUTRITION AND DIETETICS (VOCATIONAL)

**COMMUNITY NUTRITION
(PRACTICAL)**

Time: 3 Hrs.

Marks: 40

Periods: 6/week

1. Prepare following dishes:
 - a) Low cost Protein rich.
 - b) Low cost iron rich
 - c) Low cost Calcium rich.
 - d) Weaning foods.

 2. Diet and nutrition surveys:
 - a) Identifying vulnerable and at risk groups.
 - b) Diet surveys and breast feeding and weaning practices of specific groups.
 - c) Use of anthropometric measures in community–Project report of the above to be submitted by the students.

 3. Methods of extension used in community to impart nutrition education to them–
 - a) Preparation of visual aids–Charts, posters, models etc. for exhibition.
 - b) Lecture and method demonstration to target groups.
- Note:** Each student will arrange one demonstration imparting nutrition education to community by using different AV aids.
4. Field visits to:
 - (a) Observe the working of nutritional and health oriented programmes.
 - (b) Hospitals to observe nutritional deficiencies and give nutrition advice.

SEMESTER-V

**FASHION DESIGNING AND GARMENT CONSTRUCTION
(VOCATIONAL)**

**HISTORIC COSTUMES OF INDIA AND WORLD-I
(THEORY)**

Time: 3 Hrs.
Periods/week: 4

Max. Marks: 100
Theory Marks: 40
Practical Marks: 50
Internal Assessment: 10

1. Historic costumes of India and World:

- a) Egypt.
- b) Greece

2. Traditional Costumes of the Following States of India

- a) Punjab.
- b) Himachal.
- c) Jammu & Kashmir.
- d) Maharashtra.
- e) Rajasthan.

3. Traditional Textiles of India:

- a) Jamdhani & Baluchari of Bengal .
- b) Tanchoi & Patola of Gujarat.
- c) Chanderi & Maheshwari of M.P.

General Instructions to the paper Setter:

The question paper consists of eight questions, out of which student will attempt five.
All questions carry equal marks.

SEMESTER–V

**FASHION DESIGNING AND GARMENT CONSTRUCTION
(VOCATIONAL)**

**ADVANCE DESIGNING, CONSTRUCTION & DRAPING–I
(PRACTICAL)**

Time: 4 Hrs.
Periods/week: 2x6

Marks: 50

Part–I

Sample making of following

1. Pockets – Cross, Welt, Bound.
2. Zippers – Concealed, Zipper with fly opening.

Design Draft and Construct following:

1. Night Wear.
2. Trouser / Culottes / Hipsters.

Part–II

1. Draping of Basic Bodice Block Front.
2. Draping of Basic Bodice Block Back

General Instructions for the Paper Setters:

1. Design any one garment from syllabus on paper bag–Front & Back, Adaptation to be made from sloper, Cutting & Placement, Construction and finishing of garment.

Marks: 35

2. Draping of any Block.

Marks: 15

Note: Please send the material list along with.

SEMESTER–V

**EARLY CHILDHOOD CARE AND EDUCATION
(THEORY)**

Time: 3 Hrs.
Lectures/week: 6 Theory

Max. Marks: 100
Theory Marks: 60
Practical Marks: 40

Instructions for the Paper Setters:

Ten questions will be set; students are required to attempt any 6, carrying 10 marks each.

Course Contents:

Integration in Early Childhood Care and Education

- Handicapped children
- Types of handicaps
- Identification of children with special needs
- Integration with normal children
- Basic needs of handicapped children

Roles and Responsibilities of Staff

- Administration and supervision
- Qualities of a good teacher and supervisory staff
- Capacity building in staff
- Pre-school personnel's and their training

Substitute Child Care

- Substitute child care
- Needs of infant and children
- Kinds of substitute child care
- Role of Nursery school/balwadi's

Integrated Child Development Scheme

- Packages of services
- Objectives of ICDS

SEMESTER-V

**EARLY CHILDHOOD CARE AND EDUCATION
(PRACTICAL)**

Time: 3 Hrs.

Marks: 40

Lectures/week: 4 Practical

Instructions for the Paper Setters:

Paper will be set on the spot by the examiner.

Distribution of marks for practical examination

Written Practical:

10 Marks

Class Performance:

10 Marks

Practical File:

5 Marks

Oral Examination:

5 Marks

Preparation of Activity Material:

10 Marks

Course Contents:

- * Use of appropriate psychological tools to identify developmental needs of children with special needs.
- * Organizing a Parent Education Programme.
- * Preparation of interactive material for children with special needs
- * Preparation of activities/ material for enhancing physical and mental abilities of pre-school children

SEMESTER-V
FOOD SCIENCE & QUALITY CONTROL (VOCATIONAL)

FSQC-9: FOOD ANALYSIS
(THEORY)

Time: 3 Hours

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper-Setters:

Question paper will cover the main topics and divided into three parts. Each part will contain atleast two questions and students will be asked to attempt five questions in all with atleast one from each part and not more than two from any part.

PART-I

1. Food Composition and factors effecting food composition.
2. Sampling techniques and preparation of sample.
3. General Physical methods of analysis of foods.
 - a) Electronic determination.
 - b) Refractrometry.
 - c) Polarimetry and polarography

PART-II

- d) Food rheology.
- e) Viscosity.
- f) Surface tension.
- g) Freezing point
- f) Specific gravity
4. General Chemical Methods of analysis of food
 - (a) Proximate composition.
Ash and types.

PART-III

- (b) Total protein, Non protein and specific protein in foods, total fat and different types of lipids.
- (c) Macro nutrients.
 - i) Sodium, K.P. Ca, Mg, Fe, Zn.
 - ii) Vitamins
 - iii) Trace Elements

Reference Books:

1. Manuals of Food Quality control additions contaminants techniques, 1980.
2. The Chemical Analysis of Foods and Food Products. By Morries B Jacob, 3rd Ed., Roberte, Krieger.

SEMESTER-V
FOOD SCIENCE & QUALITY CONTROL (VOCATIONAL)

FSQC-10: FOOD ANALYSIS
(PRACTICAL)

Marks: 25

List of Practical

1. (a) Lactometric determination
 - (b) Refractrometry
 - (c) Polarimetry and polarography
 - (d) Food Rheology
 - (e) Viscosity
 - (f) Surface tension
 - (g) Freezing point.
2. Proximate composition of food using various techniques.
 3. Estimation of different minerals in food using various methods.
 4. Estimation of vitamins in food using analytical and microbiological techniques.
 5. Estimation of crude, dietary and other fibre components.

SEMESTER-V

**FINE ARTS (DRAWING & PAINTING)
(THEORY)**

Time: 3 Hrs.

Max. Marks: 100
Theory Marks: 50
Practical Marks: 25 + 25

Note:

- (a) 50 Marks for the theory paper and 25 marks for each practical.
- (b) The question paper will cover the entire syllabus.
- (c) Questions should be based on world famous paintings whose slides are easily available.
- (d) Question paper should cover the syllabus uniformly.
- (e) The paper setter should set the paper in two sections section A and B.
- (f) The division of the marks will be as under:

Section-A: 25 marks for 25 short answer questions. Each question carries 1 mark.

Section-B: 25 marks for 5 questions. The examiner will set 8 questions. The candidate will attempt 5 questions of 5 marks each. Compartment candidates in the subject of Fine Arts will appear only in theory paper during supplementary exam. Previous marks of practical paper will be considered for the aggregate.

History of Modern Movement in Europe:

1. **Impressionism:** Monet and Renoir
2. **Post Impressionism:**
 - (i) Cezanne- Card players, Still life with apples
 - (ii) Vangogh- Starry night, Sunflowers
3. **Expressionism:**
 - (i) Munch- Cry, Dance of life
 - (ii) Kandinsky- Blue mountain, Improvisation 30
4. **Cubism:**
 - (i) Picasso- Les Demoiselles D' Avignon, Guernica
 - (ii) Braque- Still life, The Portuguese
5. **Surrealism:**
 - (i) Salvador Dali- Persistence of Memory, Burning Giraffe
 - (ii) Max Ernst- Celebes, Europe after rain

SEMESTER-V**(PRACTICAL-I)
LANDSCAPE (ON THE SPOT)****Time: 5 Hrs****Marks: 25**

Arrangement of shape based on subjects like human forms and animal forms.

In landscape setting emphasis should be given on perspective, Colour and its application in harmony.

Medium: Any medium**Size:** ½ Imperial

SEMESTER-V**(PRACTICAL-II)
FULL LIFE DRAWING****Time: 5 Hrs****Marks: 25**

Rendering of full life study should be done in any medium. Emphasis should be given to structure, volume, proportion, tones and texture in monochromatic Colour.

Medium: Any medium**Size:** ½ Imperial

Candidates will submit:-

- (i) 5 sheets of each paper
- (ii) Sketch book containing 50 sketches.

SEMESTER-V

**HISTORY OF ART
PAPER-A**

Time: 3 Hours

Max. Marks: 50

Outlines of Test, Syllabi, and Courses of Reading

- Note:** (a) The question paper should cover entire syllabus. It may contain very specific short answer questions.
- (b) The paper-setter should set 15 questions in all. Students will attempt 10 questions of 5 marks each.

History of Indian Painting from C.1850 to the present times-

Company painting

Raja Ravi Verma.

Bengal school with reference to Rabindranath Tagore, Nand Lal Bose, Gagendernath Tagore.

Post Independence Artists-

Amrita Shergil, Gemini Roy, D.P.R. Chowdhary, Shobha Singh, M.F. Hussain, Satish Gujral,

Subodh Gupta.

SEMESTER-V**HISTORY OF ART
PAPER-B****Time: 3 Hours****Max. Marks: 50****Outlines of Test, Syllabi, and Courses of Reading:**

- Note:** (a) The question paper should cover entire syllabus. It may contain very specific short answer questions.
- (b) The paper-setter should set 15 questions in all. Students will attempt 10 questions of 5 marks each.

History of India Sculptures- from C.600 A.D. to C.1300 A.D.

Pal and Sena School of Bengal, Bihar and Orrisa

Pratihara sculptures of Central and western India

Chola sculptures –Stone and Bronze.

SEMESTER-V**GEMOLOGY AND JEWELLERY DESIGN
(THEORY)****Time: 3 Hrs****Max. Marks: 100
Theory Marks: 50
Practical Marks: 50****Section-A:** 2 marks for 10 short answer questions. All the questions are compulsory.**02x10=20****Section-B:** The examiner will set 5 questions and the candidate will attempt 3 questions.**03x10=30**

1. Casting
2. Polishing
3. Electroplating
4. Electroforming
5. Chemical Finishing

SEMESTER-V**GEMOLOGY AND JEWELLERY DESIGN
(PRACTICAL)****Marks: 50****Manufacturing:**

1. Domestic Jewellery - Creation of 3 final designs in relation to Indian Jewellery.
Kundan, Meena work, stone setting (Through .J.Cad)
2. Export Jewellery - Creation of 3 final designs in relation to export market like U.K, USA,
China etc.
3. Manufacturing of Fashion and Costume Jewellery with metals.
Exercise on: Jali Work, Riveting, Silver Ring, Pendent Making, Development of Pendent,
Earings Broches

SEMESTER-V

**STILL PHOTOGRAPHY & AUDIO PRODUCTION
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 50
Practical Marks: 50**

Instructions for the Paper Setters:

Total no. of questions to be set: 20

Total no. of questions to be attempted: 12

Question paper is divided in two parts.

Section-A: It will consist of 16 questions. Student will attempt 10 questions. Each question will carry 3 (three) marks. **(Total: 30 Marks)**

Section-B: It will consist of 4 questions. Student will attempt any 2 question. Answer will carry 10 (ten) marks. **(Total: 20 Marks)**

Course Contents:

1. Pre-script Stage: Background
2. Communication Objectives-Identify and presentise
3. Target Audience-Identify and presentise
4. Creative Treatment
5. Microphones-Different types.
6. Mikes-Special types and accessories, wireless, lappet, reflector type, short again.

Introductory lectures on:

- Overhead Projector.
- Hand held picture/chart slide presentation
- Multi Projector single screen with dissolves
- Multi Projector Multiscreen

Emphasis on:

- Multi Projector
- Script
- Visualisation
- Photography
- Graphics

Suggested Readings:

Sr. No.	Book Name	Author
1.	Effects and Experiments in Photography	Pet old- Focal
2.	Basic Photography	John Hedgecoe

SEMESTER-V

STILL PHOTOGRAPHY & AUDIO PRODUCTION

**ADVANCE PHOTO TECHNIQUES
(PRACTICAL)**

Time: 6 Hours

Marks: 50

Instructions for the Paper Setters:

1. The paper will be set by the external examiner on the spot considering the syllabus.
2. Creative work on the part of the students is to be emphasized.
Technical competence is expected. The students should also use updated and latest techniques in his/her work.
3. Photographs clicked during examination are supposed to be submitted by the student in the form of C.D. or D.V.D. as desired by the examiner.

Instructions for Students:

1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.
2. Students are not allowed to use previous clicked Photographs.
3. Sizes of photographs will be given by Internal Examiner as per requirement.

Course Contents:

1. Use a medium format cameras and appreciate the difference.
2. Expose Raw stocks of different kinds, Find out their Characteristics.
3. Use lenses of different kind to see its various uses.
4. Measuring light by using a exposer meter.
5. Black and White processing and printing (only demonstrations)
6. Indoor lighting arrangement for Poliant and Table Tops.
7. In-camera Special Effects.
8. Post exposure SFX Special Effects.

Suggested Readings:

Sr. No.	Book Name	Author
1.	Color Prints	Coote-Focal
2.	Guide to the Dark Room	Gaunt- Focal

SEMESTER-V**COMMERCIAL ART****ART APPRECIATION AND ADVERTISING
(THEORY)****Time: 3 Hours****Max. Marks: 100
Theory Marks: 50
Practical Marks: 50****Instructions for the Paper Setters:**

1. No. of questions to be set: 15
2. No. of questions to be attempted: 10
3. The questions are to be equitably distributed among all the topics of the Syllabus.
4. Each question will carry 5 marks.

Course Contents:

- a. Development of Printing Press in India (Ancient, Medieval, Post Independence)
- b. Aesthetic of Commercial Art
- c. Letter Press for printing
- d. Trade Mark
- e. Brand Name
- f. Preparing Product Packaging
- g. Block Making

Suggested Readings:

Sr. No.	Book Name	Author
1.	Introduction to Printing	Herbert Simon
2.	Design	Peter Bridgewater, Brain Lewis, Brett Beckon

SEMESTER-V

COMMERCIAL ART

**INDOOR CAMPAIGN: FOLDER AND LAYOUT
(PRACTICAL)**

Time: 6 Hours

Marks: 50

Instructions for the Paper Setters:

1. The paper will be set by the Examiner on the spot considering the syllabus.
2. Imaginative and Creative work on the part of the students is to be emphasized. Imagination and Technical competence is expected. The students should also use updated and latest techniques in his/her work.
3. Limited references while preparing layout and folder can be taken. Logo and writing style of the existing company can be taken from any available source.
4. Any one of the above (Folder and Layout) is to be made by the students for the examination.

Instructions for the Students:

1. Attendance in departmental seminars and extension lectures and college tours shall be obligatory for all students.
2. Size: As required.

Course Contents:

Folder: Prepare 2 fold or 3 fold folders as asked by the teacher.

Topics: Commercial and Educational

Layout: Prepare Layout for Magazine

Topics: Commercial and Educational

During examination, use of stencil, Transfer letters, Screens are allowed.

Limited references while preparing layout and folder can be taken.

Suggested Readings:

Sr. No.	Book Name	Author
1.	Advertising Procedure	Otto kleppner
2.	Design	Peter Bridgewater, Brain Lewis, Brett Beckon

SEMESTER–V

**SCULPTURE
(THEORY)**

Time: 3 Hrs.

**Max. Marks: 100
Theory Marks: 50
Practical Marks: 50**

Note:

- (i) The question paper should cover the entire syllabus. It may contain very specific content related question.
- (ii) The paper setter should set fifteen (15) questions in all and students shall attempt 10 ten questions.
- (iii) The questions can be repeated from previous question paper.

Chapter–I

Gupta Sculptures

- Mathura Centre (standing Vishnu, Standing Buddha, Vishnu Anant Shayian from Dasavatar temple, Deogarh, Vishnu of Vaikuntha from Mathura)
- Sarnath Centre (Life of Buddha Panel, Seated Buddha preaching the Sermon of Law and Copper Buddha from Sultan Ganj)

Chapter–II

Pallava's Sculpture including Rath temples.

Chapter–III

Art of Sun temple of Konark (Odisha)

Chapter– IV

Sculptures of Kailashnath Temple, Ellora.

Chapter–V

Chola Bronzes sculptures including techniques, Shiv Natraj and Parvati Sulptures.

Chapter–VI

Sculptures of Elephanta Caves (Marriage of Shiva and parvati, Shiv Maheshamurti, including main features of the Sculptures.

SEMESTER–V**SCULPTURE
(PRACTICAL)****Time: 6 Hrs****Marks: 50**

- 1) Low Relief Sculptures in Geometrical pattern, Cast in Plaster of paris (POP) / Cement / Metal based on birds, Flora and Fauna. (Minimum Size 10 X 10 inches), Total no. of work–1
- 2) Composition in round sculpture based on human figures. Work should be produced in PoP / cement / Metal. Total no. of work–1
- 3) Creative Head in Clay Modeling, work should be produced in PoP / Cement / Terracotta.

Books Recommended:

- | | |
|--|--------------------------------|
| 1. History of Fine Arts in India and West | By Edith Tomory |
| 2. Indian Art (A concise History) | By Roy C Craven |
| 3. A Survey of Indian Sculptures | By S. K Sarawati |
| 4. Indian Sculpture | By Stella Kramisch |
| 5. Murti Kala Ka Itihaas | By Aggar Ali kadavi |
| 6. The Pelican History of Art | By Benjamin Rowland |
| 7. Indian Images—Part I, II | By D.C. Bhattacharya |
| 8. Mathura ki Murtikala | By Neel Kanth Purshottam Joshi |
| 9. An Interesting Survey
(Sculptures from konark) | By T.N Ramachandran |
| 10. South Indian Bronzes | By O.C Gangoli |

SEMESTER-V**MUSIC (VOCAL)
(THEORY)**

Time: 3 Hours
Periods/week: 3

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions given to the examiners are as under:

1. The paper setter will set **Eight** questions in all. The candidate may be asked to attempt **Five** questions in all.
2. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
3. Candidate can take Tabla subject along with Music Vocal.

COURSE CONTENTS:

1. Importance of Globalization in Indian music in Modern Period.
2. Development of Indian Notation System and its important merits and demerits.
3. Short notes on the following :
i) Thumri ii) Tappa iii) Tarana iv) Chaturang.
4. Detailed knowledge of folk music of Punjab.
5. Detailed description of the following Ragas:
i) Darbari ii) Kedar iii) Shudh Kalyan (with notations)
6. Detailed study of the following Talas:
i) Jhumra ii) Jat-Taal iii) Ada Chaal Tal
7. Essay writing on the following topics:
i) Kanth Sadhna (Voice Culture) ii) Manch Pradarshan (Stage Performance)
8. Life and Contribution of the following Musicians:
i) Dalip Chandra Bedi ii) Acharya Bhraspati iii) Surinder Kaur.
9. Inter-relationship between Music and Yoga.
10. Classical Gayan Shailies used in Gurmat Sangeet.

SEMESTER–V

**MUSIC (VOCAL)
(PRACTICAL)**

Time: 20 Minutes

Marks: 50

Periods/week: 9

Instructions for examiner:

1. The Examiner will set practical paper on the spot.
 2. There should not be more than ten students in a batch for practical examination.
 3. The External Examiner will set question paper for practical on the spot.
 4. The practical paper will be of 50 Marks for Private and Regular candidates.
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1. One Drut Khayal in each of the following Ragas with simple Alaps and Tanas: Darbari, Kedar, Shudh Kalyan.
 2. One Vilambit Khayal in any of the Ragas prescribed in the course with simple Alaps and Tanas.
 3. One Shabad in Prescribed Raga.
 4. One Folk Song of Punjab.
 5. Ability to recite Jhumra, Jat – Taal, Ada Chaar Taal, showing Khali Tali with hand motion in Ekgun, Dhugan Lehkaris.
 6. Aroh, Avroh and Pakar of Raga Adana, Hamir, Bhupali.
 7. Ability to play Ek-Taal on Tabla.
 8. One Tarana in any of the prescribed Ragas.

Books Recommended:

1. Bharatiye Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
2. Rag Parichya Part – I, II, and III by Shri Harish Chnder Srivastava.
3. Hamare Sangeet Rattan Sangeet Karyalaya, Hathras.
4. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
5. Sangeet Nibandhavli, Dr. Gurnam Singh, published by Punjabi University, Patiala.
6. Sikh Dharam Ate Bhakti Sangeet, Dr. Jitender Kaur.
7. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.
8. Abhinav Geetanjali Pt. Ramashrya Jha I, II, III, IV, V.
9. Tantri Nada Pt. Lalmani Mishra.

SEMESTER-V**MUSIC (INSTRUMENTAL)
(THEORY)****Time: 3 Hours****Marks: 50****Instructions given to the examiners are as under:**

1. The paper setter will set **Eight** questions in all. The candidate may be asked to attempt **Five** questions in all.
2. Candidate can take both subjects i.e. Vocal & Instrumental Music as elective subject.
3. Candidate can take Tabla subject along with Music Vocal.

COURSE CONTENTS:

1. Development of Music during modern period.
2. Comparative study of Avirbhava & Tirobhava with illustrations.
3. Relevance of time theory in Music.
4. Life & Contribution of the following Musicians.
i) Pt. Ravi Shankar (Sitar) ii) Ud. Bismillah Khan (Shehnai).
5. Detailed study of Classification of Indian Musical Instruments.
6. Inter relation between folk & classical music.
7. Detailed description of the prescribed Raga Jai-Jai Wanti, Hameer & Darbari Kanada (with Notations).
8. Detailed knowledge of following Ragas-
i) Des ii) Kedar iii) Adana (with Aroh, Avroh & Pakad)
9. Detailed knowledge of the following Talas:
i) Deepchandi ii) Tilwara.
10. Study of Kirtan Chowkies in Gurmat Sangeet.

SEMESTER-V

**MUSIC (INSTRUMENTAL)
(PRACTICAL)**

Time: 3 Hrs.
Periods/week: 9

Marks: 50

Instructions given to the examiners are as under:

1. There should not be more than ten students in a batch for practical examination.
2. The External Examiner will set question paper for practical on the spot.
3. The practical paper will be of 50 Marks for Private and Regular candidates.

1. Ability to play 10 Alankars in Sitaar in the Swaras of Khamaj That.
2. One maseetkhani gat in any Raga prescribed in you course Jai-Jai Wanti & Hameer & Darbari Kanada.
3. One Rajakhani Gat in each Raga prescribed in your course.
4. Ability to recite on hand Deepchandi & Tilwara Tal with single & Double Layakaries.
5. Ability to play Rupak Tal on Tabla.
6. One gat in Ektal in any Raga prescribed in your Course.

Books Recommended:

1. Bharatiye Sangeet Ka Itihaas, Sharat Chandra Paranjpay.
2. Rag Parichya Part – I, II, and III by Shri Harish Chnder Srivastava.
3. Sangeet Shastra Darpan Part – II (Punjabi) published by Punjabi University, Patiala.
4. Sangeet Vishard Sangeet Karayalya, Hathras.
5. Sangeet Shastra Darpan Shanti Govardhan.
6. Hamare Sangeet Rattan Sangeet Karyalaya, Hathras.
7. Kramik Pustak Malika by Vishnu Narayan Bhathkhande.
8. Sangeet Nibandhavli, Dr. Gurnam Singh, published by Punjabi University, Patiala.
9. Sikh Dharam Ate Bhakti Sangeet, Dr. Jitender Kaur.
10. Gurmat Sangeet (Vishesh Ank) Amrit Kirtan Trust, 422, 15/A, Chandigarh.

SEMESTER-V**INDIAN CLASSICAL DANCE****(THEORY)**

Time: 3 Hours
Periods/week: 3

Max. Marks: 100
Theory Marks: 50
Practical Marks: 50

Instructions given to the Paper Setters are as under:-

1. The paper setter will set eight questions. The candidate may be asked to attempt five questions.

COURSE CONTENTS:

1. Detailed knowledge of Bharat Natyam with its historical background, style, costume and music etc.
2. Knowledge of Bhav, Sthai Bhav, Vibhav, Anubhav and Sanchari Bhav.
3. Origin of Taal and its ten Prans.
4. Gati Bhedas and Sthanak Bhedas according to Abhinaya Darpan.
5. Importance of background music in Dance.
6. Knowledge of Folk Dances of Himachal Pradesh.
7. Kathak and Natwari Nritya.
8. **Notation of:**

(i) BASANT TAAL -- 9 Matras

- a) Tatkar in Ekgun, Dugun and Chougun Layakaries.
- b) Thaat- 2
- c) Tehai-1
- d) Amad-1
- e) Tora-2
- f) Paran-1
- g) Chakardar Paran – 1
- h) Kavita-1
- i) Pramelu – 1

(ii) ADA – CHAUTAAL -- 14 Matras

- a) Tatkar in Thah, Dugun and Chougun Layakaries.
 - b) Thaat- 1
 - c) Amad-1
 - d) Damdar and Bedam Tehai – 1 - 1
 - e) Tora-2
 - f) Paran-1
 - g) Chakardar Paran – 1
 - h) Kavit-1
9. Notation of nagma in Basant Taal and Ada – Choutaal.
10. Defination and Notation of the following Talas in Ekgun, Dugun, Tigun and Chougun Layakaries:
- a) Basant Taal
 - b) Ada - Choutaal

SEMESTER-V

**INDIAN CLASSICAL DANCE
(PRACTICAL)**

Time: 20 Minutes
Periods/week: 9

Marks: 50

Instructions given to the examiners are as under:-

1. There should not more than ten students in a batch for practical examination.
2. Harmonium will be allowed as accompaniment to perform Nagma.
3. Separate practical paper should be set for each class from practical of prescribed syllabus on the spot.
4. The practical paper will be of the 50 marks for the private & regular candidates.

Instructions for the Examiner: The Examiner will set practical paper on the spot.

1. BASANT TAAL (MATRAS - 9)

- a)Tatkar in Ekgun, Dugun & Chougun Layakaries.
- b) Thaat - 2
- c) Tehai - 1
- d) Amad -1
- e) Tora - 2
- g) Paran -1
- h) Chakardar Paran - 1
- i) Kaviti - 1
- j) Pramelu - 1

2. ADA – CHOUTAAL (MATRAS - 14)

- a)Tatkar in Ekgun, Dugun & Chougun Layakaries.
- b) Thaat - 1
- c) Amad - 1
- d) Damdar and Bedam Tehai – 1- 1
- e) Tora - 2
- f) Paran - 1
- g) Chakardar Paran - 1
- h) Kaviti - 1

3. Padhant of all the Practical material in given Taals.
4. Padhant of all thekas in Dugun & Chougun Layakaries.
5. Gat – Bhav in Radha – Krishan leela.
6. Nagma in Basant Taal

Books Recommended:

1. Kathak Nritya Ka Prichey, Subashni Kapoor, Radha Publications, New Delhi, 1997.
2. Kathak Soundaryatmak Shashtriya Nritya, Shikha Kharey, Knishka Publishers, New Delhi, 2006.
3. Atihasik Pripekesh Mein Kathak Naritya, Maya Taak, Knishka Publishers, New Delhi, 2005.
4. Nibandh Sangeet, Laxmi Naryan Garg, Sangeet Karyalaya, Hathras, 2004.
5. Kathak Nritya Shiksha Part-I & Part II, Dr. Puru Dadhich, Bindu Prakashan, Ujjain (MP).

SEMESTER–V

**TABLA
(THEORY)**

Time: 3 Hrs.

Teaching 3 Periods Per Week

Max. Marks: 100

Theory Marks: 50

Practical Marks: 50

1. Historical development of Avanad Vadhaya.
2. Detailed knowledge of Dakshini Tala System.
3. The role of Farukha-baad Gharana in promoting female artists.
4. Notation & description of Taal Pancham Swari Taal-Two kayada, Four Paltas with Tihaai, Two Tihaai, Two Tukdas & Two Chakradar Paran, Farmayshi Paran, Taal Kaharva, Four Laggis, Two Tukdas & Four Tihaai.
5. Life & Contribution towards music of the following:
 - I. Qadar Baksh
 - II. Yog Maya Shukul
6. Explanation of the following Terms.
 - I. Taal Kachaihri
 - II. Partal
 - III. Prastaar
7. Write an essay on the following topic:
Importance of electronic musical instruments in teaching
8. The Place of tabla in Shaan (in the context of (Gurmat Sangeet))

Books Recommended:

1. Sangeet Visharad: Basant, Sangeet Karyalaya Hathras, 2004.
2. Tal Prabandh: Pt. Chhote Lal Misher Knishka Publisher, New Delhi, 2006.
3. Bharti Sangeet Vadhya: Lal Muni Misher, Bhartiya Gayan Peeth Parkashan, 1973.
4. Hamare Sangeet Rattan: Sangeet Karyalaya Hathras, 1978.
5. Tal Martand: Sataya Narayan Vishesht Sangeet Karyalaya Hathras, 1994.
6. Tal Parichaie Part I-IV Garish Chandar Srivastav Sangeet Karyalaya Hathras.
7. Tal Parkash Bhagwat Sharan Sharma Sangeet Karyalaya Hathras.
8. Sangeet Mein Tal Vadon Ki Upyogita Chitragupta Radha Publication New Delhi 1992.

SEMESTER-V

**TABLA
(PRACTICAL)**

Time: 3 Hrs.

Marks: 50

1. Taal Prescribed Pancham Swari, Kehrawa
2. Proper Bharat of Pancham Swari Taal-Two Kayada, Four paltas with Tihaai, Two Tukdas, One Gat, Rella, Two Farmayshi Paran, TwoChakradar Paran,
3. Ability to play Kehrava Taal with four Laggis, Two Tukdas, four Tihaai
4. Knowledge of playing Char Tal & Dhamar Taal on Pakhawaj
5. Tuning of your instrument (Tabla)
6. Playing of all prescribed Talas with vocal & instrument performances as well as solo items
7. Recite above mentioned Tala by hands in Ekgun, Dugun, Chaugun Layakaries.

Books Recommended:

1. Sangeet Visharad: Basant, Sangeet Karyalaya Hathras, 2004.
2. Tal Prabandh: Pt. Chhote Lal Misher Knishka Publisher, New Delhi, 2006.
3. Bharti Sangeet Vadhya: Lal Muni Misher, Bhartiya Gayan Peeth Parkashan, 1973.
4. Hamare Sangeet Rattan: Sangeet Karyalaya Hathras, 1978.
5. Tal Martand: Sataya Narayan Vishesh Sangeet Karyalaya Hathras, 1994.
6. Taal Parichay Part I-IV Garish Chandar Shrivastav Sangeet Karyalya Haathras
7. Bhartiae Taalon Ka Shastriya Vivechan Dr. Arun Kumar Sen, Madhya Pradesh Academy 1973.
8. Sangeet Mein Tal Vadon Ki Upyogita Chitragupta Radha Publication New Delhi 1992
9. Tabla Vadan Kala Ki Technique Evam Saundriae Paksh. Sunita Srivastav-Anubhav Publication Allahabad.
10. Raag Parachiae Part I-IV Harish Chandar Srivastav Sangeet Karayalae Haathras.

SEMESTER-V

COMPUTER SCIENCE
DATA BASE MANAGEMENT SYSTEM & ORACLE
(THEORY)

Time: 3 Hours
4 Hours per week

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:-

- Note:** (i) In theory eight questions are to be set giving the weightage to all the portions. The candidates are required to attempt any five. All questions are to be of equal marks.
- (ii) The maximum marks for the paper will be 75.
- (iii) As far as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.
- (iv) The students can use only Non Programmable and Non Programmable storage type calculator in the subjects/papers pertaining to computer.

UNIT-I**DBMS**

Introduction to database management system, components of DBMS, ER. Diagrams, Data Description Language, Data Manipulation Language, SQL.
Data Models, Hierarchical Model, Network Model and Relational Model, Relational Databases. Relational Algebra and Calculus Normalisation.
Database Security, Protection, Integrity, Recovery, Concurrency, Control, Decomposition.
Distributed Databases, Knowledge Base/Expert Systems and Object Oriented Databases.

UNIT-II**Oracle 10g****SQL * PLUS**

Introduction to Oracle 10 SQL – DDL, DML, DCL.
Join methods & Sub query, Union, Intersection
Built in Functions, View Security amongst users, Sequences, indexing object Features of Oracle 10.

UNIT-III**PL/SQL**

Introduction to PL/SQL.
Cursors – Implicit & Explicit.
Procedures, Functions & Packages.
Database Triggers.

References:

- 1 Desai B.C.: An Introduction to Database Systems, Galgotia Publishers.
- 2 Date C.J. An Introduction to Database Systems, Vol. I, Narosa Publishers.

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B.A./B.Sc. (Semester System) (*12+3 System of Education*)
(*Faculty of Engineering & Technology*)

SEMESTER–V

COMPUTER SCIENCE
DATA BASE MANAGEMENT SYSTEM & ORACLE
(PRACTICAL)

Marks: 25

Practical: Based on Database Management System and Oracle

Note: Practical marks will include the appropriate weightage for proper maintainance of Lab.

SEMESTER-V**INFORMATION TECHNOLOGY (VOCATIONAL)
OPERATING SYSTEM
(THEORY)****Time: 3 Hours****Max. Marks: 100
Theory Marks: 75
Practical Marks: 25****Note for Paper Setters:**

- (i) Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.
- (ii) The maximum marks for the paper will be 75.
- (iii) As far as possible except in the computer language papers no programme may be asked in the Theory papers. Emphasis should be on algorithm development.

UNIT-I

Operating System Definition, Evolution of OS, Components of OS, Single User Operating System, Multi User Operating Systems (UNIX), Types of Processing (Batch Processing, Multiprocessing, Time Sharing, Real Time Processing (Hard Real Time Processing, Soft Real Time Processing), Multiprogrammed Batch Processing, Parallel Systems, Distributed Systems and Real Time Systems,

UNIT-II

Process Concept, Process Scheduling, Context Switching, CPU Scheduling: Basic Concepts, Scheduling algorithms.

Deadlocks: Deadlocks Characterization, Memory Management: Logical versus physical address space, paging, segmentation, Virtual memory, Demand Paging Technique.

UNIT-III

File Management, File System Structure, Allocation Methods: Contiguous Allocation, Linked Allocation, Indexed Allocation, Free Space Management: Bit Vector, Linked List, Directory Implementation, Linear, List, Hash table, Device Management: Disk Structure, Disk Scheduling, FCFS, SSTF, SCAN, C-SCAN, LOOK

Windows NT Study as an Example of Operating System,

Reference:

Galvin and Sillberchatz, "Operating Systems" 7th Edition.

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B.A./B.Sc. (Semester System) (*12+3 System of Education*)
(*Faculty of Engineering & Technology*)

SEMESTER-V

INFORMATION TECHNOLOGY (VOCATIONAL)

(PRACTICAL)

Marks: 25

Practical on the basis of Operating System

SEMESTER-V**COMPUTER MAINTENANCE
(THEORY)****NETWORKING OPERATING SYSTEMS****Time: 3 Hours****Max. Marks: 100****Theory Marks: 75****Practical Marks: 25****Instructions for the Paper Setters:-**

1. Eight questions are required to be set giving the weightage to all the portions. The candidate will be required to attempt any five questions. All questions will carry equal marks.
2. The maximum marks for the paper will be 75.
3. As far as possible except in the computer language papers no programme may be asked in the Theory Paper, emphasis should be on algorithm development.

UNIT – I

Introduction of various Network Operating Systems (Windows 9x/XP/2000/NT)

Introduction to Windows 2003 server, Windows 2003 features, Hardware requirements, planning the network, Windows 2003 network security model special purpose servers, licensing.

UNIT – II

Planning storage strategies, options, working with disk administrator and backup. Networking and Network protocols Configuration of Windows 2003.

Windows 2003 services Architecture and security Architecture, planning and managing group and user accounts File services, distributed file system, remote administration, remote access services, Internet & Intranet. Printing and supporting network clients, performance tuning.

UNIT – III

Introduction to Windows NT, features, Hardware requirements. Windows NT services Architecture and security Architecture, planning and managing group and user accounts File services. Installation of Windows NT.

Concept of distributed Networks, E-mail & Internet Technology.

Text & Reference Books:

Windows NT 4: The Complete Reference by Sybex Publisher, BPB 1999.

Inside Windows Server 2003: William Boswell Publisher, Pearson, 2003.

Network Operating Systems Lab

Installation of Windows NT.

Implementing LAN using workgroup model and windows 2003.

Implementing LAN using Windows 2003 Domain model.

Using user manager for Domains in Administration.

Assigning user rights and permission on different objects.

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B.A./B.Sc. (Semester System) (*12+3 System of Education*)
(*Faculty of Engineering & Technology*)

SEMESTER-V

**COMPUTER MAINTENANCE
(PRACTICAL)**

NETWORKING OPERATING SYSTEMS

Marks: 25

Practical on the basis of Operating System

SEMESTER-V**COMPUTER APPLICATION (VOCATIONAL)
(THEORY)****INTERNET AND WEB DESIGNING****Time: 3 Hrs****Max. Marks: 100****Theory Marks: 75****Practical Marks: 25****Instructions for the Paper Setters:-**

- Note:** (i) Eight questions are required to be set giving the weightage to all the portions. The candidates will be required to attempt any five questions. All questions will carry equal marks.
- (ii) The maximum marks for the paper will be 75.
- (iii) As per as possible except in the Computer language papers no programme may be asked in theory papers. Emphasis should be on algorithm development.

UNIT – I

1. BBS
2. Intro to Internet

UNIT – II

3. E-Mail, Browsers
4. HTTP, WWW, Shell, TCP/IP-(PPP, SLIP)

UNIT – III

5. FTP
6. HTML, Web Designing

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B.A./B.Sc. (Semester System) (*12+3 System of Education*)
(*Faculty of Engineering & Technology*)

SEMESTER-V

**COMPUTER APPLICATION (VOCATIONAL)
(PRACTICAL)**

INTERNET AND WEB DESIGNING

Marks: 25

Practical Based on Internet and Web Designing

**SEMESTER-V
ELECTRONICS**

**501: MICROPROCESSOR ARCHITECTURE
(THEORY)**

Time: 3 Hours

Marks: 40

Instructions for the Examiners / Paper Setters:

1. Equal weightage should be given to each unit of the syllabus.
2. Question Paper should be set strictly according to the syllabus.
3. The distribution of marks is as given below:

Section A: This will consist of 10 (ten) very short answer type questions. All questions will be compulsory. Each question will carry 1 mark; total weightage of the section being 10 marks.

Section B: This will consist of short-answer questions. The examiner will set Fifteen (15) questions and the candidates will attempt ten (10) questions. Each question will carry 2 marks each, total weightage of the section shall being 20 marks.

Section C: This will consist of essay type questions. The examiner will set three (3) questions and the candidates will be required to attempt two (2). Each question will carry 5 marks each; total weightage of the section being 10 marks.

Note for Teacher / Student: Minimum number of hours for theory are three (3) = 4x45 minutes per week.

UNIT-I

Introduction: Microprocessor, microprocessor instruction set and computer languages, microprocessor architecture and its operations, memory, input and output devices the 8085 MPU, example of an 8085-based microcomputer, memory interfacing..

UNIT-II

Microprocessor Mapping: Interfacing I/O devices, basic interfacing concepts, memory mapped I/O, comparison of Memory mapped I/O and peripheral mapped I/O programming of the 8085.

UNIT-III

Introduction to instruction Set: introduction to assembly language, instruction classification, instruction format, how to write, assemble and execute a simple program. Introduction to 8085 instructions, data transfer operations, arithmetic operations, logic operations, branch operations

Suggested Readings:

1. Microprocessor Architecture and Programming by Gaonkar.
2. Fundamentals of Microprocessor & Microcomputers by B.Ram (Dhanpat Rai & Sons), 1990.
3. Microprocessors and Interfacing, DV Hall (TMH), 2nd Edition, 2006.
4. An introduction to the INTEL, Family of Processor, JL Antonakos, Pearson Edu. Asia.

**SEMESTER-V
ELECTRONICS**

**502: ELECTRONIC COMMUNICATION SYSTEMS
(THEORY)**

Time: 3 Hours

Marks: 40

Instructions for the Examiners / Paper Setters:

1. Equal weightage should be given to each unit of the syllabus.
2. Question Paper should be set strictly according to the syllabus.
3. The distribution of marks is as given below:

Section–A: This will consist of 10 (ten) very short answer type questions. All questions will be compulsory. Each question will carry 1 mark; total weightage of the section being 10 marks.

Section–B: This will consist of short–answer questions. The examiner will set Fifteen (15) questions and the candidates will attempt ten (10) questions. Each question will carry 2 marks each, total weightage of the section shall being 20 marks.

Section–C: This will consist of essay type questions. The examiner will set three (3) questions and the candidates will be required to attempt two (2). Each question will carry 5 marks each; total weightage of the section being 10 marks.

Note for Teacher / Student: Minimum number of hours for theory are three (3) = 4x45 minutes per week.

UNIT-I

Need for modulation, amplitude modulation, frequency spectrum of the AM wave, representation of AM wave, power relations in AM wave, generation of AM, grid modulated class C amplifier, plate modulated class C amplifier, single side band techniques, suppression of carrier, suppression of unwanted sideband the filter system the phase shift method

UNIT-II

frequency modulation theory of frequency and phase modulation, description of systems, mathematical representation of FM frequency spectrum of the FM wave, phase modulation, inter system comparisons, generation FM, direct method, stabilized reactance modulator-AFC, indirect method.

UNIT-III

Radio receiver, receiver types, tuned radio frequency receiver, superheterodyne receiver, AM receivers, RF section and characteristics, Frequency changing and tracking, intermediate frequencies and IF amplifiers, detection and automatic gain control (AGC), FM receiver, comparison with AM receivers, amplitude limiting, basic FM demodulator, ratio detector, FM demodulator comparison.

Books:

1. Communication System by Kennedy (Tata McGraw Hill Publishing Company), 4th Edition, Reprint 2005.
2. Taub's Communication System Taub Schilling (Tata McGraw Hill), 2nd Edition, 2007.
3. Communication System, B.P. Lathi (Wiley Eastern Lim) 8th Edition, Reprint 2006.

**SEMESTER-V
ELECTRONICS**

**503: COMMUNICATION SYSTEMS LAB
(PRACTICAL)**

Time: 3 Hours & 30 Minutes

Marks: 20

Note: Minimum hours per week for practical 6.

List of Practical

1. To study the amplitude modulation and demodulation experimental boards.
2. To study the frequency modulation and demodulation experiment boards.
3. To study the function of a superhetrodyne receiver.
4. To study the operation of balance modulator.

Books Recommended:

1. Communication System by Kennedy (Tata McGraw Hill Publishing Company), 4th Edition, Reprint 2005.
2. Taub's Communication System Taub Schilling (Tata McGrew Hill), 2nd Edition, 2007.
3. Communication System, B.P. Lathi (Wiley Eastern Lim) 8th Edition, Reprint 2006.

SEMESTER–V

**AUTOMOBILE MAINTENANCE (VOCATIONAL)
(THEORY)**

Time: 3 hours
Periods Per week: 6

Max. Marks: 100
Theory Marks: 50
Practical Marks: 30
Internal Assessment: 20

Instructions for the Paper Setters:

- | | |
|--|----------------|
| a. Ten compulsory short answer questions of one mark each. | 1x10=10 |
| b. Eight short answer questions of four marks each, student is required to attempt any five questions. | 5x04=20 |
| c. Four long answer questions of ten marks each, student is required to attempt any two. | 2x10=20 |

Orientation of the Course:

UNIT–I

Objective of Transmission: Resistance, Variation of tractive efforts and total resistance with speed, Sliding mesh gearbox, Sliding mechanism, Constant mesh gearbox, Synchromesh gearbox, Simple epicyclic gear, Automobile epicyclic gearbox, General deduction, Mechanism of epicyclic gearbox, Pre-Selector Gearbox, Torque convertor, Free Wheel Unit overdriver, Gearbox troubleshooting, Transmission trouble diagnosis, Four wheel drive and transfer case operation and service, Drive lines and universal joints, Differential and drive axle.

UNIT–II

Springs and Suspension Systems: Introduction, Objects of suspension, Rate and frequency, Basic requirements, Classification of suspension springs, Adjustable and self adjusting suspensions, Interconnected suspension systems, Independent front suspension, Independent rear suspension, Shock absorbers, Suspension systems troubleshooting.

UNIT–III

Fluid Fly Wheel: Introduction, Advantages & Disadvantages of Fluid Fly wheel.

SEMESTER-V**AUTOMOBILE MAINTENANCE (VOCATIONAL)****(PRACTICAL) LAB-I**

Time: 2 Hours
Periods Per week: 4

Marks: 30

Distribution of External Marks:

Three visits to Motor Workshop	-	5 Marks
Oral Examination	-	5 Marks
Written Test	-	5 Marks
Test of Workshop Jobs	-	5 Marks
Identification of Workshop Tool	-	5 Marks
Scale Instrument Readings	-	5 Marks

1. To study the Gear box dismantling and Assembling/Serviceing.
2. To study the Drive shaft and universal/Joint opening.
3. To study the Steering wheel/Droparm, Tie rod opening.

References:

1. Basic Automobile Engineering (Punjabi Edition) written by C.P. Nakra, published by Dhanpat Rai and Sons, Jalandhar, Delhi.
2. Royal Basic Automobile Engineering written by R.K. Kalia. (Punjabi Edition).
3. Automobile Mechanics (English Edition) written by William H. Crousa, Donald L. Anglin.

SEMESTER-V**REFRIGERATION & AIR CONDITIONING (VOCATIONAL)
PAPER-I (THEORY)**

Time: 3 Hours
Teaching Hours: 6

Marks: 30

Instructions for the Paper Setters:

Section-A: It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry half mark i.e. (½ mark); total weightage of the section being 5 Marks.

Section-B: It will consist of short answer questions with answer to each question upto 1 page in length. Eight questions will be set by the examiner and 5 will be attempted by the candidates. Each question will carry 2 marks; total weightage of the section being 10 marks.

Section-C: It will consist of essay type question with answer to each question upto 5 pages in length. Four questions will be set by the examiner & candidates will be required to attempt two. Each question will carry seven and half marks; total weightage of the section being 15 marks.

UNIT-I

Steam Jet Refrigeration: Introduction, steam jet Refrigeration, Analysis of Steam Jet Refrigeration system, Components of Steam Jet Refrigeration Plant, Advantages and Limitation of steam jet Refrigeration System, Performance of the system.

UNIT-II

Non Conventional Refrigeration System: Thermoelectric Refrigeration, Vortex Tube Thermoelectric effects, Applications of Vortex Tube, Advantages of Vortex Tube, Refrigerant Mixture and its properties, Cooling by Adiabatic demagnetization, plus Tube Refrigeration.

UNIT-III

Methods of Defrosting: Necessity of Defrosting, Manual Defrosting, Automatic Periodic Defrosting, Water Defrosting, Defrosting by Reversing Cycle, Automatic Hot Gas Defrosting thermo bank Defrosting.

SEMESTER-V**REFRIGERATION & AIR CONDITIONING (VOCATIONAL)
PAPER-J (THEORY)****Time: 3 Hours****Marks: 30****Teaching Hours: 6****Instructions for the Paper Setters:**

Section-A : It will consist of 10 very short answer questions with answer to each question upto five lines in length. All questions will be compulsory. Each question will carry half mark i.e. ($\frac{1}{2}$ mark); total weightage of the section being 5 Marks.

Section-B: It will consist of short answer questions with answer to each question upto 1 page in length. Eight questions will be set by the examiner and 5 will be attempted by the candidates. Each question will carry 2 marks; total weightage of the section being 10 Marks.

Section-C: It will consist of essay type question with answer to each question upto 5 pages in length. Four questions will be set by the examiner & candidates will be required to attempt two. Each question will carry seven and half marks; total weightage of the section being 15 Marks.

UNIT – I

Electric Defrosting: Electric Control Defrosting, Electric Air Switch Defrosting System, Two outdoor units system, Multiple evaporator defrosting.

UNIT – II

Electric Controls: Introduction, Water Level Control, High Pressure control, Low pressure control, Superheat control, Superheat and pressure limit control, over Protection control, Temperature Differential and Temperature Range control Capacity control Devices.

UNIT – III

Solar Heating and Cooling: Introduction Solar Collectors Solar Refrigeration, Solar Air conditioning, Solar Dehumidification, Solar Heat Pump System, Economics and future of Solar Energy.

SEMESTER-V**REFRIGERATION & AIR CONDITIONING (VOCATIONAL)****PRACTICAL: LAB-III****Time: 2 Hours****Period Per week Practical: 4****Max. Marks: 40****Practical Marks: 20****Internal Assessment: 20****List of Experiments:**

1. To Study the various Gas charging in a Refrigerating system and testing for leakages
2. To study the Gas charging in a Air conditioning system and testing for leakages
3. To test and adjust low pressure out. (L.P.).
4. To test and adjust high pressure out. (H.P.)
5. To test and adjust thermostat.

List of Books Recommended:**Name of Book****Author****Publisher**

Refrigeration & Air Conditioning

S.C.Arora

Dhanpat Rai

Refrigeration & Air Conditioning

Dowkundwar Khurmi

Katson Publication

Refrigeration & Air Conditioning

Sarao, Gaabi Singh

Satya Prakashan.

SEMESTER-V

RELIGIOS STUDIES (ਧਰਮ ਅਧਿਐਨ)
(ਪ੍ਰਾਚੀਨ ਧਰਮ)

ਸਮਾਂ 3 ਘੰਟੇ

ਕੁਲ ਅੰਕ:100

ਲੈਕਚਰਾਂ ਦੀ ਗਿਣਤੀ:75%

ਪਾਸ ਹੋਣ ਲਈ ਅੰਕ:35%

ਪੇਪਰ ਸੈਟਰ ਲਈ ਹਦਾਇਤਾਂ:

ਪੇਪਰ ਦੇ ਪੰਜ ਭਾਗ ਹੋਣਗੇ: ਓ,ਅ,ਏ,ਸ, ਅਤੇ ਹ; ਭਾਗ ਓ,ਅ,ਏ,ਸ ਵਿਚੋਂ 2-2 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀਆਂ ਨੇ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੋਵੇਗਾ ਅਤੇ ਹਰ ਇਕ ਪ੍ਰਸ਼ਨ ਦੇ 15 ਅੰਕ ਹੋਣਗੇ। ਭਾਗ ਹ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ 10 ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹੋਣਗੇ, ਜਿਹੜੇ ਸਾਰੇ ਸਿਲੇਬਸ ਵਿਚੋਂ ਹੋਣਗੇ ਅਤੇ ਉਨ੍ਹਾਂ ਦੇ 40 ਅੰਕ ਹੋਣਗੇ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 4-4 ਅੰਕ ਹੋਣਗੇ।

ਪ੍ਰੀਖਿਆਰਥੀ ਲਈ ਹਦਾਇਤਾਂ:

ਭਾਗ ਓ,ਅ,ਏ,ਸ ਵਿਚੋਂ ਕੇਵਲ ਇਕ-ਇਕ ਪ੍ਰਸ਼ਨ ਕਰਨਾ ਹੈ ਅਤੇ ਭਾਗ ਹ ਦੇ ਸਾਰੇ ਪ੍ਰਸ਼ਨ ਜ਼ਰੂਰੀ ਹਨ।

ਭਾਗ (ਓ): ਪ੍ਰਾਚੀਨ ਧਰਮ

1. ਪ੍ਰਾਚੀਨ ਮਨੁੱਖ ਅਤੇ ਉਸ ਦਾ ਧਰਮ:ਕੁਦਰਤ ਦੀ ਕਰੋਪੀ ਅਤੇ ਧਰਮ ਦਾ ਆਰੰਭ
2. ਮੁਢਲੇ ਧਾਰਮਿਕ ਵਿਸ਼ਵਾਸ:ਐਨੀਮਿਜ਼ਮ, ਮਾਨਾ(Mana), ਟੋਟਮ
3. ਧਾਰਮਿਕ ਪ੍ਰਗਟਾਵੇ:ਜਾਦੂ, ਮਿਥ, ਟੈਬੂ

ਭਾਗ (ਅ): ਧਰਮ ਦੀ ਪ੍ਰਕ੍ਰਿਤੀ

1. ਧਰਮ:ਪਰਿਭਾਸ਼ਾ ਤੇ ਸਰੂਪ
2. ਧਰਮ ਤੇ ਦਰਸ਼ਨ:ਸਮਾਨਤਾ ਅਤੇ ਅੰਤਰ
3. ਧਰਮ ਤੇ ਨੈਤਿਕਤਾ:ਸਮਾਨਤਾ ਅਤੇ ਅੰਤਰ

ਭਾਗ (ਏ): ਧਰਮ ਸੰਸਕਾਰ

1. ਧਰਮ ਸੰਸਕਾਰ:ਅਰਥ ਅਤੇ ਸਰੂਪ
2. ਜਨਮ ਅਤੇ ਧਰਮ ਪ੍ਰਵੇਸ਼(initiation) ਸੰਸਕਾਰ
3. ਮ੍ਰਿਤਕ ਸੰਸਕਾਰ

ਭਾਗ (ਸ): ਧਰਮ ਦਾ ਸਮਾਜ-ਸ਼ਾਸਤਰ

1. ਤੀਰਥ ਯਾਤਰਾਵਾਂ ਦਾ ਸਮਾਜਿਕ ਮਹੱਤਵ
2. ਧਾਰਮਿਕ ਤਿਉਹਾਰਾਂ ਦਾ ਸਮਾਜਿਕ ਮਹੱਤਵ
3. ਅੰਤਰ-ਧਰਮ ਸੰਬੰਧ

ਸੁਝਾਈਆਂ ਪੁਸਤਕਾਂ ਦੀ ਸੂਚੀ:

ਪੰਜਾਬੀ

1. ਅਮੋਲ, ਸ.ਸ., ਧਰਮਾਂ ਦੀ ਮੁਢਲੀ ਜਾਣਕਾਰੀ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1988
2. ਸਾਹਿਬ ਸਿੰਘ, ਧਰਮ ਤੇ ਸਦਾਚਾਰ, ਸਿੰਘ ਬ੍ਰਦਰਜ਼, ਅੰਮ੍ਰਿਤਸਰ, 1962
3. ਤਾਲਿਬ, ਗੁਰਬਚਨ ਸਿੰਘ ਅਤੇ ਜਨਮ ਸਿੰਘ(ਅਨੁ.) ਧਰਮ ਦੀ ਉਤਪਤੀ ਤੇ ਵਿਕਾਸ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ
4. ਤਾਰਨ ਸਿੰਘ(ਅਨੁ.) ਧਰਮ ਦੀ ਉਤਪਤੀ ਤੇ ਵਿਕਾਸ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1977
5. ਵਜ਼ੀਰ ਸਿੰਘ, ਧਰਮ ਦਾ ਦਾਰਸ਼ਨਿਕ ਪੱਖ, ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 1989

English Books:

1. Buck, C.H., *Faiths, Fairs and Festivals of India*, Low Price Publications, Delhi, 2005.
2. Finogan, J., *The Archaeology and World Religion*, Princeton, New Jersey, Vol.I, 1952.
3. Hopkins, E.W., *The Origin and Evolution of Religion*, Yale University Press, 1923.
4. James, E.O., *History of Religion*, Great Britain, 1964.
5. Jha, Makhan, *Dimensions of Pilgrimage*, Inta India Publications, New Delhi, 2005.
6. Prester, Henry H., *Primitive Religions in India*, Madras, 1971.

SEMESTER–V
PHILOSOPHY
WESTERN METAPHYSICS AND EPISTEMOLOGY

Time: 3 Hours

Max. Marks: 100

Lectures to be delivered: 6 per week

Pass Marks: 35

Note: Instructions for the Paper Setters:-

The question paper will consist of five sections: A,B,C,D & E. Sections A,B,C, & D will have two questions from each respective section of the syllabus and each question will carry 15 marks each. Section E, will consist of 10 short answer type questions, which will cover the entire syllabus uniformly and will carry 40 marks in all, each short answer type question carrying 4 marks.

Instructions for the Candidates

Candidates are required to attempt one question from each section A, B, C, and D of the question paper and the entire Section E.

Section–A

1. Introduction to Western Philosophy: Nature, Scope and Utility
2. Idealism: Subjective (Berkeley) and Objective (Plato).
3. Materialism: Mechanical and Dialectical.

Section–B

4. Monism (Spinoza)
5. Dualism (Descartes)
6. Pluralism (Leibnitz)

Section–C

7. Rationalism: Definition, Scope and Characteristics
8. Empiricism: Definition, Scope and Characteristics
9. Realism: Definition, Scope and Characteristics

Section–D

10. Existentialism: Scope and Characteristics
11. Logical Positivism: Scope and Characteristics
12. Pragmatism: Scope and Characteristics

Section–E

Ten short answer type questions

Recommended Readings:

1. Ayer, A.J., *20th Century Philosophy*.
2. Bahm, A.J., *Philosophy An Introduction*
3. Stephen, Conner, *Fundamental Questions in Philosophy*.
4. Titus, H., *Living Issues in Philosophy*, Eurasia, New Delhi, 1968.

**SEMESTER-V
ZOOLOGY**

**ZOO-V: DEVELOPMENTAL BIOLOGY AND GENETICS
(THEORY)**

Time: 3 Hrs
Credit Hours/week: 6 (60 mints. each)

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setters:

There will be a total of 9 questions.

Question 1 will be compulsory and will be of 10 short answer type. (1½ x10=15)

The remaining 8 questions shall include 2 questions from each unit. Candidates shall be required to attempt 1 question from each unit. All questions shall have equal marks (15x04=60)

UNIT-I

Developmental Biology

1. Gametogenesis with particular reference to differentiation of spermatozoa, vitellogenesis; role of follicle/subtesticular cells in gametogenesis.
2. Egg maturation; egg membranes; polarity of egg.
3. Fertilization; parthenogenesis; cleavage patterns; cleavage; determination and differentiation.
4. Tissue interactions, basic concepts of organizers and inductors and their role.
5. Metamorphosis in *Herdmania* and *Rana* (frog).

UNIT-II

1. Development upto three germinal layers and their fate in *Herdmania*, *Amphioxus*, frog, chick and rabbit.
2. Fate maps of chick and frog embryos.
3. Foetal membranes, their formation and role.
4. Mammalian placenta–its formation, types and functions.

UNIT-III

GENETICS

1. **Modification of Mendelian Ratios:**
Non-allelic gene interaction, Modified F₂ ratios. (9:7;9:3;12:3:1;13:3;15:1;9:6:1)
Gene modifications due to incomplete dominance ; lethal factors(2:1); Pleiotropic genes.
2. **Multiple Alleles:** Blood group inheritance, eye colour in *Drosophila*, pseudoallelism.
3. **Multiple Factors:** Qualitative and quantitative characters, inheritance of quantitative traits (skin colour in man).
4. **Linkage, Crossing Over and Recombination:** Linkage, sex-linked characters, crossing over, frequency of crossing over, cytological basis of crossing over, synaptonemal complex. Recombination in Fungi (Tetrad analysis).
5. **Gene and Genetic Code:** Structure of nucleic acids (**DNA & RNA**). Replication of DNA & transcription. Expression of gene (protein synthesis in Prokaryotes and Eukaryotes). Properties of genetic code, codon assignment, wobble hypothesis, split and over-lapping genes, Evolution of genes.

UNIT-IV

1. **Mutations:** Spontaneous and induced mutations, physical and chemical mutagen. Detection of mutations in Maize and *Drosophila*. Inborn errors of metabolism in man (Phenylketonuria, Alcaptonuria, Albinism). Somatic mutations and carcinogenesis.
2. Regulation of gene expressions in prokaryotes (Operon model) in eukaryotes.
3. **Extranuclear inheritance:** Chloroplast with special reference to *Mirabilis jalapa* and kappa particles in *Paramecium*.
4. **Population genetics:** Equilibrium of gene frequencies and Hardy-Weinberg law.
5. Genetic recombination in bacteria (conjugation, transduction and transformation) and in plasmids.
6. **Applied Genetics:** Recombination DNA, Genetic cloning and its applications in medicine and agriculture, DNA finger printing.

SEMESTER-V**ZOOLOGY
PRACTICAL-V
(RELATED TO ZOO-V)****Time: 3 Hrs.****Marks: 25**

1. Demonstration of Law of segregation and Independent assortment (use of coloured beads capsules etc.) Numerical for segregation and independent assortment, Epistasis.
2. Segregation demonstration in preserved material (Maize).
3. Cytoplasmic inheritance.
4. Inheritance of other human characteristics, ability to taste, PTC, thio urea.
5. Comparison of variance in respect of pod length and number of seeds/pods.
6. Calculation of gene frequencies and random mating (coloured beads, capsules).
7. Pedigree analysis.
8. Dermatographics: Palm print taking and finger tip patterns.
9. Demonstration of evolutionary phenomena like homology, analogy, mimicry, crypsis.
10. Preparation of charts showing various life stages of any vertebrate
11. Study of the following permanent slides :
 - Stages of gametogenesis, structure of egg and sperm of a mammal.
 - Larva of *Herdmania*.
 - Sections of early developmental stages of Frog upto tadpole, developmental stages of chick upto 96 hrs.

Guidelines for conduct of Practical Examination:

1. Two Numericals based on Mendel and Hardy Weinberg Law. (10)
2. Perform the experiment for Dermatoglyphics/ Random mating/ Pod Length. (4)
3. Identification of given spots. (6)
4. Viva-voce and note book (5)

**SEMESTER-V
BOTANY**

PLANT PHYSIOLOGY, BIOCHEMISTRY AND BIOTECHNOLOGY

Time: 3 Hrs.

Theory Lectures: 6 Hours/Week

Practical Lectures: 4½ Hours/week

Max. Marks: 100

Theory Marks: 75

Practical Marks: 25

Instructions for the Paper Setters:

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions, in all and all questions will carry equal marks.

UNIT-I

Plant-Water Relation: Importance of water to plant life, physical properties of water, (imbibition) diffusion and osmosis, absorption, transport of water and transpiration, physiology of stomata.

Mineral Nutrition: Essential macro-and micro-elements and their role, mineral uptake, deficiency and toxicity symptoms (hydroponics).

Transport of Organic Substances: Mechanism of phloem transport, source-sink relationship, factors affecting translocation.

UNIT-II

Nitrogen and Lipid Metabolism: Biology of nitrogen fixation, importance of nitrate reductase and its regulation, ammonium assimilation, structure and function of lipids, fatty acid biosynthesis, -oxidation, saturated and unsaturated fatty acids, storage and mobilization of fatty acids.

Photosynthesis: Significance, historical aspects, photosynthetic pigments, action and absorption spectra and enhancement effects, concept of two photosystems, z-scheme, photophosphorylation, Calvin, cycle, C4 pathway, CAM plants, photorespiration.

Respiration : ATP-the biological energy currency, aerobic and anaerobic respiration, Krebs' cycle, electron transport mechanism (chemi-osmotic theory), redox potential, oxidative phosphorylation, pentose phosphate pathway.

UNIT-III

Basics of Enzymology: Discovery and nomenclature, characteristics of enzymes, concept of holoenzyme, apoenzyme, coenzymes and cofactors regulation of enzyme activity, mechanism of action.

Growth and Development: Definitions, phases of growth and development, kinetics of growth, seed dormancy, seed germination and factors of their regulation, plant movements, the concept of photoperiodism, physiology of flowering, florigen concept, biological clocks, physiology of senescence, fruit ripening, plant hormones - auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery, biosynthesis and mechanism of action, general account of salicylic acid, jasmonates and brassinosteroids, photomorphogenesis, phytochromes and cryptochromes, their discovery, physiological role and mechanism of action.

UNIT-IV

Genetic Engineering: Tools and techniques of recombinant DNA technology, cloning vectors, genomic and cDNA library, transposable elements, techniques of gene mapping and chromosome walking.

Biotechnology: Functional definition, basic aspects of plant tissue culture, cellular totipotency, differentiation and morphogenesis, biology of *Agrobacterium*, vectors for gene delivery and marker genes, salient achievements in crop biotechnology.

Suggested Readings:

1. Bhojwani, S.S. 1990. Plant Tissue Culture: Applications and Limitations. Elsevier Science Publishers, New York, USA.
2. Dennis, D.T., Turpin, D.H. Lefebvre, D.D. and Layzell (eds.) 1997. Plant Metabolism (2nd Edition). Longman, Essex, England.
3. Galston, A.W. 1989. Life Processes in Plants. Scientific American Library, Springer-Verlag, New York, USA.
4. Hopkins, W.G. 1995. Introduction to Plant Physiology. John Wiley & Sons, Inc., New York, USA.
5. Lea, P.J. and Leegood, R.C. 1999. Plant Biochemistry and Molecular Biology. John Wiley & Sons, Chelichester, England.
6. Mohr, H. and Schopfer, P. 1995. Plant Physiology. Springer-Verlag, Berlin, Germany.
7. Old, R.W. and Primrose, S.B. 1989. Principles of Gene Manipulation, Blackwell Scientific Publishers, Oxford, UK.
8. Raghavan, V. 1986. Embryogenesis in Angiosperms: A Developmental and Experimental Study, Cambridge University Press, New York, USA.
9. Salisbury, F.B. and Ross, C.W. 1992. Plant Physiology (4th Edition). Wadsworth Publishing Co., California, USA.
10. Taiz, L. and Zeiger, E. 1998. Plant Physiology (2nd Edition). Sinauer Associates, Inc., Publishers, Massachusetts, USA.
11. Vasil, I.K. and Thorpe, T.A. 1994. Plant Cell and Tissue Culture. Kluwer Academic Publishers, The Netherlands.

Suggested Laboratory Exercises:

1. To study the permeability of plasma membrane using different concentrations of organic solvents.
2. To study the effects of temperature on permeability of plasma membrane.
3. To prepare the standard curve of protein and determine the protein content in unknown samples.

4. To study the enzyme activity of catalase and peroxidase as influenced by pH and temperature.
5. Separation of chloroplast pigments by solvent method.
6. Determining the osmotic potential of vacuolar sap by plasmolytic method.
7. Determining the water potential of any tuber.
8. Separation of amino acids in a mixture by paper chromatography and their identification by comparison with standards.
9. Bioassay of auxin, cytokinin, GA, ABA and ethylene using appropriate plant material.
10. Demonstration of the technique of micropropagation by using different explants, e.g. axillary buds, shoot meristems.
11. Demonstration of the technique of another pollen culture.
12. Demonstrate the ascent of sap using a dye.
13. Demonstration of root and shoot formation from the apical and basal portion of stem segments in liquid medium containing different hormones.
14. Demonstrate the transpiration pull by mercury method.
15. Demonstration of osmosis by potato osmoscope.
16. Comparison of loss of water from two surfaces of leaf by CoCl_2 method/four leaf method.
17. Demonstration of imbibition by plaster of paris method.
18. Demonstration that O_2 is evolved during photosynthesis.
19. Separation of pigments by paper chromatography/TLC method.
20. Demonstration of phototropism movements.
21. Demonstration the measurements of growth by arc auxanometer.
22. Preparation of nutrient medium.
23. Sterilization of glassware and plant material.
24. Preparation of explant for aseptic manipulation.
25. Requirements for setting up the tissue culture laboratory.

Suggested Readings (For Laboratory Exercises)

1. Devi, P. 2000. Principles and Methods of Plant Molecular Biology, Biochemistry and Genetics. Agrobios, Jodhpur, India.
2. Dixon, R.A. (Ed.) 1987. Plant Cell Culture: A Practical Approach, IRL Press, Oxford.
3. Moore, T.C. 1974. Research Experiences in Plant Physiology: A Laboratory annual. Springer-Verlag. Berlin.
4. Roberts, J. and Tuckar, G.A. (Eds.) 2000. Plant Hormone Protocols. Human Press, New Jersey, USA.
5. Scott, R.P.W. 1995. Techniques and Practices of Chromotography. Marcel Dekker, Inc., New York.
6. Smith, R.H. 2000. Plant Tissue Culture: Techniques and Experiments. Academic Press, New York.
7. Wilson, K. and Goulding, K.H. (Eds.) 1986. A Biologists Guide to Principles and Techniques of Practical Biochemistry. Edward Arnold, London, UK.

SEMESTER-V**MICROBIOLOGY
APPLIED MICROBIOLOGY-I
(THEORY)****Time: 3 Hours****Max. Marks: 100
Theory Marks: 75
Practical Marks: 25****Instructions for the Paper Setter:**

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

UNIT-I

Microorganisms in Industry: Historical development definition and scope of industrial microbiology; contribution of Louis Pasteur in fermentation; sources of industrial microorganisms and their essential characteristics, natural habitats, cultural collections and preservation of stock cultures.

UNIT-II

Screening of Microorganisms: Isolation of industrially important microorganisms, primary and secondary screening methods for isolating useful Yeast, bacteria and fungi. Fermentation media: Composition of production media, characteristics of an ideal production medium, raw materials.

UNIT-III

Fermentation and Fermentation Processes: Fermentation as biological activity, Types of industrial fermentation's (submerged, solid state and continuous fermentation). Design of fermentor (body construction, aeration and agitation and control of septic conditions), Basics of batch culture, fedbatch culture and continuous culture.

UNIT-IV

Recovery and purification of fermentation products: General principles of separation of fermentation products, solid particles, foam separation, separation by filtration, centrifugation, cell disruption, liquid-liquid chromatography, ion-exchange chromatography. Fermentation economics; plant fermentation designing, process designing, market potential and recovery costs for the industrial set-up.

Books Recommended:

1. Casida, L.E. 1991. *Industrial Microbiology*. Wiley Eastern Ltd., New Delhi.
2. Stanbury, P.F. Whittaker, A. and Hall S.J. 1995. *Principles of Fermentation Technology*. Elsevier Science Ltd., U.K.
3. Patel, A.H. 1984. *Industrial Microbiology*, Macmillan India Ltd., Delhi.
4. Trevan M.D., Saffey, S., Goulding, K.H. and Stanberry, P. 1988. *Biotechnology: The Biological Principles*, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
5. Freifelder, D. 2006. *Microbial Genetics*. Jones and Bartlett Publishers Inc., Boston.

**SEMESTER-V
MICROBIOLOGY**

(PRACTICAL)

Time: 4 Hours

Marks: 25

1. Isolation of various types of microorganisms from (a) soil (b) fruits.
2. Screening of some industrially important microorganisms
 - a. amylase producers.
 - b. protease producers.
3. Protein estimation by Lowry method.
4. Preservation of industrially important microorganisms by various methods (a) storage in 10 % glycerol (b) storage in mineral oil.
5. Determination of % viability of Yeast cells by haemocytometer.

SEMESTER-V
INDUSTRIAL MICROBIOLOGY
(VOCATIONAL)

ENVIRONMENT AND AGRICULTURAL MICROBIOLOGY
(THEORY)

Time: 3 Hrs.

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

Instructions for the Paper Setter:

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

UNIT-I

Physico chemical characteristics of soil, water and air in relation to microorganisms. Microbiology of air, soil and water. Genetic & Physiological adaptations to environmental condition.

UNIT-II

Biogeochemical cycling of carbon, hydrogen, oxygen, sulphur, phosphorus-Interactions among microbial population: Neutralism, Commensalism, Mutualism, Competition, Amensalism, Parasitism, Predation, Mycorrhizal, association.

UNIT-III

Agricultural Microbiology. Soil fertility and management of agricultural soil. Influence of available nitrogen on soil fertility, Crop rotation, soil management practices, Mushroom cultivation and their use.

UNIT-IV

Biological Control: General consideration, viral pesticides, Bacterial pesticides & fungal pesticides, concept of biomagnification. Biodegradation of pollutants: Solid waste management, sanitary land fills, composting, Treatment of waste, primary treatment, secondary treatments, tertiary treatment, Disinfection.

Books Recommended:

1. ATLAS, R.M. and Bartha, M. 1981. *Microbiology Ecology*, Fundamentals and Applications.
2. Brock, T.D. 1966. *Principles of Microbial Ecology*, Prentice Hall, USA.
3. Campbell, R. 1977. *Microbial Ecology*, Blackwell Scientific, London.
4. Lynch, J.M. and Poole, M.J. 1979. *Microbial Ecology: A Conceptual Approach*, Blackwell Scientific, London.

SEMESTER-V**INDUSTRIAL MICROBIOLOGY (VOCATIONAL)****(PRACTICAL)****Time: 4 Hrs.****Marks: 25**

1. Study of symbiotic/asymbiotic nitrogen fixing bacteria.
2. Study the process of ammonification.
3. To study nitrification in soil.
4. Isolation of *Aspergillus niger* from soil.
5. IMVIC test for water analysis.

**SEMESTER-V
MICROBIAL & FOOD TECHNOLOGY**

**APPLIED MICROBIOLOGY
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Mark: 75
Practical Marks: 25**

Instructions for the Paper Setter:

There will be a total of nine questions. Question No. 1 will be compulsory and will be of short answer type (3-4 lines). However no multiple choice one-word answer type questions shall be set. The remaining 8 questions will include two questions from each unit. Candidates will be required to attempt one question from each of the four units. They will have to attempt five questions in all and all questions will carry equal marks.

UNIT-I

Microorganisms in industry: Historical development definition and scope of industrial microbiology; contribution of Pasterns in fermentation; sources of industrial microorganisms, essential characteristics, natural habitats, cultural collections and preservation of stock cultures.

UNIT-II

Screening of microorganisms: Isolation of industrially important microorganisms, Screening of useful yeast, Bacteria and Fungi. Fermentation Media: Composition of Production Media, characteristics of an Ideal Production Medium, Raw Materials.

UNIT-III

Fermentation and fermentation processes: Fermentation as biological activities types of industrial fermentation's (sub-merged, solid state and continuous fermentation). Design of Fermentor (Body Construction, Aeration and Agitational and Control of Septic Conditions), Basics of Batch Culture, Fed-Batch Culture and Continuous Culture.

UNIT-IV

Recovery and purification of fermentation products: General principles of separation of fermentation products, solid particles, foam separation, separation by filtration, centrifugation, cell disruption, solvent extraction, ion-exchange chromatography.

Books Recommended:

1. Casida, L.E. 1991. *Industrial Microbiology*. Wiley Eastern Ltd., New Delhi.
2. Stanbury, P.F. Whitakker, A. and Hall S.J. 1995. *Principles of Fermentation Technology*. Elsevier Science Ltd., U.K.
3. Patel, A.H. 1984. *Industrial Microbiology*, Macmillan India Ltd., Delhi.
4. Trevan M.D., Daffey, S., Goulding, K. H. and Stanberry, P. 1988. *Biotechnology: The Biological Principles*, Tata McGraw Hill Publishing Co. Ltd., New Delhi.
5. Rose A.H. 1961, *Industrial Microbiology*, Butterworths, Washington.

SEMESTER-V
MICROBIAL & FOOD TECHNOLOGY

(PRACTICAL)

Time: 4 Hours

Marks: 25

1. Determination of % gluten content & SDS value of wheat flour.
2. Isolation of bacteria, fungi from soil.
3. Isolation of amylase producing microorganisms from soil.
4. Isolation of yeast from fruits and flowers.
5. To study the growth curve of yeast.
6. Production of alcohol, lactic acid and yogurt.

**SEMESTER-V
BIOINFORMATICS (VOCATIONAL)**

**COMPUTATIONAL METHODS FOR SEQUENCE ANALYSIS
(THEORY)**

**Time: 3 Hrs.
Credit Hours: 6**

**Max. Marks: 100
Theory Marks: 75
Practical Marks: 25**

Instructions for the Paper Setters and Candidates:

1. There will be a total of 9 questions.
2. Question 1 will be compulsory and will be of 10 short answer type. **(1½ X10=15)**
3. The remaining 8 questions shall include 2 questions from each unit. Candidates shall be required to attempt 1 question from each unit. All questions shall have equal marks. **(15x4=60)**

UNIT-I

Sequence Alignment: Scoring matrices (PAM and BLOSUM), Local and Global alignment concepts, dynamic programming methodology (Needleman and Wunsch algorithm, Smith Waterman algorithm), Statistics of alignment score, Multiple Sequence alignment (Progressive alignment), Database searches for homologous sequences (Fasta and Blast versions).

UNIT-II

Fragment assembly: Genome sequence assembly, Gene finding methods: concept and signal methods, Background of transform techniques, Fourier Transform and Gene Prediction, Pattern and Motif searching, Analysis and prediction of regulatory regions.

UNIT-III

Neural Network concepts and secondary structure prediction. Probabilistic models: Markov chain (random walk), Hidden Markov models, Gene identification and other applications.

UNIT-IV

Evolutionary analysis: Basics of evolution: Rooted and unrooted trees, molecular clock theory, molecular markers used in studying evolution. Distances based methods and Clustering Methods of evolution, Bootstrapping strategies.

List of Books:

1. Waterman M.S. (Eds). Introduction to Computational Biology: Maps, sequence and genome. Chapman and Hill. London, (1995).
2. Yop T.K., Frieder O, Martino R.L., High Performance computation methods for biological sequence analysis. Kluwer Academic Publishers, Dordrecht. (1996).
3. Suhai (Eds). Theoretical and computation methods in genome research. Plenum Press, New York (1997).
4. Durbin R, Eddy S.R., Krogh A, Mitchison G, Biological sequence analysis. Probablistic models of proteins and nucleic acid. Cambridge University Press (1998).
5. Schulze K.S., Molecular Bioinformatics: counselling and application. Walterde Gruyter Berlin New York (1995).
6. Setubal J, Meidanis J, Introduction to Computational Molecular Biology. PWS Publishing Company. Boston (1996).
7. Gusfield D. Algorithms on strings, stress, trees and sequence. Computer Science and Biology. Cambridge University Press, Cambridge (1997).
8. Bishop M.J., Rawling C.J. (Eds). DNA and Protein Sequence analysis. A Practical Approach. IRL Press. Oxford (1997).

SEMESTER-V**BIOINFORMATICS (VOCATIONAL)****LAB IN COMPUTATIONAL METHODS FOR SEQUENCE ANALYSIS
(PRACTICAL)****Time: 3 Hrs.****Marks: 25****Credit Hours: 4½**

- Tools to study local and global alignments.
- To study multiple sequence alignment using Clustal-W and T-COFFEE.
- To study gene prediction in Eukaryotes and Prokaryotes using GENSCAN, GLIMMER, GeneMark, ORF FINDER.
- Evolutionary analysis using Phylip.

SEMESTER-V
BIOTECHNOLOGY (VOCATIONAL)

rDNA TECHNOLOGY AND ANIMAL BIOTECHNOLOGY
(THEORY)

Time: 3 Hrs.
Teaching Hours: 6

Max. Marks: 100
Theory Marks: 75
Practical Marks: 25

rDNA Technology

UNIT-I

DNA Modifying enzymes: Ligases for blunt & sticky end ligation), DNA Polymerases, Klenow fragment, Alkaline phosphatase, Polynucleotide kinase, Terminal deoxynucleotidyl transferase, Restriction enzymes, reverse transcriptase.

UNIT-II

Cloning Vectors for E.coli: features of plasmids and development of plasmids as vector (-complementation) bacteriophages as vector, Genetic selection (HfL, SPi), Cosmids.

UNIT-III

Southern Hybridization, Methods of Transformation: CaCl₂, electroporation, transfection, micro projectile bombardment, Labelling of DNA and RNA- Radioactive labeling (Nick Translation, Random Priming, End Labelling), Non-Radioactive labelling (Direct & Indirect non isotopic labeling), cDNA cloning: Linker, Adaptation, Different strategies for cDNA cloning- self priming, adaptor linker method, Introduction , principles & applications of PCR.

Animal Biotechnology

UNIT-IV

General metabolism, Bioreactors for large scale culture of cells Growth factors promoting proliferation of animal cells (EGF, FGF, PDGF, IL-1, IL-2, NGF, erythropoietin etc.), Special secondary metabolites products (Insulin, Growth hormone, Interferon, t-plasminogen activator, factor VIII etc.),

UNIT-V

Expressing cloned proteins in animal cells, The need to express proteins in animal cells. Production of vaccines in animal cells, Production of monoclonal antibodies Overproduction and processing of chosen protein., Stem cells-characterization of embryonic stem cells & their applications.

Books Recommended:

1. Butler, M. (1987). Animal Cell Technology–Principles and Practices, Oxford University Press.
2. Goeddel, D.V. (1990). Methods in Enzymology, Vol. 185 Gene Expression Technology, Academic Press Inc. San Diego.
3. Mickloss, D.A. and Freyer, G.A. (1990). DNA Science: A First Course in Recombinant Technology, Cold Spring Harbor Laboratory Press, New York.
4. Butler, M. (1991). Mammalian Cell Biotechnology–A Practical Approach, IRL, Oxford University Press.
5. Spier, R.R. and Griffiths, J.B. (1994). Animal Cell Biotechnology, Academic Press, London.
6. Freshney, RT. (1994). Culture of Animal Cells, John Wiley and Sons, New York.
7. Primrose, S.B. (1994). Molecular Biotechnology, 2nd edition, Blackwell Scientific Publishers, Oxford.
8. Glover, D.M. and Hames, B.D. (1995). DNA Cloning: A Practical Approach, IRL Press, Oxford.
9. Rasko, L, and Downes, C.S. (1995). Genes in Medicine, Champan & Hall.
10. Berger, S.L. and Kimmel, A.R. (1996). Methods in Enzymology, Guide to Molecular Cloning Techniques, Vol. 152, Academic Press Inc., San Diego.
11. Butler, M. (1996). The Animal Cell Culture and Technology, IRL, Oxford University Press.
12. Maulik S. and Patel, S.D. (1997). Molecular Biotechnology Therapeutic Application and Strategic, John Wiley & Sons.
13. Sambrook, J., Fritsch, E.F. and Maniatis, T. (2000). Molecular Cloning: A Laboratory Manual, Cold Spring Harbor Laboratory Press, New York.

SEMESTER-V**BIOTECHNOLOGY (VOCATIONAL)****rDNA TECHNOLOGY AND ANIMAL BIOTECHNOLOGY
(PRACTICAL)****Time: 3 Hrs.****Marks: 25****Teaching Hours: 4½**

Isolation of chromosomal and plasmid DNA from bacteria

Isolation of genomic DNA from blood

Agarose gel electrophoresis

Spectrophotometer analysis of DNA.

Restriction digestion of DNA

Making competent E. coli

Transformation and selection of competent E Coli.

**SEMESTER-V
EDUCATION**

DEVELOPMENT OF EDUCATION IN INDIA

Time: 3 Hours

Max. Marks: 100

Instructions for the Paper Setters:

Note: (i) The question paper will consist of five Units: I, II, III, IV & V. Units I, II, III & IV will have two questions each carrying 20 marks. The students are to attempt one question from each unit approximately in 1000 words. Unit –V consists of 10 short answer type questions to be set from their entire syllabus and will carry 20 marks in all. Each short answer type question carries 2 marks, to be attempted in 8 to 10 lines.

UNIT-I

1. Concept of Education in Vedic-Era with special reference to aims, curriculum & role of teacher
2. Education in Buddhist period with special reference to aims, curriculum & role of teacher

UNIT-II

1. Salient features of Indian Education during Medieval period
2. Recommendations of Major Commissions & Committee set up during British Period with special reference to Charter Act (1813), Macaulay's Minute (1835) and Wood's Despatch (1854).

UNIT-III

1. Concept & features of Basic Education
2. Constitutional Provisions of Education

UNIT-IV

1. Major recommendations of Secondary Education Commission (1952-53) and Indian Education commission (1964-66)
2. Salient features of NPE (1986)

UNIT-V

This Unit (V) will consist of 10 short type questions to be set from the entire syllabus of first four Units (I, II, III, IV)

Books Recommended:

1. Aggarwal, J.C. Landmarks in the History of Modern Indian Education, Vikas Publishing House Pvt. Ltd., New Delhi, 2004.
2. Aggarwal, J.C.: Modern Indian Education: History Development and Problems, New Delhi, Shiplra Publication House (2006).
3. Govt. of India, Ministry of Education, Report of Education Commission (1964-66), New Delhi, 1986
4. Govt. of India, Ministry of Human Resources Development, National Policy of Education, New Delhi, 1986.
5. Govt. of India, Challenge of education, A Policy Perspective, New Delhi, 1986.
6. Govt. of India, Ministry of Human Resources Development, National Policy of Education, New Delhi, 1986 (with Modifications undertaken in 1992), New Delhi, 1992.
7. Saxena Swaroop, N.R., Education in Emerging India Chaturvedi Sikha Society, R.Lall, Book Depot, Meerut, 2005.

SEMESTER-V

**DAIRY FARMING (VOCATIONAL)
(THEORY)**

Time: 3 Hours
Periods per week: 6

Max. Marks: 100
Theory Marks: 50
Practical Marks: 40
Internal Assessment: 10

Instructions for the Paper Setters:

1. Question paper should be set strictly according to the syllabus and in Punjabi language.
2. The language of questions should be straight and simple.
3. Theory paper shall consist of three parts :-
 - a) Five short compulsory questions of two marks each requiring short replies up to five lines each. **(Total marks: 05x2=10).**
 - b) Five questions of six marks each requiring short replies shall be asked. The candidate has the choice to attempt four questions. **(Total Marks: 4x6=24).**
 - c) Two questions of descriptive type requiring five pages for each answer shall be asked. The candidate has the choice to attempt one question. **(Total Marks: 16x1=16).**
4. The question paper should cover the whole syllabus.

1. Fodder Production

Importance of green fodder in milk production, recommendations for cultivation of different fodder crops, nutritional value and yield of different fodder crops.

Legume and non-legume fodders. Enhancing nutritional value and yield of fodder crops. Fodder crop rotations and mixtures. Conservation of surplus green fodder. Feeding of green fodder, hay and silage. Fodder trees, bushes and grasses. Availability of fodders in different seasons for animals. Plan for Green fodder production throughout the year for Dairy Animals. Crop residues and byproducts. Enrichment of roughages.

2. Diseases of Cows and Buffaloes

Diseases of Nutritional Deficiency. Infectious and noninfectious diseases. Symptoms of different diseases. External and internal parasitic diseases and their control. Prevention of different diseases. Preventive vaccination schedule in a dairy farm. Control of reproductive disease. Use of sanitation and disinfection in disease control in a dairy farm. Diseases transmitted through milk. Veterinary First-Aid Zoonotic-diseases through from animals to man and viceversa. Segregation and quarantine.

3. Economics of Dairy Farming

Economic parameters in a dairy farm. Income and expenditure details for upkeep of ten cows/buffaloes rural dairy unit.

Factors affecting profitability of a dairy unit. Advantages of mixed farming.

SEMESTER-V

DAIRY FARMING (VOCATIONAL)

(PRACTICAL)

Time: 3 Hours

Total Marks: 50

Practical Marks: 40

Internal Assessment Marks: 10

Distribution of Marks:

Assignment	10 Marks
Practical Note book	10 Marks
Four Visits to Dairy Farms	10 Marks
Oral Examination	05 Marks
Written Test	05 Marks
Internal Assessment	10 Marks

Note: Preparation of Practical Note book and Dairy Farm Assignment is compulsory

1. Formulation and costing of Dairy Rations.
2. Expenditure and Income Calculations.
3. Recognition of Disease Symptoms.
4. Recognition of Heat Symptoms.
5. Visit to NDRI Karnal.
6. Two visits to PAU Ludhiana.
7. Filling of Dairy Record Performs.
8. Recognition of External and Internal Parasites.

Text Books:

1. A Text book of Animal Husbandry by G.C. Banerjee.
2. A Text book of Livestock Production and Management in Tropics by D.N. Verma.
3. Livestock Production and Management by NSR Sastry and C.K. Thomas.
4. Livestock and Poultry Production by H. Singh and E.N. Moore.
5. Handbook of Animal Husbandry Published by ICAR New Delhi.
6. Thronton's Meat Hygiene by Thronton.
7. Dairy Farming: Extension booklet No. PAU/1992/F/29/P published by Communication Centre, PAU, Ludhiana (Punjab).
8. "Dudharaun Layee Dharay" (Punjabi) Extension booklet No. PAU/1993/F/560 Published by PAU, Ludhiana.
9. Dairy Farm Record Keeping, PAU, Ludhiana (Punjabi) Booklet.
10. Feeding Dairy Cattle Extension booklet published by NDRI, Karnal. (English).

SEMESTER–V

RSL–301:

RUSSIAN

PAPER–II: TRANSLATION

Time: 3Hrs

Marks: 40

1. Russian to English/Hindi/Punjabi from the covered literary works. (200 words) **Marks: 25**

2. English to Russian from the prescribed Text-book. (100-125 words) **Marks: 15**

Course of Reading & Prescribed Text-Book:

“RUSSIAN” – by Wagner V.N. & Ovsienko Y.G. (Lessons 41 to 52)

Five in one Multilingual Glossary, published by Saraswati House Pvt. Ltd.

Note: Dictionaries are allowed in Paper–II

SEMESTER-V**RSL-301:****RUSSIAN****PAPER-III (VIVA)****Time: 3 Hrs.****Marks: 20**

Dictation

Marks: 05

Simple Conversation

Marks: 05

Retelling of a text

Marks: 05

Reading of a text

Marks: 05

SEMESTER-V

FRL-301:

FRENCH

PAPER-A (WRITTEN) (COMPOSITION, GRAMMAR & COMPREHENSION)

Time: 3Hrs

Marks: 40

A. Composition

i) A composition of around 200 words from the given topics (One out of four)

Marks: 10

B. Grammar

i). Questions on applied grammar pertaining to the text
(Exercises from the text book)

Marks: 20

C. Comprehension

i) An unseen comprehension passage

Marks: 10

Course of Reading & Prescribed Text-Book:

Nouveau Sans Frontières 3 by Philippe Dominique & Jacky Girardet

Reference: "CONNEXIONS-3" by Regine Merieux & Yves Loiseau, Published by Didier

COMPOSITION TOPICS:

- La vie en ville /au village
- La France
- Mon pays
- La cuisine
- Un pique nique au bord de la mer
- Mon acteur/actrice/ ecrivain favori
- Mes rêves
- Un voyage
- La vie au xxi siècle
- L'influence de la television/redio/presse ecrite sur les jeune
- Le mariage – est-ce que c'est une institution, essentielle?
- L'amour ou l'argent
- Si J'etais....., je.....
- Les souvenirs de mon enfance
- Les vacances en Inde

SEMESTER-V**FRL-301:****FRENCH****Time: 3Hrs****Marks: 40****A – TRANSLATION:**

1. Translation from French to English. (Passage) **Marks: 10**

2. Translation from English to French. (Short Sentences) **Marks: 10**

B – TEXT:

1. Questions of general comprehension pertaining to the vocabulary covered in the text book
(e.g. Comment aimez – vous passer les vacances?) **Marks: 10**

2. Objective type questions pertaining to the various aspects of French civilization covered in the
text book. **Marks: 10**
(10 questions out of 15 in the form of fill in the blanks or multiple choices to be attempted).

NOTE: Use of Dictionaries is allowed.**Prescribed Text-Book:****Nouveau Sans Frontières 3** by Philippe Dominique & Jacky Girardet**Reference :“CONNEXIONS-3”** by Regine Merieux & Yves Loiseau, Published by Didier

SEMESTER-V

FRL-301:

FRENCH

ORAL

Marks: 20

- Reading of a text

Marks: 05

- Dictation

Marks: 05

- Conversation

Marks: 05

- Retelling of a small text in French

Marks: 05

SEMESTER-V
URDU

URL-301:

URDU POETRY

Time: 3 Hours

Marks: 50

Poetry

Study of Urdu poetry with special reference to the modern period

General information about the Modern period; the circumstances which lead to the vital changes in literary attitudes & different shades of Urdu poetry which came up in Urdu after Mirza Daagh Dehlvi; Questions on trends like Quami Shairi, Taraqqi Pasand Shairi & Jadeed Shairi

Introductory information about latest forms of poetry Ghazal, Aazad Ghazal, Paaband Nazm and Doha.

Book Prescribed:

Shaoor-e-Adab, published by Maktaba Jamia Ltd, New Delhi.

SEMESTER-V
URDU

URL-302:

URDU PROSE

Time: 3 Hours

Marks: 50

Prose:

Study of Urdu Prose with special reference to modern fiction:
Extensive study of Urdu prose

General information which leads to vital changes in literary attitudes and different forms of prose which came up in Urdu in Munshi Prem Chand and Post Prem Chand period; Introductory information about latest forms of prose: Afsana, Novel, Inshaiya, Khutoot-nigari, Reportaz

Question on modern trends of prose writing like Tajreed Afsana, Inshaiya Nigari, Social Satire.

Book Prescribed:

Shaoor-e-Adab, published by Maktaba Jamia Ltd, New Delhi.

SEMESTER-V**PERSIAN****PRL-301:****PROSE AND POETRY****Time: 3 Hours****Marks: 50****Prose:**

Selections from Intkhab Adabiyat-e-Farsi by Syed Hasan, Arun Kumar Beni Madho, 2, Katra Road, Allahabad – 211002.

1. Akhlaq-e-Mohsini : Adab, Ulve Himmat, Sakhavat-o-Ahsan (Pages from 34 to 41)
2. Tarikh-e-Firoz Shahi (Pages from 17 to 23)

Poetry:

1. Rubaiyat-e-Sarmad (Pages from 144 to 146)
 2. Sho'orai Asar-e- Hazir
- A. Ai Ranj bar by Khanum Parveen Aitsami (Page-164)
B. Jamhuri by Arif Qazwini (Page-169)
C. Libas-e-Watni by Sarmad Tehrani (Page-170)
D. Parda-e-Beenash by Rasheed Yasmee (Page-175)

Book Prescribed:

1. Intkhab Adabiyat-e-Farsi by Syed Hasan and published by Ram Narain Lal Arun Kumar, 2- Katra Road, Allahabad-211002.

SEMESTER-V

PERSIAN

PRL-302: PROSE AND POETRY

Time: 3 Hours

Marks: 50

Prose:

Selections from Nisab-e-Jadid-e-Farsi, Published by Jyed Press, Balli Maran, Delhi.

1. Zindagi-e-Man (Bab Kodaki (Pages from 5 to 19)
2. Sarzameen-e-Hind Zaban-e-Farsi Dar Hind (Pages from 33 to 48)

Poetry:

Selections from Nisab-e-Jadid-e-Farsi, Published by Jyed Press, Balli Maran, Delhi.

1. Rubaiyat-e-Umar Khiyam (Pages from 140 to 141)

Sho'orai Asar-e- Hazir

SHARAYAAR

- i) Haala Chara (page-31)
- ii) Ein Hame Neest (page-34)

BAHAR

- i) Dar rahe Ishq (Page-47)
- ii) Jahannamiye ((Page-53)

Book Prescribed:

1. Nisab-e-Jadeed-e-Farsi, Published by Jyed Press, Balli Maran, Delhi.

SEMESTER-V

SANSKRIT (ELECTIVE)

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(iii) thou ea dgkfu; ka dk egYo

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10 vrd

1- vxBk&v³xqB%

2- dku&d. k%

3- xnU&xñok

4- thHk&ftgok

5- ukd&ukfl dk

6- ckq&ckg%

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8- x/kk&xñHk%

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13- Hkñ &efg"kh

14- dcrj &di kr%

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25-	em&emx%	26-	I j l k&l "kz %
27-	gYnh&gfjnk	28-	jks/h&jkfVdk
29-	'kDdj &'kdjk	30-	Fkkyh&LFkkyh
31-	Nks/k Hkkb] cMk Hkkb& vuqt% vxzt%	32-	nknk&fi rkeg%
33-	tokbz %nkekn%&tkekrk	34-	nøj &nøj%
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5x7 = 35
- II pkj iz u ndj nks iz uk ds mYkj i Ns tk, a &
2x7½ = 15
- III nl fol xZ l fu/k ea l s i k p ds l fu/k@l fu/k fopNn i Ns tk, a &
2x5 = 10
- IV nl f.ktUr , oal Uur i R; ; ndj i k p ds : i i Ns tk, a &
2x5 = 10
- V ofnd l kfgR; ea l snks iz u ndj , d dk l kekl; i fjp; i Nk tk, &
1x10 = 10
- VI l kekl; Kku ea l s pkj fclnq ndj nks dks Li "V dj us dks dgk tk; s &
2x5 = 10
- VII 0; kogkfj d 'kCnkoyh ea l s 20 fglnh@væsth 'kCn ndj 10 dks l d'r ea fy[kus dks dgk tk; s &
10x1 = 10

SEMESTER-V

FUNCTIONAL SANSKRIT (VOCATIONAL)

Time: 3 Hours

Max. Marks: 100

Note: Paper will have 3 Sections i.e. Section A, B & C. Question Paper will be set in Hindi.

Section-A

In this Section 10 objective type questions of 2 marks each will be asked. All questions will be compulsory with a total weightage of 20 marks.

Section-B

In this Section 12 short answer type questions will be asked. Candidates will have to attempt 8 questions carrying 6 marks each with a total weightage of 48 marks.

Section-C

In this Section 4 questions will be asked. Candidates will have to attempt 2 questions. Each question will carry 16 marks with a total weightage of 32 marks.

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ek?k ekl %

QkYxq ekl %

SEMESTER-V
ENGLISH COMPULSORY

Time: 3 Hours

Max. Marks: 50

Texts Prescribed:

1. *All My Sons* by Arthur Miller
2. *Poems of Nature and Culture*, Guru Nanak Dev University Amritsar

Course Contents:

1. The study of the whole text of the play, *All My Sons* **20 Marks**
2. The study of the following poems from the prescribed book **20 Marks**

Poems of Nature and Culture

William Wordsworth:	The World is Too Much With Us The Solitary Reaper
Gordon Lord Byron:	She Walks in Beauty
P.B. Shelly:	Ozymandias
John Keats:	La Belle, Dame Sans Merci
Alfred Lord Tennyson:	In Memoriam
Robert Browning:	Meeting at Night
Mathew Arnold:	Dover Beach
W.B. Yeats:	Words
Walter De La Mare:	The Listeners
Wilfred Owen:	Strange Meeting
Robert Graves:	The Portrait
W.H. Auden:	The Unknown Citizen
Dylan Thomas:	Do not Go Gentle into That Good Night
Ted Hughes:	The Thought-Fox
Sylvia Plath:	Mirror
Seamus Heaney:	Honeymoon Flight
Rabindranath Tagore:	False Religion
Nissim Ezekiel:	Night of Scorpion

3. Formal letter and application writing **10 Marks**

Instructions for the Paper Setter and Distribution of Marks:

The question paper will consist of three sections and the distribution of marks will be as under:

Section A: 10 Marks

Section B: 24 Marks

Section C: 16 Marks

Section–A:

- I. Six questions(three questions from the play *All My Sons* and three questions from *Poems of Nature and Culture*) requiring very short answers based on the reading of *All My Sons* and the prescribed poems shall be set and examinees will be expected to answer any five.
(2 x 5=10 Marks)

Section–B:

- II. THREE questions requiring brief descriptive answers based on character, tone, plot and theme(s) in the play *All My Sons* will be set and examinees will be expected to attempt any TWO.
(6x2= 12 Marks)
- III. THREE questions on central idea, theme, tone or style etc. of the prescribed poems from the textbook, *Poems of Nature and Culture* will be set for the students to attempt any TWO of these questions.
(6x2= 12 Marks)

Section–C:

- IV. ONE question requiring students to explain a stanza with reference to context will be set. The stanza for explanation will be taken from the poems prescribed in the syllabus.

ONE essay type question from the play *All My Sons* will be set.

The students will be required to answer any of these two questions. (1x8=8 Marks)

- V. ONE question with internal choice will be set on formal letter/application writing.
(1x8=8 Marks)

SEMESTER-V
ENGLISH (ELECTIVE)
MODERN ENGLISH DRAMA

Time: 3 Hours

Max. Marks: 100

Texts Prescribed:

1. *Merchant of Venice* by William Shakespeare
2. *Arms and the Man* by G.B. Shaw
3. *Background to the Study of English Literature* by B. Prasad, Macmillan India Limited
(Chapters I and II from Section-I; Chapters I, II and III from Section-II; Chapters I, II and III from Section-III)

Instructions for the Paper Setter and Distribution of Marks:

The question paper will consist of three sections and distribution of marks will be as under:

Section A: 20 Marks

Section B: 48 Marks

Section C: 32 Marks

Section-A

Note: The examinees will be required to answer all the **ten** questions set as per the following scheme:

1. Three very short-answer questions (approximately 5 lines each) from *Merchant of Venice*
2. Three very short-answer questions (approximately 5 lines each) from *Arms and the Man*
3. Four very short-answer questions (approximately 5 lines each) from *Background to the Study of English Literature* by B. Prasad. (Chapters I and II from Section-I; Chapters I, II and III from Section-II; Chapters I, II and III from Section-III) The questions shall deal with simple definitions and examples of literary terms introduced in the book. (10 x 2=20 Marks)

Section–B

Note: The examinees will be required to answer **EIGHT** questions set as per the following scheme:

1. The examinees will be required to answer **THREE** short-answer questions out of the **FOUR** questions set from the play, *Merchant of Venice*. Each answer should be written in about 10-15 sentences.
2. The examinees will be required to answer **THREE** short-answer questions out of the **FOUR** questions set from the play, *Arms and the Man*. Each answer should be written in about 10-15 sentences.
3. The examinees will be required to answer **TWO** short-answer questions out of the **FOUR** questions set from the prescribed book, *Background to the Study of English Literature*. (Chapters I and II from Section-I; Chapters I, II and III from Section-II; Chapters I, II and III from Section-III) Each answer should be written in about 10-15 sentences.

Note: Questions of both theoretical and practical nature requiring understanding of literary concepts and developments may be asked. At least two questions may be set on the analysis of passages/poems that clearly exhibit the use of literary devices discussed in the book.
(8x6=48 Marks)

Section–C

The examinees will be required to answer any **TWO** questions (each of 16 marks) out of the **THREE** questions set as per the following scheme:

1. One essay type question (3 to 4 pages) from *Merchant of Venice*
2. One essay type question (3 to 4 pages) from *Arms and the Man*
3. One essay type question (3 to 4 pages) on the structure/ development of a genre as discussed in the book, *Background to the Study of English Literature*. (Chapters I and II from Section-I; Chapters I, II and III from Section-II; Chapters I, II and III from Section-III) (2x16=32 Marks)

SEMESTER-V

**FUNCTIONAL ENGLISH (VOCATIONAL)
PAPER-PRINT JOURNALISM
(THEORY)**

Time: 3 Hours

**Max. Marks: 100
Theory Marks: 75
Practical Marks: 25**

Instructions for the Paper Setter and Distribution of Marks:

Theory: 75 Marks

The question paper will consist of three sections and distribution of marks will be as under:

Section-A: 16 Marks

Section-B: 35 Marks

Section-C: 24 Marks

Practical: 25 Marks

Section-A: It will require students to write **EIGHT** (8) short notes of **2** marks each. The question will test student's awareness about various aspects of journalistic terms.

(2x8=16 Marks)

Section-B: It will have **SEVEN** (7) questions out of which students will attempt any **FIVE** (5). The questions will relate to specific issues given in Unit-I to VII. There will be at least three questions of practical nature. Each question will carry 7 marks.

(7x5=35 Marks)

Section-C: It will have **TWO** questions with internal choice, each of 12 marks. The questions will require students to demonstrate practical knowledge in writing various features for the print media.

(2X12=24 Marks)

Objectives:

To generate awareness among learners of issues deserving reporting in print and to simulate them to respond to their environment in print. To enable learners to write news stories from the stage of news gathering to editing to their final presentation. To enable learners to acquire the art and skills of feature writing.

Course Contents:

UNIT-I: Introduction to Print Media

- Print Media and Communication
- Definition of Communication
- Scope of Communication: Its purpose and forms

UNIT-II: Reporting

- Sources of Information
- Distinguishing Factual News Reporting from Interpretative and
- Analytical Reporting

UNIT–III: Investigate Journalism

- Writing the Questions
- Reporting from Interviews - Format, Style and Content

UNIT–IV: Writing News Stories

- Essentials of News Writing–the Headlines–the Leads–the Body and Conclusion–the Art and Skills of Writing for Different Purposes.

UNIT–V: Areas in News Reporting

- Reporting Obituaries, Weather, Sports, Science, Business, Art and Culture, Education, Agriculture, Fashion, Community Service etc.

UNIT–VI: The Reader

- Understanding the Reader

UNIT–VII: Feature Writing

- Defining a Feature (a lyric in Prose)–the Crafts of Feature Writing–Distinguishing a Feature from other Forms of Newspaper/Magazine, Writing–Researching before Writing–Titles and Leads–Packaging a Feature with interest, Humour, Pictures and other Ingredients–Areas for Feature Writing (middles, reviews)–Freelancing and Feature Writing.

SEMESTER-V

**FUNCTIONAL ENGLISH (VOCATIONAL)
PAPER-PRINT JOURNALISM**

(PRACTICAL)

There will be practical examination of 25 marks. An external examiner will conduct the examination by giving on the spot news/report writing test.

Bibliography:

- Ahuja, E.N. & S.S. Chhabra *Reporting*, Surjeet Publications, New Delhi, 1990.
- Drewry, John E *Book Reviews*, The Writer, Inc. Bosten, 1945
- Nicholis, Brian *Features with Flair*, Press Institute of India, New Delhi, 1972.
- Patterson, Helen M. *Writing and Selling Feature*, Articles, Prentice Hall, New York, 1950.
- Steigheiman, M. *Writing the Feature Article*, Macmillan, New York, 1950.
- Copestake, T. *Editing Super 8*, Focal Press Ltd., London, 1980.
- Critchfield, Richard P. *The Indian Reporters Guide*, Allied Pacific, Bombay, 1962.
- George, TJS *News Editing*, Indian Institute of Mass Communication, New Delhi, 1989.
- Tayler, Howard B and Jacob Scher *Copy Reading and News Editing*, Prentice Hall, New York, 1955.
- Warren, Carl H. *Modern News Reporting*, Harper, New York, 1973.

SEMESTER-V

ਪੰਜਾਬੀ (ਲਾਜ਼ਮੀ)

ਸਮਾਂ : 3 ਘੰਟੇ

ਕੁਲ ਅੰਕ : 50

ਪਾਠ-ਕ੍ਰਮ ਅਤੇ ਪਾਠ-ਪੁਸਤਕਾਂ

1. ਜੰਗ ਬੀਤੀ ਹੱਡ ਬੀਤੀ (ਕਥਾ ਸੰਗ੍ਰਹਿ) (ਸੰਪਾ. ਜੁਗਿੰਦਰ ਸਿੰਘ ਰਾਹੀ),
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ, 2008.
(ਪਹਿਲੀਆਂ ਛੇ ਕਹਾਣੀਆਂ)
2. ਗਾਂਢ ਪ੍ਰਵਾਹ
(ਸੰਪਾ. ਡਾ. ਬਿਕਰਮ ਸਿੰਘ ਘੁੰਮਣ ਅਤੇ ਜਸਪਾਲ ਸਿੰਘ ਰੰਧਾਵਾ)
ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨੀਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ
(ਭਾਗ ਪਹਿਲਾ)
3. ਲਗਪਗ 200 ਸ਼ਬਦਾਂ ਵਿਚ ਪੈਰਾ ਰਚਨਾ
4. ਸਰਲ ਅੰਗਰੇਜ਼ੀ ਪੈਰੇ ਦਾ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ
5. ਵਿਆਕਰਣ :
(ੳ) ਨਾਉ ਵਾਕੰਸ਼ : ਪਰਿਭਾਸ਼ਾ, ਬਣਤਰ ਤੇ ਪ੍ਰਕਾਰ
(ਅ) ਵਾਕਾਤਮਕ ਜੁਗਤਾਂ : ਮੇਲ ਤੇ ਅਧਿਕਾਰ

ਅੰਕ-ਵੰਡ ਅਤੇ ਪਰੀਖਿਅਕ ਲਈ ਹਦਾਇਤਾਂ

1. ਕਿਸੇ ਇਕ ਕਹਾਣੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ (ਦੋ ਵਿਚੋਂ ਇਕ) 10 ਅੰਕ
2. ਕਿਸੇ ਇਕ ਰੇਖਾ-ਚਿਤ੍ਰ ਦਾ ਸਾਰ/ਵਿਸ਼ਾ-ਵਸਤੂ (ਦੋ ਵਿਚੋਂ ਇਕ) 10 ਅੰਕ
3. ਪੈਰਾ : ਤਿੰਨਾਂ ਵਿਚੋਂ ਕਿਸੇ ਇਕ ਵਿਸ਼ੇ ਉਤੇ 05 ਅੰਕ
4. ਸਰਲ ਅੰਗਰੇਜ਼ੀ ਪੈਰੇ ਦਾ ਪੰਜਾਬੀ ਵਿਚ ਅਨੁਵਾਦ 05 ਅੰਕ
5. ਨੰਬਰ 5 ਉਤੇ ਨਿਰਧਾਰਿਤ ਵਿਆਕਰਣ ਵਿਚੋਂ ਵਰਣਨਾਤਮਕ ਪ੍ਰਸ਼ਨ 10 ਅੰਕ
6. ਉਪਰੋਕਤ ਲੜੀ ਨੰਬਰ 1 ਅਤੇ 2 ਦੀਆਂ ਪੁਸਤਕਾਂ ਵਿਚੋਂ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ
5 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਹਰੇਕ ਦਾ ਉੱਤਰ 50 ਸ਼ਬਦਾਂ ਤੋਂ ਵੱਧ ਨਾ ਹੋਵੇ

5X2=10 ਅੰਕ

SEMESTER-V

ਪੰਜਾਬੀ (ਇਲੈਕਟਿਵ)

ਸਮਾਂ: ਤਿੰਨ ਘੰਟੇ

ਕੁਲ ਅੰਕ : 100

1. ਪੰਜਾਬੀ ਕਾਵਿ ਸੰਗ੍ਰਹਿ (1700 ਈ. ਤਕ) (ਸੰਪਾ. ਡਾ. ਗੁਰਸ਼ਰਨ ਕੌਰ ਜੱਗੀ ਤੇ ਡਾ. ਮਾਨ ਸਿੰਘ ਢੀਡਸਾ), ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ, ਪਟਿਆਲਾ, 2007.
ਹਰੇਕ ਕਵੀ ਦੇ ਪਹਿਲੇ ਪੰਜ-ਪੰਜ ਸ਼ਬਦ/ਬੰਦ/ਸ਼ਲੋਕ/ਪਦੇ/ਕਾਫ਼ੀਆਂ 40 ਅੰਕ
2. ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ
ਜ਼ਿੰਦਗੀ ਦੀ ਰਾਸ, ਗੁਰਬਖਸ਼ ਸਿੰਘ ਪ੍ਰੀਤਲੜੀ 30 ਅੰਕ
3. ਪੰਜਾਬੀ ਨਾਟਕ :
ਇਕ ਰਾਮਾਇਣ ਹੋਰ, ਅਜਮੇਰ ਔਲਖ 30 ਅੰਕ

ਯੂਨਿਟ ਅਤੇ ਥੀਮ

1. ਪੰਜਾਬੀ ਕਾਵਿ ਸੰਗ੍ਰਹਿ (1700 ਈ. ਤਕ)
 - (ੳ) ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ (ਚਾਰ ਵਿਚੋਂ ਦੋ) 20 ਅੰਕ
 - (ਅ) ਕਿਸੇ ਕਵਿਤਾ ਦਾ ਵਿਸ਼ੈ ਵਸਤੂ/ਕਵੀ ਬਾਰੇ ਜਾਣਕਾਰੀ ਅਤੇ ਉਸਦਾ ਯੋਗਦਾਨ
(ਦੋ ਵਿਚੋਂ ਇੱਕ) 10 ਅੰਕ
 - (ੲ) ਮਲਟੀਪਲ ਚੋਣ ਪ੍ਰਸ਼ਨ (ਸੱਤ ਵਿਚੋਂ ਪੰਜ) 5x2=10 ਅੰਕ
2. ਸਾਰ, ਵਿਸ਼ਾ ਵਸਤੂ, ਕਲਾਤਮਕ ਗੁਣ 20 ਅੰਕ
3. ਪੰਜਾਬੀ ਨਾਟਕ : ਇਕ ਰਾਮਾਇਣ ਹੋਰ : ਅਜਮੇਰ ਔਲਖ
ਨਾਟਕ ਦਾ ਵਿਸ਼ੈ ਵਸਤੂ/ਕਥਾਨਕ/ਪਾਤਰ/ਮੰਚ ਯੋਗਤਾ (ਦੋ ਵਿਚੋਂ ਇਕ) 20 ਅੰਕ
4. ਆਧੁਨਿਕ ਪੰਜਾਬੀ ਵਾਰਤਕ : (ਜ਼ਿੰਦਗੀ ਦੀ ਰਾਸ ਅਤੇ ਇਕ ਰਾਮਾਇਣ ਹੋਰ ਵਿਚੋਂ
ਪਾਠ ਆਧਾਰਿਤ ਸੰਖੇਪ ਉੱਤਰਾਂ ਵਾਲੇ ਪ੍ਰਸ਼ਨ (ਛੇ ਵਿਚੋਂ ਚਾਰ) 4x5=20 ਅੰਕ

SEMESTER-V

ਪੰਜਾਬੀ ਪ੍ਰਕਾਰਜੀ (ਫੰਕਸ਼ਨਲ)

ਪ੍ਰਯੋਜਨ : ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿਚ ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ ਨਾਲ ਜਾਣ ਪਛਾਣ ਅਤੇ ਪੰਜਾਬੀ ਵਿਚ ਇਸ ਦੀ ਵਰਤੋਂ ।

ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਅਤੇ ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ

ਕੁਲ ਅੰਕ : 100

(ਥਿਊਰੀ)

ਸਮਾਂ : 2 ਘੰਟੇ

ਅੰਕ : 50

- (ੳ) ਪੰਜਾਬੀ ਉਚਾਰਨ ਅਤੇ ਗੁਰਮੁਖੀ ਔਰਥੋਗ੍ਰਾਫੀ : ਪੰਜਾਬੀ ਧੁਨੀਆਂ ਅਤੇ ਗੁਰਮੁਖੀ ਦਾ ਸੰਬੰਧ (ਆਈ.ਪੀ.ਏ. ਦੀ ਮਦਦ ਨਾਲ) ਅੰਕ : 20
- (ਅ) ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ : ਪਰਿਭਾਸ਼ਾ, ਮਹੱਤਵ, ਭਾਸ਼ਾ ਅਤੇ ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ, ਸਾਹਿਤ ਤੇ ਸੂਚਨਾ ਤਕਨਾਲੋਜੀ । ਅੰਕ : 15
- (ੲ) ਕੰਪਿਊਟਰ ਸੌਫਟਵੇਅਰ : ਕੰਪਿਊਟਰ ਓਪਰੇਟਰ ਸਿਸਟਮ - ਐਮ.ਐਸ.ਆਫਿਸ (4,3,6,0,7,0) ਪੇਜ ਮੇਕਰ ਆਦਿ । ਅੰਕ : 15

(ਪ੍ਰੈਕਟੀਕਲ)

ਭਾਸ਼ਾ ਪ੍ਰਯੋਗਸ਼ਾਲਾ ਵਿਚ ਅਭਿਆਸ ਕਰਨਾ

ਸਮਾਂ : 2 ਘੰਟੇ

ਅੰਕ : 50

- (ੳ) ਪੰਜਾਬੀ ਉਚਾਰਨ ਸੁਣ ਕੇ ਗੁਰਮੁਖੀ ਅੱਖਰਾਂ ਅਤੇ ਅੰਤਰ-ਰਾਸ਼ਟਰੀ ਧੁਨੀ ਲਿਪੀ ਵਿਚ ਲਿਖਣਾ (ਪੰਜ-ਪੰਜ ਮਿੰਟਾਂ ਦੇ ਚਾਲੀ ਅਭਿਆਸ)
- (ਅ) ਵਿਆਕਰਣਕ ਵਰਗਾਂ ਦੇ ਆਧਾਰ 'ਤੇ ਸ਼ਬਦ ਸ਼੍ਰੇਣੀਆਂ ਦੇ ਰੂਪਾਂ ਦੀ ਪਹਿਚਾਣ ਕਰਨਾ ਅਤੇ ਰੂਪ ਸਿਰਜਣੇ (ਪੰਜ-ਪੰਜ ਮਿੰਟਾਂ ਦੇ ਚਾਲੀ ਅਭਿਆਸ)
- (ੲ) ਥਿਊਰੀ ਵਿਚ ਦਿੱਤੇ ਗਏ ਵਿਸ਼ਿਆਂ ਉਤੇ ਘਟੋ-ਘਟ 35 ਵਾਕਾਂ ਵਾਲੇ ਭਾਸ਼ਣ ਦੇਣ ਦਾ ਅਭਿਆਸ (ਚਾਲੀ ਅਭਿਆਸ)

SEMESTER-V

BCG-102

ਮੁਢਲੀ ਪੰਜਾਬੀ
(ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ ਤੇ ਸੱਭਿਆਚਾਰ)
(In Lieu of Punjabi Compulsory)

Time: 3 Hrs.

Marks: 50

ਅੰਕਾਂ ਦੀ ਵੰਡ:-

ਭਾਗ ਓ:- ਇਸ ਭਾਗ ਵਿੱਚ 15 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਵਲੋਂ ਕਿਸੇ 10 ਦੇ ਉੱਤਰ 30-40 ਸ਼ਬਦਾਂ ਵਿੱਚ ਦਿੱਤੇ ਜਾਣ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 2 ਅੰਕ ਹੋਣਗੇ।

ਭਾਗ ਅ:- ਇਸ ਭਾਗ ਵਿੱਚ 6 ਪ੍ਰਸ਼ਨ ਪੁੱਛੇ ਜਾਣਗੇ। ਵਿਦਿਆਰਥੀ ਵਲੋਂ ਕਿਸੇ 3 ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ 400-500 ਸ਼ਬਦਾਂ ਵਿੱਚ ਦਿੱਤੇ ਜਾਣ। ਹਰੇਕ ਪ੍ਰਸ਼ਨ ਦੇ 10 ਅੰਕ ਹਨ।

1. **ਸਿੱਖ ਪੰਥ ਵਿੱਚ ਪਰਿਵਰਤਨ:-** ਗੁਰੂ ਹਰਗੋਬਿੰਦ ਸਾਹਿਬ ਤੋਂ ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਸਾਹਿਬ ਤੱਕ (1606-1675) ਮੀਰੀ-ਪੀਰੀ, ਇਸ ਦੀਆਂ ਵਿਸ਼ੇਸ਼ਤਾਵਾਂ ਤੇ ਪ੍ਰਭਾਵ, ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ ਦਾ ਜੀਵਨ ਅਤੇ ਯੋਗਦਾਨ, ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਸਾਹਿਬ ਦੀ ਸ਼ਹਾਦਤ।
2. **ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਤੇ ਖਾਲਸਾ ਪੰਥ ਦਾ ਨਿਰਮਾਣ:-** ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਜੀ (1675-1708), ਆਰੰਭਿਕ ਜੀਵਨ, ਖਾਲਸਾ ਪੰਥ ਲਈ ਜਿੰਮੇਵਾਰ ਪ੍ਰਸਥਿਤੀਆਂ (1699), ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਜੀ ਦੀ ਸ਼ਖਸੀਅਤ।
3. **ਪੰਜਾਬ ਦਾ ਸਮਾਜਿਕ ਤੇ ਸੱਭਿਆਚਾਰਕ ਜੀਵਨ:-** ਮੇਲੇ ਅਤੇ ਤਿਉਹਾਰ, ਲੋਕ ਗੀਤ, ਲੋਕ ਨਾਚ, ਪੰਜਾਬ ਦੇ ਪ੍ਰਸਿੱਧ ਲੋਕ ਕਿੱਸੇ: ਪੂਰਨ ਭਗਤ, ਹੀਰ ਰਾਂਝਾ, ਸੋਹਣੀ ਮਹੀਵਾਲ

ਸਬੰਧਿਤ ਪੁਸਤਕਾਂ:-

1. 'ਪੰਜਾਬ ਦਾ ਲੋਕ ਵਿਰਸਾ', ਕਰਨੈਲ ਸਿਮਘ ਬਿੰਦ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਉਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ।
2. 'ਪੰਜਾਬ ਦਾ ਵਿਰਸਾ', ਪ੍ਰਿਥੀਪਾਲ ਸਿੰਘ ਕਪੂਰ, ਨਿਉ ਬੁੱਕ ਕੰਪਨੀ ਜਲੰਧਰ।
3. 'ਪੰਜਾਬ' (ਇਤਿਹਾਸ; ਕਲਾ ਸਾਹਿਤ ਤੇ ਸੱਭਿਆਚਾਰ ਆਦਿ) ਮੁੱਖ ਸੰਪਾਦਕ ਮਹਿੰਦਰ ਸਿੰਘ ਰੰਧਾਵਾ, ਭਾਸ਼ਾ ਵਿਭਾਗ ਪੰਜਾਬ ਪਟਿਆਲਾ।
4. 'ਸ਼ਿਰੋਮਣੀ ਸਿੱਖ ਇਤਿਹਾਸ' 1469-1708 ਡਾ. ਸੁਖਦਿਆਲ ਸਿੰਘ, ਸੰਗਮ ਪਬਲੀਕੇਸ਼ਨ, ਸਮਾਣਾ।
5. 'ਸੰਖੇਪ ਜੀਵਨ ਦਸ ਗੁਰੂ ਸਾਹਿਬਾਨ', ਗਿਆਨੀ ਜਗਤਾਰ ਸਿੰਘ ਰਾਏ ਮੋਰਾਵਾਲੀ, ਆਜਾਦ ਬੁੱਕ ਡੀਪੂ, ਹਾਲ ਬਜਾਰ, ਅੰਮ੍ਰਿਤਸਰ।
6. 'ਸਿੱਖ ਇਤਿਹਾਸ' (1469-1765), ਪ੍ਰਿੰਸੀਪਲ ਤੇਜਾ ਸਿੰਘ, ਡਾ. ਗੰਡਾ ਸਿੰਘ, ਪਬਲੀਕੇਸ਼ਨ ਬਿਉਰੋ ਪੰਜਾਬੀ ਯੂਨੀਵਰਸਿਟੀ ਪਟਿਆਲਾ।
7. 'ਸਿੱਖ ਇਤਿਹਾਸ' ਭਾਗ ਪਹਿਲਾ, ਖੁਸ਼ਵੰਤ ਸਿੰਘ ਅਨੁਵਾਦਕ ਡਾ. ਗੁਰਦਰਸ਼ਨ ਸਿੰਘ ਐਲਖ, ਲਾਹੌਰ ਬੁੱਕ ਸ਼ਾਪ ਲੁਧਿਆਣਾ।
8. 'ਪੰਜਾਬ ਦਾ ਵਿਰਸਾ' (ਪੰਜਾਬ ਦੇ ਸਭਿਆਚਾਰ ਦਾ ਵਿਕਾਸ) ਪ੍ਰਿਥੀਪਾਲ ਸਿੰਘ ਕਪੂਰ, ਨਿਉ ਬੁੱਕ ਕੰਪਨੀ ਜਲੰਧਰ।
9. 'ਸਿੱਖ ਹਿਸਟਰੀ' 1469-1988 ਖੁਸ਼ਵੰਤ ਸਿੰਘ, ਨਵਯੁੱਗ ਪਬਲਿਸ਼ਰਜ ਨਵੀਂ ਦਿੱਲੀ।
10. 'ਸਾਡਾ ਇਤਿਹਾਸਭਾਗ ਪਹਿਲਾ' (1469-1708) ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ: ਸਤਿਬੀਰ ਸਿੰਘ, ਨਿਉ ਬੁੱਕ ਕੰਪਨੀ ਜਲੰਧਰ।
11. 'ਪੰਜਾਬ ਦਾ ਇਤਿਹਾਸ' (1469-1799) ਸ਼ਿਵ ਗਜਰਾਨੀ, ਮਦਨ ਪਬਲਿਸ਼ਰਜ ਪਟਿਆਲਾ।

SEMESTER-V

HINDI (ELECTIVE)

विशिष्ट कवि, काव्य सिद्धान्त कामकाजी हिन्दी तथा
निबंध लेखन

समय : 3 घण्टे

कुल अंक : 100

नोट : यह प्रश्न-पत्र तीन भागों में विभक्त होगा।

खण्ड-एक

इस भाग में से 10 प्रश्न पूछे जाएंगे। इस का पांच पंक्तियों में उत्तर देना होगा। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न दो अंकों का है।

कुल अंक 20

खण्ड-दो

इस भाग में 12 प्रश्न पूछे जायेंगे जिनमें से 8 प्रश्नों का उत्तर देना अनिवार्य होगा। प्रत्येक प्रश्न का उत्तर दो पृष्ठों तक सीमित होगा। प्रत्येक प्रश्न के छः अंक हैं।

कुल अंक 48

खण्ड-तीन

इस भाग में चार प्रश्न पूछे जायेंगे जिनमें से दो प्रश्नों का उत्तर देना अनिवार्य है। प्रत्येक प्रश्न का उत्तर पांच पृष्ठों का होगा। प्रत्येक प्रश्न सोलह अंकों का होगा।

कुल 32 अंक

निर्धारित पाठ्यक्रम:

निर्धारित पुस्तक : '1 k; dh , d jkr *(Jh ujsk egrk)

— काव्य सिद्धांत—काव्य की परिभाषा, तत्व, प्रकार, काव्य का स्वरूप, हेतु प्रयोजन आदि।

— दस छन्द : वसन्ततिलका, भुजंगप्रयात, वंशस्थ, मालिनी, इन्द्रवज्रा, दोहा, चौपाई, कवित, सोरठा, गीतिका।

— कामकाजी हिन्दी के प्रमुख कार्य: प्रारूपण , संक्षेपण, टिप्पण

निबंध लेखन : दो परिक्षेत्र

1. राजभाषा हिन्दी
2. हिन्दी भाषा का कोई सुप्रसिद्ध ग्रंथ अथवा लेखक (आधुनिक युग/काल के संदर्भ में)

विषयानुसार विभाजन

1. प्रथम खण्ड में काव्य सिद्धान्तों, छन्दों तथा कवियों सम्बन्धी प्रश्न होंगे।
2. दूसरे खण्ड में '। k; dh , d jkr से चार व्याख्याएं होंगी उनमें से दो करनी अनिवार्य होंगी। शेष प्रश्नों में तीन निर्धारित पुस्तक के प्रश्न प्रतिपाद्य, काव्य-सौष्टव आदि पर होंगे। तीन प्रश्न काव्य सिद्धान्तों, छन्दों पर होंगे। दो प्रश्न कामकाजी हिन्दी पर होंगे। प्रत्येक क्षेत्र से कम से कम एक प्रश्न का उत्तर देना अनिवार्य होगा।
3. तृतीय खण्ड में दो-दो विस्तृत प्रश्न निर्धारित पाठ्य पुस्तक तथा निबन्धों पर होंगे जिनमें से केवल एक-एक प्रश्न करना होगा।

SEMESTER-V

QD'kuy fglnh

i s j&I: njl pkj ek/; e vks dEl; Wj

l e; % 2½ ?k/s

i wkkd% 40

- क) यह प्रश्नपत्र तीन भागों में बँटा हुआ है। पहले भाग में से दस प्रश्न पूछे जाएंगे। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न 1 अंक का है। कुल अंक 10 हैं।
- ख) इस भाग में 8 प्रश्न पूछे जाएंगे जिनमें से 4 प्रश्नों का उत्तर देना है। इन प्रश्नों का उत्तर दो पृष्ठों तक की सीमा का होगा। प्रत्येक प्रश्न के 4 अंक हैं। कुल अंक 16 हैं।
- ग) इस भाग में 4 प्रश्न पूछे जाएंगे जिनमें से 2 प्रश्नों का उत्तर देना अनिवार्य है। इन प्रश्नों के उत्तर 3-4 पृष्ठों तक सीमित होंगे। प्रत्येक प्रश्न के 7 अंक हैं। कुल अंक 14 हैं।

fu/kkfjr i kB; Øe%

d½ njl pkj ek/; e% डाक प्रणाली का विकास, टेलीग्राम, टेलीफोन, टेलेक्स, टेलीप्रिंटर, एस.टी.डी., आई. एस. डी., वीडियोफोन, सेल्युलर फोन, वीडियो टेक्स्ट, फ़ैक्स, कोडलेस फोन, पेजर, इंटरकॉम, इलैक्ट्रॉनिक मेल, टेलीकॉन्फ्रेंस, इंटरनेट, ई-मेल, मोबाइल फोन, ट्विटर, फेसबुक।

[k½ fglnh Vad.k vks vk'kys[ku i fØ; k

- हिन्दी टंकण विधि
- आशुलेखन विधि
- हस्तमशीन और कम्प्यूटर टंकण में अन्तर
- कम्प्यूटर टंकण की विशेषताएँ

x½ dEl; Wj% i fjp; vks bfrgkl

- कम्प्यूटर के भाग
- कम्प्यूटर और प्रिंटर
- कम्प्यूटर : क्षेत्र और उपयोगिता
- हिन्दी के सॉफ्टवेयर

vad&foHkkt u%

- प्रथम खंड में भाग 'ग' में से प्रश्न पूछे जाएंगे। 1x10=10
- द्वितीय खंड में भाग 'क' और 'ख' में से प्रश्न पूछे जाएंगे। 4x4=16
- तृतीय खंड में भाग 'ख' और 'ग' में से प्रश्न पूछे जाएंगे। 2x7=14

SEMESTER-V

QD' kuy fgUlh
i si j&II: j fM; ks vksj njn' kU i z kj .k

l e; % 2½ ?k/s

i wkkd% 40

- क) यह प्रश्नपत्र तीन भागों में बँटा हुआ है। पहले भाग में से दस प्रश्न पूछे जाएंगे। इस भाग के सभी प्रश्न अनिवार्य हैं। प्रत्येक प्रश्न 1 अंक का है। कुल अंक 10 हैं।
- ख) इस भाग में 8 प्रश्न पूछे जाएंगे जिनमें से 4 प्रश्नों का उत्तर देना है। इन प्रश्नों का उत्तर दो पृष्ठों तक की सीमा का होगा। प्रत्येक प्रश्न के 4 अंक हैं। कुल अंक 16 हैं।
- ग) इस भाग में 4 प्रश्न पूछे जाएंगे जिनमें से 2 प्रश्नों का उत्तर देना अनिवार्य है। इन प्रश्नों के उत्तर 3-4 पृष्ठों तक सीमित होंगे। प्रत्येक प्रश्न के 7 अंक हैं। कुल अंक 14 हैं।

fu/kkfjr i kB; Øe%

d½ j fM; ka i z kj .k%

- रेडियो: परिचय और इतिहास
- रेडियो के शैक्षणिक कार्यक्रम
- रेडियो के विविध कार्यक्रम
- रेडियो का हिन्दी भाषा को सम्पर्क भाषा बनाने में योगदान
- रेडियो: प्रसारण विधि और सिद्धांत

[k½ njn' kU i z kj .k

- दूरदर्शन: परिचय और इतिहास
- दूरदर्शन: भारत में जालतंत्र
- दूरदर्शन के शैक्षणिक कार्यक्रम
- दूरदर्शन: प्रसारण विधि और सिद्धांत
- रेडियो और दूरदर्शन: तुलनात्मक अध्ययन

½x½ x | dh vU; fo/kk, % सेद्धांतिक पक्ष

- आत्मकथा, जीवनी, यात्रावृत्त, रेखाचित्र और संस्मरण: अर्थ, परिभाषा और स्वरूप

v d&foHkkt u%

- प्रथम खंड में भाग 'ख' में से प्रश्न पूछे जाएंगे। 1x10=10
- द्वितीय खंड में भाग 'क' और 'ख' में से प्रश्न पूछे जाएंगे। 4x4=16
- तृतीय खंड में भाग 'ग' में से प्रश्न पूछे जाएंगे। 2x7=14

SEMESTER-V

QD' kuy fgUlh

i t; ksx vkj ekf[kdh

vd: 20

- कम्प्यूटर के विविध भागों की कार्यप्रणाली।
- कम्प्यूटर पर हिन्दी-टंकण: स्वर-व्यजनों का कूँजीपटल के आधार पर लेखन।

SEMESTER-V**PHYSICAL EDUCATION****Time: 3 Hours.****Max. Marks: 100**
Theory Marks: 60
Practical Marks: 40**Note:- Question paper will be divided into three sections.**

Section-A: The candidates are required to attempt all the six questions. Each question carrying two marks. **6x2=12 Marks**

Section-B: The candidates are required to attempt seven out of twelve questions. Each question carrying four marks. **7x4=28 Marks**

Section-C: The candidates are required to attempt two out of four questions. Each question carrying ten marks. **10x2=20 Marks**

Part-A

1. Recreation: Meaning and Importance of Recreation.
2. Aims and objectives of recreation.
3. Intramural and Extramural Sports Competitions and their Importance.
4. Muscular contraction: Ecentric, Concentric, Motor unit, Isotonic, Isometric, Isokinetic Exercises.
5. Laws of motion, Lever and its types, Equilibrium, Its types and Laws, Centre of Gravity, Force and its types.

Part-B

1. Posture: Meaning and Types of postures.
2. Postural-Deformities: Spinal Foot and Knock-Knees, Their Causes and Corrective Exercises.
3. Meaning and Aims of Sports Training.
4. Normal Load, Creast Load, Over Load.
5. Meaning and Importance of Warming up and Cooling down in sports.

SEMESTER-V

PHYSICAL EDUCATION

(PRACTICAL)

Marks: 40

Division of Marks: Athletics (12) + Games (12) + Ground Markings (3+3),
Practical Note Book (5), Viva-Voce (5)

- Athletics Performance ----- 800M, Triple Jump for Boy
800M, Triple Jump for Girls
- Games (Boys & Girls) ----- Fundamentals, Rules, Performance
Basketball, Judo

Books Recommended:

1. Singh Kanwaljeet and Singh Inderjeet: Sports Sociology, Friends Publication, New Delhi 2000.
2. Tandon D.K. et.al.: Scientific Basis of Physical Education and Sports, Friends Publication New Delhi, 2001.
3. Singh Ajmer and Gill Jagtar: Essentials of Physical Education and Olympic movement, Kalyani Publishers, Ludhiana, 2004.
4. Kang G.S.,: Anatomy, Physiology and Health Education, Publication Bureau, Punjabi University Patiala 2000.
5. Kang G.S. and Deol, N.S.: An Introduction to Health and Physical Education 21st Century, Patiala, 2008.