

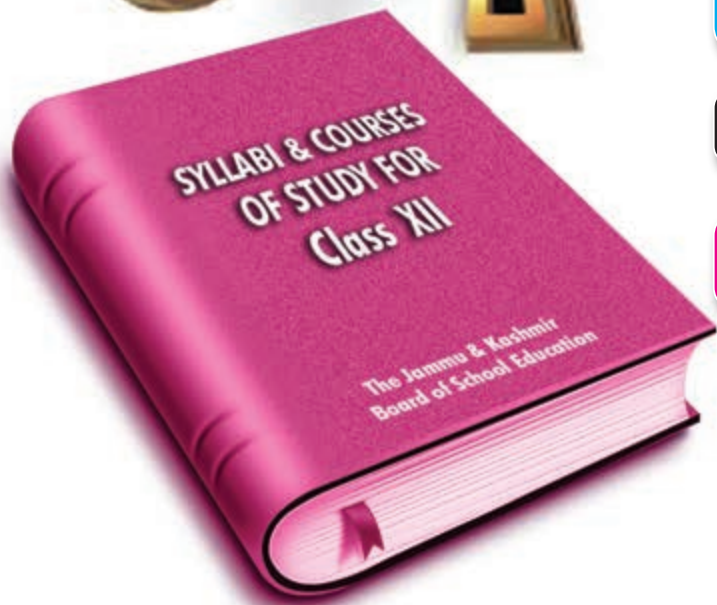
EFFECTIVE FROM

Kashmir Division / Jammu Division / Ladakh (Winter Zone)

Oct-Nov 2019-20

Jammu Division (Summer Zone)

March-April 2020-21



SYLLABI & COURSES OF STUDY FOR Class XII



Published By

THE JAMMU & KASHMIR BOARD OF SCHOOL EDUCATION



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CONCESSION FOR PHYSICALLY CHALLENGED STUDENTS

The Jammu and Kashmir State Board of School Education vide notification No (F Acad. C) Disabled/ C/06. Dated 03-07-06 has given following concessions to physically challenged students.

1. Students with 40% disability (Deafness, Dumbness, lower vision, Leprosy cured, hearing impairment, Loco-motor disability, mental retardation and mental illness) of permanent nature shall have to secure only 31% marks instead of 36%. This is applicable to both theory and practicals.
2. No examination fee shall be charged to physically challenged students (Deafness, Dumbness, lower vision, Leprosy cured, hearing impairment, Loco – motor disability, mental retardation and mental illness) in case where the physical handicapped is 50% or more, of permanent nature.



Note: Such physically challenged students shall have to produce certificate from District Medical Board (Competent Authority appointed by the Directorate of Health Services Kashmir/Jammu or documentary proof from the Department of Social Welfare Jammu and Kashmir.

The Certificate is to be attached with the Admission cum Permission form of Examination.



The header features a pink book titled 'SYLLABUS & COURSES OF STUDY FOR Class XII' and the logo of the Jammu & Kashmir Board of School Education. The background is a purple and blue gradient with abstract circular patterns.

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SCHEME OF STUDIES

The students who shall seek admission in Higher Secondary Part- II (Class 12th) from the academic session (Oct – Nov) 2019 in case of Kashmir Division /winter zone of Jammu Division including Ladakh Division and academic session (March – April) 2020 in case of (S/Z) Jammu Division shall follow the given below scheme . The Scheme of studies and the combination of subjects at +2 stage has been prepared as per new scheme of studies .The revised combination of subjects is now as per the standard at National level particularly the standard set by the CBSE and has vertical linkage with under graduate courses offered by the University of Kashmir / Jammu .

Subject Combination at Higher Secondary Part – II (Class 12th)

FACULTY OF SCIENCE

Group -I	Group-II	Group-III	Group-IV	Group-V	Group-VI	Group-VII	Group VIII Vocational Courses
General English (Compulsory)	Physics (Compulsory)	Chemistry (Compulsory)	Mathematics Applied Mathematics	Biology Statistics Geography	Geology Biotechnology Microbiology Biochemistry	Computer-Science. Information-Practices. Environmental-Science. Functional-English. Physical-Education. Islamic Studies Vedic Studies Buddhist- Studies Electronics. Food Technology	IT & ITes. Retail. Healthcare. Tourism. Security. Agriculture. Telecommunication. Media and Entertainment. Beauty and Wellness. Physical Education and sports.

- Note:**
- i- A student shall have to opt any two subjects from IV to VII group, but not more than one from each group(for non vocational students only) .
 - ii- *The students who have passed Vocational subject/s at level 3 in class 11th and intend to opt for Vocational subject at Higher Secondary Part-II (Level-4) will have to opt 5th subject from Group VIII.*



FACULTY OF HOME SCIENCE.

Group-I	Group-II	Group-III	Group-IV	Group-V	Group-VI Vocational Courses
General English (Compulsory)	Human Development (Compulsory)	Clothing for the Family (Compulsory)	Extension Education (Compulsory)	Computer- Science. Information- Practices. Environmental- Science. Functional- English. Islamic Studies. Vedic Studies. Buddhist Studies Physical- Education. Travel, Tourism & Hotel Management Food Technology	IT & ITes. Retail. Healthcare. Tourism. Security. Agriculture. Telecommunication. Media and Entertainment. Beauty and Wellness. Physical Education and sports

Note:-

- i- A student shall have to opt any one subject from Group-V. (for non vocational students only).
- ii- The students who have passed their Vocational subject/s at level 3 in class 11th and intend to opt vocational subject at Higher Secondary Part-II (Level-4), will have to opt 5th subject from **Group VI**.

FACULTY OF COMMERCE

Group-I	Group-II	Group-III	Group-IV	Group-V	Group-VI	Group-VII Vocational Courses
General English (Compulsory)	Business Studies (Compulsory)	Accountancy (Compulsory)	Entrepreneurship OR Economics	i. Business- Mathematics ii. Type Writing & shorthand iii. Public Administration	Computer- Science. Information- Practice. Environmental Science. Functional- English. Islamic Studies. Vedic Studies. Buddhist Studies. Physical- Education. Travel, Tourism & Hotel Management	IT & ITes. Retail. Healthcare. Tourism. Security. Agriculture. Telecommunication. Media and Entertainment. Beauty and Wellness. Physical Education and sports

Note: -

- i- A student shall have to opt any two subjects from IV-VI groups but not more than one from each group. (for non Vocational students only).
- ii- The students who have passed their Vocational subject at level 3 in class 11th and intend to opt for vocational subject at Higher Secondary part-II (Level -4) will have to opt any one subject from Group IV to Group VI and 5th subject from Group No. VII.



FACULTY OF HUMANITIES.

Group I	Group II	Group III	Group IV	Group V	Group-VI	Group VII	Group VIII	Group IX Vocational Courses
General English (compulsory)	Urdu Hindi Kashmiri Dogri Punjabi Bhoti	Arabic Sanskrit Persian Economics	Mathematics Applied-Mathematics Sociology	Psychology Music Geography Philosophy Education	1-History 2-Home- Science (Elective) 3-Public Administration	Statistics Political Science	Computer- Science. Information-Practice. Environmental Science. Functional-English. Islamic Studies. Physical Education. Vedic Studies. Buddhist Studies. Travel, Tourism & Hotel Management Food Technology English Literature	IT & ITes. Retail. Healthcare. Tourism. Security. Agriculture. Telecommunication. Media and Entertainment. Beauty and Wellness. Physical Education and sports.

Note: -

- i- A student shall have to opt any four subjects from II to VIII group but not more than one from each group. (for non vocational students only).
- ii- *The students who have passed their Vocational subject/s at level 3 and intend to opt for vocational courses at Higher Secondary Part-II (Level-4) will have to opt any three subjects from **Group No. II to Group VIII** and **5th subject from Group No. IX (Vocational Course)**.*
- iii- *No repetition/similarity of incomplete combinations of subjects is allowed.*
- iv- *While choosing subject/s students are advised to opt for such subject/s or combination of subjects which are available and taught in the institution as per the above mentioned combination.*



SCHEME OF ASSESSMENT / EXAMINATION

The Higher Secondary Examination Part – II (Class 12th) conducted by the Board at the end of academic session on the basis of syllabi prescribed for Class 12th is open to eligible candidates and shall be conducted according to the following scheme of examination.

'General English' : The performance of students in General English in examination shall be assessed on the basis of single paper of 100 marks and 3 hours duration.

GROUP – I: SCIENCE STREAM

Note: (I) Performance in each subject shall be assessed through single paper of 70 marks for Science subjects and 100 marks for Mathematics of 3 hours duration.

- In case of a subject involving practical there shall be an external practical examination of 20 marks of three hours duration.
- Marks reserved for internal assessment (which is 10 in case of each subject) shall be awarded by the schools themselves, as part of internal assessment , on the basis of performance of students in two tests (each test of 04 marks) and quality of reportage, i.e., practical notebook (carrying 02 marks) maintained by student .

Subject	Theory	MARKS		Total
		Internal Assessment	Practical External Examination	
Physics	70	10	20	100
Chemistry	70	10	20	100
Biology	70	10	20	100
Biotechnology	70	10	20	100
Microbiology	70	10	20	100
Biochemistry	70	10	20	100
Geography	70	10	20	100
Geology	70	10	20	100
Mathematics	100	x	x	100
Statistics	70	10	20	100
Environmental Science	70	10	20 (Ext./P.W)	100
Informatics Practices	70	10	20	100
Computer Science	70	10	20	100
Food Technology	70	10	20	100

Note: In case of Biology, 10 marks are reserved for internal assessment, 05 marks are for Botany and 05 for Zoology. External practical examination of Botany practicals shall be of 10 marks and two hours duration. External practical examination in case of Zoology shall be of 10 marks and two hours duration.



GROUP - II : HOME SCIENCE STREAM

Note: -

- 1) Performance in each subject shall be assessed through one single paper (theory paper of 70 marks) and of 3 hours duration.
- 2) External practical examination in each subject shall be of 20 marks and 3 hours duration.
- 3) Marks reserved for internal assessment in practical (in case of each subject) shall be awarded on the basis of performance of students in two tests (each test of 04 marks) and quality of reportage, (maintenance of practical notebook) carrying 02 marks.

Subject	Theory	MARKS		Total
		Internal Assessment	Practical External Examination	
Human Development	70	10	20	100
Clothing for the family	70	10	20	100
Extension Education	70	10	20	100
Food Technology	70	10	20	100

GROUP - III : COMMERCE STREAM

Subject	Theory	MARKS		Total
		Internal Assessment	Practical External Examination	
Business Studies	100	-	-	100
Accountancy	80	05	15	100
Entrepreneurship	80	05	15	100
Business Mathematics	100	x	-	100
Short Hand & Type Writing	-	40	60	100
Public Administration	100	x	x	100



GROUP - IV : HUMANITIES STREAM

Language :-The performance of students in the exam in case of each language shall be assessed on the basis of single paper. Each paper shall be of 100 marks and 3 hours duration.

Other Subjects

Subject	Theory	MARKS		Total
		Internal Assessment	Practical External Examination	
Philosophy	100	x	x	100
History	80	20 (Project Work)	x	100
Economics	100	x	x	100
Geography	70	10	20	100
Political Science	100	x	x	100
Education	100	x	x	100
Psychology	70	10	20	100
Sociology	80	05	15	100
Home Science (Elec.)	70	10	20	100
Music	50	25	25	100
Statistics	70	10	20	100
Mathematics	100	x	x	100
Islamic Studies	100	x	x	100
Physical Education	60	15	25	100
Public Administration	100	x	x	100
Food Technology	100	10	20	100

- Note:**
- (1) In case of Geography and Home Science (Elective) marks reserved for internal assessment for Practical work shall be awarded on the basis of performance in two test of 04 marks each and quality of reportage (note book) carrying 02 marks.
 - (2) In case of Music marks reserved for internal assessment in practical work shall be awarded on the basis of performance in two tests of 20 marks each and quality of reportage carrying 10 marks.



GENERAL ENGLISH

Maximum Marks: 100

Time : 3 Hours

The paper shall be divided into four (04) sections covering prose and poetry from *Chinar - ii* apart from writing skills and grammar.

(SECTION A)

Literature----- 40 marks

- A. One long answer type question (100-150 words) from prose based on character study / description of scene / title / theme / style to be attempted out of two. **(1 x 7 = 7 marks)**
- B. Three short answer type questions (60- 80 words) from prose based on theme / interpretation to be attempted out of six. **(3 x 4 = 12 marks)**
- C. One long answer type question (80- 100 words) from poetry based on theme /style /critical appreciation/ sum and substance to be attempted out of two. **(1 x 5 = 5 marks)**
- D. Three short answer type questions from poetry based on theme / interpretation / poetic device (metaphor, simile, hyperbole, personification, imagery, irony, paradox) to be attempted out of five. **(2 x 3 = 6 marks)**
- E. One reference to context type question based on a prose passage to be attempted out of two passages. **(1 x 5 = 5 marks)**
- F. One reference to context type question based on poems to be attempted out of two. **(1 x 5 = 5 marks)**



(SECTION B)

Reading Comprehension ----- 15 Marks

- A. One out of two poetic passages from the textbook followed by five comprehension questions with at least one MCQ , one vocabulary based question . **(1 x 5 = 5 marks)**
- B. One out of two unseen prose passages (300- 350 words each) followed by comprehension questions with at least one MCQ , one vocabulary based question . **(2 x 5 = 10 marks)**

(SECTION C)

Writing Skills ----- 20 Marks

To test the writing skills, four tasks (80-100 words) out of the six chosen from the following topics to be attempted.

1. Paragraph writing (narrative / descriptive)
2. Report / article writing
3. Letter writing (official / business / personal)
4. Formal / official e-mail
5. Diary entry
6. Dialogue writing
7. Designing a poster
8. Writing a resume / CV

(4X5=20 Marks)



(SECTION D)

Grammar----- 25 Marks

A. Model (to be tested in a contextualized passage)	02 Marks
B. Tenses (to be tested in contextualized passage)	04 Marks
C. Articles, prepositions, conjunctions, (to be tested in one contextualized passage) with	03, 02 & 02
	marks respectively
D. Relative clauses	02 Marks
E. Conditional clauses	02 Marks
F. Simple, Compound and Complex Sentences	03 Marks
G. Voice	02 Marks
H. Narration	03 Marks

1. Section A Literature 40 marks

2 Section B Reading Comprehensive 15 Marks

3. Section C Writing Skills 20 Marks

4. Section D Grammer 25 Marks

Total 100 Marks



HOME SCIENCE (ELECTIVE)

Maximum Marks: 100

Theory: 70 Marks

Practicals: 30 Marks

(External : 20 ; Internal : 10)

Time : 3 Hours

Unit- I: UNDERSTANDING EARLY CHILDHOOD (0 - 3 YRS)

- ❖ Some specific characteristics: physical and motor – height, weight and body proportions, motor development during (0-3 months), (6-9 months), (9-12 months) and (1-3 yrs) milestones only.
 - Social and emotional developments: Recognition of people around, socialization, expression of emotions;
 - Cognitive development ; Learning through concrete operations and
 - Language development- Stages of language development.
- ❖ Protection from preventable diseases: Immunization: definition and concept, immunity - concept and types (natural and acquired).
- ❖ Breast feeding – advantages , immunization charts ; symptoms , prevention after care and incubation period of childhood diseases – Tuberculosis , Diphtheria , Pertussis , Tetanus , polio , Measles , Cholera , Diarrhoea , Chicken pox .
- ❖ Special needs of disadvantaged and disabled children: Socially disadvantaged physically challenged (blind, partially blind & deaf , affected / missing limb) : Characteristics and needs.
- ❖ Substitute care at home and outside : Siblings , grandparents , neighbour , crèche , day care centres etc: Integrated Child Development Scheme (ICDS) – objectives and functions .

Marks: 18

Periods: 34

Unit-II: NUTRITION FOR SELF, FAMILY AND COMMUNITY

Planning meals for the family : Meaning and importance of meal planning , principles and factors affecting meal planning , meal planning for the family including children , pregnant women , lactating mother , members suffering from fever and diarrhoea ; role and preparation of (ORS). (Food group planning only)

Marks: 09

Periods: 18

Unit- III: WAYS TO ENSURE GOOD HEALTH FOR THE FAMILY

Using safe drinking water, importance of potable water for good health, qualities of safe drinking water; household method of making water safe for drinking: boiling, filtering and use of chemicals, role of hygiene for food handlers at home level. Safety against food adulteration , definition and meaning of food adulteration as given by **FSSAI** (Food Safety and Standard Authority of India) , **PFA** : Common adulterants present in cereals, pulses, milk and milk products, fats and oils , sugar , jaggery , honey , spices and condiments . Illeffects of some of the adulterants present in the foods: Kesari dal , metanil yellow , argemone seeds .

Marks: 09

Periods: 18



Unit- IV: MONEY MANAGEMENT AND CONSUMER EDUCATION

Family Income: Various sources of family income – money income, real income (direct and indirect) and psychic income, supplementing family income- need and ways, need and procedure for keeping household accounts. Savings and investment : meaning and importance of savings: ways/ methods of investment bank (saving, fixed, recurring); post office (savings, recurring deposit, monthly income scheme), National Savings Certificate, Kissan Vikas Patra, Senior Citizen Scheme); LIC (Whole Life, Mediclaim, money back); Bonds, Units (ULIP), Shares and Chit funds; Public Provident Fund (PPF), Provident Fund (PF), Basis for selection of method of investment risk, Security, Profit, Tax Savings.

Marks : 11
Period : 26

Unit- V : CONSUMER PROTECTION AND EDUCATION

Meaning , problems faced by consumer , Consumer Protection Act (1986) and services ; Consumer aids : levels , standardization marks , advertising , leaflets / guidebooks Consumer Redressal Forum .

Marks : 06
Period : 10

Unit VI : CLOTHING - SELECTION AND CARE

- ❖ Clothing and its relation to personality : Elements of line , Color , texture : elements of design, balance , rhythm , proportion , harmony , emphasis : factors that influence the selection of clothes , personality , age , climate , figure , occasion , fashion , selection and purchase of fabrics , purpose , quality , cost , season , reliable shop.
- ❖ Checking size and quality in readymade garments (need & criteria : seams , plackets , fasteners , workmanship , design , drafts).
- ❖ Care of clothes: General principles & precautions to be followed while removing stains and washing –blueing, stiffening and bleaching. Cleansing agents: soaps and detergents (basic differences) - Storage of clothes .

Marks : 11
Period : 36

Unit -VII : APPLICATIONS OF HOME SCIENCE EDUCATION

- Application of knowledge of Home Science in everyday life – Usefulness of some of the skills learnt here for supplementing family income - Skills learnt here can be gainfully used for employment (self employment , wage employment) - Further training required to make this field a career : various sources and facilities available for training .

Marks : 06
Period : 03



PRACTICALS:

Time: 3 hours

Marks : 30

Internal: 10

External: 20

- | | | |
|----|---|-----------|
| 1) | Understanding Early Childhood | 03 marks |
| 2) | Nutrition for Self and Family | 11 marks |
| 3) | Money Management and Consumer Education | 03 marks |
| 4) | Clothing, Selection and Care | 06 marks |
| 5) | Application of Home Science Education | - - marks |
| 6) | Viva --- Voice | 02 marks |
| 7) | Record | 05 marks |

Unit- I UNDERSTANDING EARLY CHILDHOOD (0 – 3 YRS)

Make an interview schedule for working mother.

- 1) Interview a working mother to find out her arrangement of substitute care for her child (0-3 yrs) in her absence.
- 2) Evaluate a crèche for its facilities and give suggestions for improvement.
- 3) Prepare a chart for immunization of a child.
- 4) Prepare a chart of various milestones of physical and mental developments.

Period - 02

Unit - II NUTRITION FOR SELF AND FAMILY

- 1) Plan meals for the family and carry out modifications for pregnant and lactating mother, including persons suffering from fever and diarrhoea. Prepare and serve one dish.
- 2) Preparations of oral rehydration solution.
- 3) Simple tests for checking adulteration in:
 - i) Cereals (Rice, Suji)
 - ii) Pulses (Chana Dal)
 - iii) Milk
 - iv) Tea leaves
 - v) Dhania powder
 - vi) Haldi powder
 - vii) Gur
 - viii) Black pepper (whole)

Period - 22

Unit- III MONEY MANAGEMENT AND CONSUMER EDUCATION

- 1) Open an account. Report on opening of an account in a bank and post office.
- 2) Filling bank and post office forms.
- 3) Read and evaluate labels of any four household items bearing different standardization marks.
- 4) Prepare one label each for four household items / products bearing different standardization marks.



Unit IV CLOTHING, SELECTION AND CARE

Period - 8

Make samples of:

a) Basic stitches and seams

- Flat , run & fell , French , Counter Seam .
- Running stitches – Hemming
- Back stitches
- Inter locking

b) Fasteners:

- a) Press button , b) hook & eye , pearl & button c) Patch work (plain and printed)
- d) Examine quality in readymade garments (workmanship & labels). e) Removal of stains of
 - Tea
 - Curry
 - Ball point ink
 - Blood
 - Coffee
 - Grease
 - Lipstick

f) Washing and furnishing of different fabrics (cotton , silk and wool)

g) Relative effect of temperature of water on the clothes during the process of washing clothes (cold, lukewarm , hot). Draw conclusions and how this knowledge is helpful.

Period: 42



HISTORY

Theory: 80 Marks

Time: 3 hrs

Project Work: 20 Marks

Themes In Indian History (Part - I)

- 1. The Story of the First Cities: Harappan Archaeology**
Broad overview: Early urban centers
Story of discovery: Harappan Civilization
Excerpt: Archaeological report on a major site
Discussion: How it has been utilized by Archaeologist / Historians.
- 2. Political and Economic History: How inscriptions tell a story**
Broad overview: Political and economic history from the Mauryan to the Gupta period.
Story of discovery: Inscriptions and the decipherment of the script. Shifts in the understanding of political and economic history.
Excerpt: Asokan inscription and Gupta period land grant.
Discussion: Interpretation of inscription by Historians.
- 3. Social Histories: Using the Mahabharata**
Broad overview: Issues in social history, including caste, class, kinship and gender.
Story of discovery: Transmission and publications of the Mahabharata.
Excerpt: From the Mahabharata, illustrating how it has been used by historians.
Discussion: Other sources for reconstructing social history.
- 4. A History of Buddhism: Sanchi Stupa**
Broad overview:
(a) A brief review of religious histories of Vedic religion, Jainism, Vaisnavism, Saivism.
(b) Focus on Buddhism
Story of discovery: Sanchi Stupa
Excerpt: Reproduction of sculptures from Sanchi
Discussion: Ways in which sculpture has been interpreted by historians, other sources for reconstructing the history of Buddhism.

25 Marks



Themes In Indian History (Part II)

5. Agrarian Relations: The Ain – I – Akbari
Broad overview:
 - (a) Structure of agrarian in the 16th and 17th centuries
 - (b) Patterns of change over the period.Story of Discovery: Account of the compilation and translation of Ain-i-Akbari
Excerpt: From the Ain-i-Akbari
Discussion: Ways in which historians have used the text to reconstruct history.

6. The Mughal Court: Reconstructing Histories through Chronicles.
Broad overview:
 - (a) Outline of political history i. e. 15th – 17th centuries.
 - (b) Discussion of the Mughal Court and politics.Story of Discovery: Account of the production of court chronicles, and their subsequent translation and transmission.
Excerpts: From the Akbarnama and Padshahnama.
Discussion: Ways in which historians have used the texts to reconstruct political histories.

7. New Architecture: Hampi
Broad overview:
 - (a) Outline of new buildings during Vijaynagar period - temples, forts, irrigation facilities.
 - (b) Relationship between architecture and the political system.Story of Discovery: Account of how Hampi was found.
Excerpts: Visuals of buildings at Hampi.
Discussion: Ways in which historians have analyzed and interpreted these structures.

8. Religious Histories: The Bhakti – Sufi Tradition.
Broad overview:
 - (a) Outline of religious developments during this period.
 - (b) Ideas and practices of the Bhakti – Sufi saints.Story of Transmission: How Bhakti – Sufi compositions have been preserved.
Excerpts: Extracts from selected Bhakti – Sufi works.
Discussion: Ways in which these have been interpreted by historians.



9. Medieval Society through Travellers Account.
Broad overview: Outline of social and cultural life as they appear in travellers accounts.
Story of their writings: A discussion of where they travelled, why they travelled, what they wrote, and for whom they wrote.
Excerpts: From Alberuni , Ibn Batuta , Bernie.
Discussion: What these travel accounts can tell us and how they have been interpreted by historians.

25 Marks

Themes in Indian History (Part – III)

10. Colonialism and Rural Society: Evidence from Official Reports.
Broad overview:
(a) Life of zamindars, peasants and artisans in the late 18th century.
(b) East India Company, revenue settlements and surveys.
(c) Change over the nineteenth century.
Story of official records: An account of why official investigations into rural societies were undertaken and the types of records and reports produced.
Excerpts: From Firminger’s Fifth Report. Accounts of Francis Buchanan-Hamilton and Deccan Riots Report.
Discussion: What the official records tell and do not tell, and how they have been used by historians.
11. Representations of 1857.
Broad overview:
(a) The events of 1857– 58
(b) How these events were recorded and narrated.
Focus: Lucknow
Excerpts: Pictures of 1857. Extracts from contemporary accounts.
Discussion: How the pictures of 1857 shaped British opinion of what had happened.
12. Colonialism and Indian Towns: Towns plans and Municipal Reports.
Broad overview: The growth of Mumbai, Chennai, hill stations and cantonments in the 18th and 19th century.
Excerpts: Photographs and paintings. Plans of cities.
Extract form town plan reports. Focus on Kolkata town planning.
Discussion: How the above sources can be used to reconstruct the history of towns. What these sources do not reveal.



- 13.** Mahatma Gandhi through Contemporary Eyes.
Broad overview:
(a) The Nationalist Movement 1918 – 48
(b) The nature of Gandhian politics and leadership.
Focus: Mahatma Gandhi in 1931
Excerpts: Report from English and Indian language newspapers and other contemporary writings.
Discussion: How newspapers can be source of history.
- 14.** Understanding the Partition.
(a) Resolution of Pakistan
(b) Cabinet Mission Plan
(c) Mountbatten Plan
(d) Act of Indian Independence 1947
- 15.** The Making of the Constitution.
Broad overview:
(a) Independence and the new nation state.
(b) The making of the Constitution.
Focus: The Constitutional Assembly Debates
Excerpts: From the debates
Discussion: What such debates reveal and how they can be analyzed.

25 Marks

Weightage to content:

Themes in Indian History (Part – I)	25 marks
Themes in Indian History (Part – II)	25 marks
Themes in Indian History (Part – III)	25 marks
Map Work	5 marks
Project Work	20 marks
Total	100 marks

Map work on Unit 1-15:

5 marks

5 marks have been allotted for map work for which questions would be asked from chapter 1 to 15 of three books namely (Part -I, Part- II & Part-III)



Project Work:

20 marks

For the purpose of project work, the following topics are suggested:

- (i) Sources of History of J&K State.
- (ii) Food and clothing in J&K State.
- (iii) Foundation of modern J&K State with special reference to the Treaties of Lahore and Amritsar (1846).
- (iv) The cultural development in J&K State under Maharaja Ranbir Singh with special reference to Development of Education and Literature.
- (v) Development of means of Communications in J&K State.

Details of Project Work of History for Class 12th

The marks will be allocated under the following heads:

1.	Project Synopsis	02 marks
2.	Data / Statistical Analysis / Map Work	03 marks
3.	Visual / Overall Presentation	05 marks
4.	Analysis / Explanation and Interpretation	05 marks
5.	Bibliography	01 marks
6.	Viva Voice	04 marks

Reference:

1. Themes in Indian History, Part –I, Class XII, Published by NCERT
2. Themes in Indian History, Part –II, Class XII, Published by NCERT
3. Themes in Indian History, Part –III, Class XII, Published by NCERT.



ECONOMICS

Theory: 100 Marks

Time: 3 Hours

Unit I: Introduction.

Marks: 04

- What is microeconomics?
- Central problems of an economy, production possibility curve and opportunity cost.

Unit II: Consumer Equilibrium and Demand.

Marks: 18

- Consumer's Equilibrium: Meaning and attainment of equilibrium through Utility Approach. One and two commodity cases.
- Demand: market demand, determinants of demand, demand schedule, demand curve, movement along and shifts in demand curve, price elasticity of demand, measurement of price elasticity of demand – percentage, total expenditure and geometric methods.

Unit III: Producer Behavior and Supply.

Marks: 18

- Production function: returns to factor and returns to scale.
- Supply: market supply, determination of supply, supply schedule, supply curve movement along and shifts in supply curve, price elasticity of supply, measurement of price elasticity of supply – percentage and geometric methods.
- Cost and Revenue : Concepts of Cost, Short – run cost curves (fixed and variable costs, total, average and marginal costs), Concepts of Revenue – total, average and marginal revenue and their relationship. Producer's equilibrium – with the help of MC and MR.

Unit IV: Forms of Market and Price Determination.

Marks: 10

- Forms of market – perfect competition, monopoly, monopolistic competition – their meaning and features, oligopoly, meaning, features.
- Price determination under perfect competition – equilibrium price, effects of shifts in demand and supply

Unit V: Simple Applications of Tools of Demand and Supply Curves (Non – Evaluative)

The teachers can be given the flexibility to choose the issues: rationing, floors and ceilings and Food Availability Decline (FAD) Theory (the teachers may also choose alternative examples that are simple and easy to understand).



Unit VI: National Income and Related Aggregates – Basic Concepts and Measurement.

Marks: 15

- Macroeconomics: Meaning.
- Circular flow of income, concepts of GDP, GNP, NDP, NNP (at market price and factor cost), National Disposable Income (gross and net), Private Income, Personal Income and Personal Disposable Income.
- Measurement of National Income – Value Added Method, Income Method and Expenditure Method.

Unit VII: Determination of Income and Employment.

Marks: 12

- Aggregate demand, aggregate supply and their components.
- Propensity to consume and propensity to save (average and marginal).
- Meaning of involuntary unemployment and full employment.
- Determination of income and employment: two sector model.
- Concept of investment multiplier and its working.
- Problems of excess and deficient demand.
- Measures to correct excess and deficient demand – availability of credit, change in government spending.

Unit VIII: Money and Banking.

Marks: 08

- Supply of Money – currently held by public and commercial banks.
- Money: meaning, evolution and functions.
- Central Bank: meaning and functions.

Unit IX: Government Budget and the Economy.

Marks: 08

- Government Budget – meaning, objectives and components.
- Classification of receipts – revenue receipt and capital receipt: classification of expenditure – revenue expenditure and capital expenditure, plan and non - plan, development and non - developmental.
- Balanced budget, surplus budget and deficit budget: meaning and implications.
- Various measures of government deficit – revenue deficit, fiscal deficit, and primary deficit: their meaning and implications.
- Downsizing the role of government: meaning and implications.

Unit X: Balance of Payments.

Marks: 07

- Balance of payments account – meaning and components.
- Foreign exchange rate – meaning of fixed and flexible rates, merits and demerits; determination through demand and supply.
- A brief analysis about recent exchange rate issues.



GEOGRAPHY

Maximum Marks: 100
Theory: 70 Marks
Practicals: 30 Marks

Time: 3 Hours

A. Fundamentals of Human Geography

Marks 35

Unit I: Human Geography: Nature and Scope

Marks 03

Unit II: People.

Marks 05

- Population of the world – distribution, density and growth.
- Population change – spatial patterns and structure, determinants of population change.
- Age – sex ratio: rural – urban composition.
- Human development – concept, selected indicators, international, comparisons.

Unit III: Human Activities.

Marks 10

- Primary activities – concept and changing trends, gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agriculture and allied activities – some examples from selected countries.
- Secondary activities – concept, manufacturing: agro – processing, household, small scale, large scale : people engaged in secondary activities – some examples from selected countries.
- Tertiary activities – concept: trade, transport and communication: services; people engaged in tertiary activities – some examples from selected countries.
- Quaternary activities – concept: knowledge based industries: people engaged in quaternary activities – some examples from selected countries.

Unit IV: Transport, Communication and Trade.

Marks 10

- Land transport – roads, railways – rail network, trans – continental railways,
- Water transport – inland waterways: major ocean routes.
- Air transport – Intercontinental air routes,
- Oil and gas pipelines.
- Satellite communication and cyber space,
- International trade – Basis and changing patterns; ports as gateways of international trade, role of WTO in International trade.



Unit V: Human Settlements.

Marks 05

- Settlement types – rural and urban: morphology of cities (case study) : distribution of mega cities : problems of human settlements in developing countries.

Unit VI: Map work on identification of features based on above units on the outline political map of world.

Marks 02

B. India: People and Economy

Marks 35

Unit VII: People.

Marks 05

- Population – distribution, density and growth: composition of population: Linguistic, sex and religious; rural – urban population change through time – regional variations: occupations.
- Migration: international, national – causes and consequences.
- Human development – selected indicators and regional patterns.
- Population, environment and development.

Unit VIII: Human Settlements.

Marks 04

- Rural settlements – types and distribution.
- Urban settlements – types, distribution and functional classification.

Unit IX: Resources and Development.

Marks 12

- Land resources – general land use; agricultural land use – major crops; agricultural development and problems , common property resources .
- Water resources – availability and utilization – irrigation, domestic, industrial and other uses ; scarcity of water and conservation methods –rain water harvesting and watershed management (one case study related with participatory watershed management to be introduced)
- Mineral and energy resources – metallic and non – metallic minerals and their distribution; conventional and non – conventional energy sources.
- Industries – types and distribution; industrial location and clustering : changing pattern of selected industries – iron and steel , cotton textiles , sugar , petrochemicals , and knowledge based industries; Impact of liberalization , privatization and globalization on industrial location.
- Planning in India – target area planning (case study) ; idea of sustainable development (case study).



Unit X: Transport, Communication and International Trade .

Marks 07

- Transport and communication – roads, railways, waterways and airways; oil and gas pipelines; national electric grids; communication networking – radio, television, satellite and internet.
- International trade – changing pattern of India's foreign trade; seaports and their hinterland and airports.

Unit XI: Geographical Perspective on Selected Issues and Problems. Marks 04

(One case study to be introduced for each topic)

- Environmental pollution: urban – waste disposal.
- Urbanization – rural – urban migration; problem of slums;
- Land Degradation.

Unit XII: Map work on locating and labeling of features based on above units on the outline political map of world. Marks 03

C. Practical Work.

Marks 30

Internal assessment: 10 marks

External assessment: 20 marks

Unit I: Processing of Data and Thematic Mapping.

Marks 10

- Sources of data.
- Tabulating and processing of data; calculation of averages, measures of central tendency, deviation and rank correlation.
- Representation of data – construction of diagrams: bars, circles and flowchart; thematic maps; construction of dot; choropleth and isopleth maps.
- Use of computers in data processing and mapping.

Unit II: Field Study.

Marks 07

Field visit and study: map orientation, observation and preparation of sketch ; survey on any one of the local concerns : pollution , ground water changes , land use and land use changes , poverty , energy issues , soil degradation , impact of floods and drought , catchment area of school , Market survey and Household survey (any one topic of local concern may be taken up for the study) ; observation and questionnaire survey may be adopted for the data collection ; collected data may be tabulated and analyzed with diagrams and maps .

Unit II: Practical Record Book and Viva – voce.

Marks 03



POLITICAL SCIENCE

Theory : 100 Marks

Time : 3 Hours

Part A : Contemporary World Politics .

1. Cold War Era in World Politics.

Marks 07

Emergence of two power blocs after the Second World War. Arenas of the cold war. Challenges to Bipolarity : Non Aligned Movement, quest for new international economic order. India and the cold war .

2. Disintegration of the " Second World " and the Collapse of Bipolarity.

Marks 07

New entities in world politics : Russia, Balkan states and Central Asian states. Introduction of democratic politics and capitalism in post – communist regimes. India's relation with Russia and other post – communist countries.

3. US Dominance in World Politics .

Marks 06

Growth of unilateralism : Afghanistan, first Gulf War, response to 9/11 and attack on Iraq. Dominance and challenge to the US in economy and ideology. India's renegotiation of its relationship with the USA.

4. Alternative Centres of Economic and Political Power.

Marks 04

Rise of China as an economic power in post – Mao era, creation and expansion of European Union, ASEAN. India's changing relations with China.

5. South Asia in the Post – Cold War Era .

Marks 06

Democratisation and its reversals in Pakistan and Nepal. Ethnic conflict in Sri Lanka, Impact of economic globalization on the region. Conflicts and efforts for peace in South Asia. India's relations with its neighbours.

6. International Organizations in a Unipolar World.

Marks 05

Restructuring and the future of the UN. India's position in the restructured UN. Rise of new international actors ; New international economic organizations, NGO's. How democratic and accountable are the new institutions of global governance ?



7. Security in Contemporary World.

Marks 05

Traditional concerns of security and politics of disarmament. Non – traditional or human security : global poverty, health and education. Issues of human rights and migration .

8. Globalization and its Critics .

Marks 05

Economic, cultural and political manifestations. Debates on the nature of consequences of globalization. Anti – globalization movements. India as an arena of globalization and struggle against it.

9. Environmental and Natural Resources in Global Politics.

Marks 05

Environment movement and evolution of global environmental norms. Conflicts over traditional and common property resources. Rights of indigenous people. India's stand in global environmental debates.

Part B : Politics in India since Independence.

10. Nation – Building and Its Problems.

Marks 05

Nehru's approach to nation – building : Legacy of partition: challenge of 'refugee' resettlement, the Kashmir problem. Organization and reorganization of states; Political conflicts over language.

11. Era of One – Party Dominance.

Marks 06

First three general elections, nature of Congress dominance at the national level, uneven dominance at the state level, coalitional nature of Congress. Major opposition parties.

12. Politics of Planned Development.

Marks 05

Five year plans, expansion of state sector and the rise of new economic interests. Famine and suspension of five year plans. Green revolution and its political fallouts.

13. India's External Relations.

Marks 06

Nehru's foreign policy. Sino – Indian war of 1962, Indo – Pak war of 1965 and 1971. India's nuclear programme and shifting alliances in world politics.

14. Challenge to and Restoration of Congress System.

Marks 05

Political succession after Nehru. Non – Congressism and electoral upset of 1967, Congress split and reconstitution . Congress' victory in 1971 elections, politics of "garibi hatao"



15. Crisis of the Constitutional Order.

Marks 07

Search for 'committed' bureaucracy and judiciary. Navnirman movement in Gujarat and the Bihar movement. Emergency context constitutional and extra – constitutional dimensions, resistance to emergency. 1977 elections and the formation of Janata Party. Rise of civil liberties organizations .

16. Regional Aspirations and Conflicts.

Marks 05

Rise of regional parties. Punjab crisis. The Kashmir situation. Challenges and responses in the North East.

17. Rise of New Social Movement.

Marks 05

Farmers' movements, Women's movement, Environment and Development – affected people's movements. Implementation of Mandal Commission report and its aftermath.

18. Recent Developments in Indian Politics.

Marks 06

Participatory upsurge in 1990, Rise of the JD and the BJP. Increasing role of regional parties and coalition politics. UF and NDA governments. Elections 2004 and UPA governments.

Book Suggested :

Major concepts of Political Science published by NCERT, New Delhi.



PHILOSOPHY

Max. Marks : 100

Time : 3 Hours

A. INDIAN PHILOSOPHY

1. Nature and Schools of Indian Philosophy **Marks 10**
2. Philosophy of the Bhagvat Gita **Marks 10**
3. Buddhism ,Nyana, Yoga , Jainism **Marks 10**

B. MUSLIM PHILOSOPHY

4. Introduction to Muslim Philosophy **Marks 10**
5. Principles Schools of Muslim Philosophical Thought **Marks 10**
6. Muslim Philosophers and their contribution **Marks 10**

C. WESTERN PHILOSOPHY

7. The Causal Principles **Marks 10**
8. Nature of Reality **Marks 10**
9. Mind - Body Problem **Marks 10**

D. APPLIED PHILOSOPHY

10. Environmental Ethics , Bio Ethics , Business Ethics **Marks 10**

A. INDIAN PHILOSOPHY

Unit I : Nature and Schools of Indian Philosophy.

1. Nature and Schools of Indian Philosophy
2. Characterises of Indian Philosophy
3. Theory of Purusarthas (Dharma, Artha, Kama and Moksa)

Unit II : Philosophy of the Bhagvad Gita

1. Nishkama - Karma
2. Avadharna
3. Lokasmgraha

Unit III : Buddhism , Nyaya , Yoga , Jainism

1. Buddhism (Eight - Fold Path)
2. Nayaya (Theory of Pramanas)
3. Yoga (Eight - Fold Practice)
4. Jainism (Panshilla : Ahimsa, Satya, Asteya, Brahmacharya, Aprigraha)



B. MUSLIM PHILOSOPHY

Unit IV : Introduction to Muslim Philosophy

1. Meaning and Emergence of Muslim Philosophy
2. Sources of Muslim Philosophy (primary and secondary sources)
3. Main Philosophical Teachings of Holy Quran

Unit V : Principles Schools of Muslims Philosophical Thought.

1. Mutazilism : Principles of Mutazilism
2. Asharism : Main Doctrines of Asharism

Unit VI : Muslim Philosophers and their contribution

1. Alama Iqbal – Intellect and Intuition
2. Jamalal Din Afghani – Spirituality , Morality , Rationality and Muslim Unity
3. Al – Kindi – God , Soul , Intellect

C. WESTERN PHILOSOPHY

Unit VII : The Causal Principles

1. Aristotle's Theory of Four Fold Causation
2. Hume's Theory of Causation

Unit VIII : Nature of Reality

1. Proof for the existence of God
2. Ontological Arguments
3. Cosmological Arguments
4. Teleological Arguments

Unit IX : Mind – Body Problem

1. Interactionism – Descartes
2. Parallelism – Spinoza
3. Pre – Established Harmony (Leibnitz)

D. APPLIED PHILOSOPHY

Unit X : Environment Ethics , Bio Ethics , Business Ethics

1. Environment Ethics
2. Bio Ethics
3. Business Ethics
4. Philosophy of Education



Suggested Reading:

1. Introduction to Indian Philosophy by Data and Chatterji
2. Critical Survey of Indian Philosophy by C.D. Sharma
3. History of Indian Philosophy by R. N. Sharma
4. History of Muslim Philosophy by M. M. Sharief
5. Muslims Philosophy and Philosophers by Saleem Khan and Anwar Khan
6. History of Western Philosophy by Y. Masiah
7. Introduction to Philosophy by Jhon Patrick
8. Living Issues in Philosophy by H. Titus
9. Companion to Ethics by R. G. Frey
10. Applied Ethics by PETE Singer



EDUCATION

Max. Marks : 100

Time : 3 Hours

UNIT 1 : CURRICULAM

- 1.1 Meaning and Importance of Curriculum
- 1.2 Definitions – Ross , Cunningham , Tagore , Zakir Hussain
Secondary Education Commission (1952 – 53)
- 1.3 Types of Curriculum (Merits and Limitations)
 - ** Subject Centered Curriculum
 - ** Activity Centered Curriculum
 - ** Child – Centered Curriculum
- 1.4 Defects of existing Curriculum and its reformative measures. 10 marks

UNIT 2 : CO – CURRICULAR ACTIVITIES

- 1.1 Meaning of Co – Curricular Activities
- 1.2 Types
 - ** Literary – (Debates, School Magazine, Library)
 - ** Aesthetic & Cultural – (Drama, Educational Tours, Folk Activities)
 - ** Social – (Morning Assembly & NSS)
 - ** Physical – (Games & Sports, NCC, Scouting)10 marks

UNIT 3 : DEVELOPMENT OF EDUCATION IN J&K

- 1.1 Role of Missionary Schools with reference to :
 - ** Tyndale Biscoe (1881 – 82)
 - ** Anjuman-i-Nusratul Islam (1905)
 - ** Dogras with special reference to Primary Education.
 - ** Sharp Committee (1916)
 - ** K. G. Saidain Report (1939)
 - ** A. Kazimi Report (1950)
 - ** Bhagwan Sahay Committee (1972)

1.2 Brief history of the following Institutions :

- ** Jammu & Kashmir Board of School Education
 - ** Directorate of School Education
 - ** University of Kashmir
 - ** University of Jammu
- 10 marks

UNIT 4 : POPULATION EDUCATION

- 1.1 Meaning and Objectives of Population Education
- 1.2 Need and Importance of Population Education
- 1.3 Population Explosion – Meaning, Causes, Consequences and Control
- 1.4 Role of Media (Print and Electronic) for Population Awareness 10 marks



UNIT 5 : EDUCATIONAL THINKERS

- 1.1 M. K. Gandhi
- 1.2 Dr. Zakir Hussain
- 1.3 John Dewey

With special reference to :

- ** Life Sketch
- ** Aims of Education
- ** Curriculum
- ** Concept of Education
- ** Methods of Teaching
- ** Role of Teacher

10 marks

UNIT 6 : STATISTICS IN EDUCATION

- 1.1 Measures of Variability-----

- ** Concept of Variability
- ** Methods of determining Variability through

- i) Range
- ii) M. D (Mean Deviation)
- iii) Q. D (Quartile Deviation)
- iv) S. D (Standard Deviation)

- 1.2 Correlation :

- ** Concept of Correlation
- ** Computation of Correlation
- * Rank Method (Spearman)

* Product Movement Method (Pearson) **10 marks**

UNIT 7 : HUMAN GROWTH AND DEVELOPMENT

- 1.1 Meaning and Principles of Growth and Development
- 1.2 Stages of Growth and Development (Physical, Mental & Social) with special reference to :
 - ** Infancy
 - ** Childhood
 - ** Adolescence
- 1.3 Needs and Problems of Adolescents with Remedial Measures

10 marks

UNIT 8 : MENTAL HEALTH AND HYGIENE

- 1.1 Meaning and Definition of Mental Health and Hygiene
- 1.2 Purpose of Mental Health and Hygiene
- 1.3 Characteristics of Mentally Healthy Individual
- 1.4 Need for Mental Health and Hygiene
- 1.5 Factors determining Mental Health :
 - ** Hereditary
 - ** Physical
 - ** Social
- 1.6 Causes of Poor Mental Health
- 1.7 Achieving Mental Health

10 marks

UNIT 9 : LEARNING

- 1.1 Meaning of Learning
- 1.2 Definitions - Thorndike, Skinner, Hilgard, Gates, Crow & Jeff Cobb
- 1.3 Characteristics of Learning
- 1.4 Types of Learning :
 - (i) Perceptual
 - (ii) Conceptual
 - (iii) Motor
 - (iv) Verbal
 - (v) Associative
- 1.5 Laws of Learning (Primary & Secondary) and their educational implications. **10 marks**



UNIT 10 : ADJUSTMENT & MALADJUSTMENT

- 1.1 Concept of Adjustment & maladjustment
- 1.2 Characteristics of a well adjusted person
- 1.3 Causes and symptoms of maladjusted person
- 1.4 Defense Mechanisms :

** Identification

** Rationalization

** Sublimation

** Compensation

** Escapism

** Fantasy

(10 marks)



PSYCHOLOGY

Maximum Marks : 100

Theory : 70 Marks

Practicals : 30 Marks

Time : 3 Hours

UNIT I : INTELLIGENT AND APTITUDE

The unit aims at studying how people differ with respect to Intelligence and Aptitude.

- Concept of Intelligence.
- Theories of Intelligence: Theory of multiple intelligence, Triarchic theory of intelligence, PASS model of intelligence.
- Culture and Intelligence, Tests of Intelligence.
- Aptitude : Nature and Types.
- Giftedness (nature and identification).
- Individual differences (heredity – environmental interaction).

09 marks

UNIT II : SELF AND PERSONALITY

The unit focuses on the study of self and personality in the context of different approaches in an effort to appraise the person.

- Concept of self, self efficiency, self regulation and techniques.
- Concept of Personality, theories of Personality (Trait and types, Psychoanalytic, Humanistic).
- Assessment of Personality : Self report measures, Projective techniques.

09 marks

UNIT III : MEETING LIFE CHALLENGES

The aim of this unit is to study adjustment, stress and coping strategies. Health and well – being is also discussed.

- Concept of adjustment.
- Stress : Meaning, Sources and Types, Coping strategies.
- Concept of health and well – being.

06 marks

UNIT IV : PSYCHOLOGICAL DISORDERS

The unit discusses the concepts of normality and abnormality and some Psychological Disorders.

- Concept of normality and abnormality, Causal factors associated with psychological disorders.
- Classification of psychological disorders.
- Major psychological disorders : Anxiety, Schizophrenia (meaning and symptoms).
- Mood disorders, behavioral, substance related.

09 marks



UNIT V : THERAPEUTIC APPROACHES

The unit discusses the goals, techniques and effectiveness of different approaches used to treat psychological disorders.

- Goals and objectives of therapeutic processes, stages of therapeutic relationships.
- Types of therapies : Psychodynamic, Humanistic, Cognitive, Behavior, Biomedical, Yoga & Meditation.
- Rehabilitation of mentally ill patients.

08 marks

UNIT VI : ATTITUDE AND SOCIAL COGNITION

The unit focuses on the formation and change of attitudes, cultural influences on attributional tendencies and conditions influencing pro – social behavior.

- Nature and components of attitude, attitude – formation and change.
- Attribution , Social cognition , Schemas and Stereotypes.
- Pro – social behavior and its techniques prejudice and discrimination, Strategies for handling prejudice.

07 marks

UNIT VII : GROUP PROCESSES AND SOCIAL INFLUENCE

The unit deals with the concept of group, its functions and the dynamics of social influence. Different conflict resolution strategies will also be discussed.

- Meaning of group, group behavior, factors influencing group formation, types of group, Social identity, intergroup conflict : conflict resolution strategies.
- Social influence processes : conformity, obedience and compliance, cooperation and competition.

08 marks

UNIT VIII : ENVIRONMENT AND SOCIAL CONCERNS

The purpose of this unit is the understanding and application of psychology to some important social issues.

- Human – Environmental relationships : noise pollution, air pollution, natural and man-made disasters.
- Social issues : poverty, aggression and violence, gender discrimination.
- Promoting pro-environmental behavior, human rights and peace management.

08 marks



UNIT IX : STATISTICS

The aim of this unit is to introduce the importance of different statistical measures used in Psychology.

- Meaning of Statistics, types of Statistics, preparation of frequency distribution.
- Measures of central tendency: Mean, Median and Mode.
- Measures of variability: Range, S.D, Q.D, Average Deviation.

08 marks

PRACTICALS

External = 20

Internal = 10

Total = 30

- One case profile (Developmental history of the subject, using qualitative and quantitative approaches)
- Practicals (intelligence, personality, aptitude, adjustment, attitude, self concept and anxiety)
- **Distribution of Marks :**

(i)	Case Profile:	03 marks
(ii)	Practical File:	03 marks
(iii)	Viva Voce:	04 marks
(iv)	Two Practicals	10 marks

BOOK PRESCRIBED : A textbook of Psychology for Class XII published by NCERT, New Delhi.



SOCIOLOGY

Maximum Marks : 100

Theory : 80 Marks

Practicals : 20 Marks

Time : 3 Hours

INDIAN SOCIETY

Unit 1 : Introducing Indian Society

Non-Evaluative

- Unity in Diversity in India.
- Geographical, Cultural, Religious and Linguistic.
- Ethnic Composition of J&K.

Unit 2 : Demography and Society

Marks 08

- Demography : Concept, Variables (Indicators) and Trends.
- Theories of Population : Malthusian Theory ; Demographic Transition Theory.
- National Population Policy of India (2011).
- Population Composition of J&K.

Unit 3 : Social Institutions

Marks 08

- Family : Concept and Functions.
- Marriage : Concept and Types.
- Caste System : Concept, Characteristics, Change and Continuity.

Unit 4 : Social Inequality

Marks 08

- Meaning and Definition of Social Inequality.
- Tribals : Definition and Characteristics ; Distribution ; Marginalisation of Tribal Communities.
- Religious Minorities.
- The Differently Abled.
- Struggle for Equality of Women.

Unit 5 : Challenges to National Integration

Marks 08

- Communalism.
- Regionalism.
- Casteism.
- Role of State: Constitutional and Legal Measures.

Unit 6 : Methodology

Marks 08

- Research: Concept and Features.
- Importance of Social Research.
- Steps / Stages of Social Research.
- Sampling : Stratified and Non – Stratified.
- Techniques of Data Collection : Observation, Interview, Schedule, Questionnaire.



CHANGE AND DEVELOPMENT IN INDIAN SOCIETY

Unit 7 : Processes of Social Change in India

Marks 08

- Modernization.
- Industrialization and Urbanization.
- Sanskritisation.
- Westernization.

Unit 8 : Change and Development in Rural Society

Marks 08

- Rural Society : Meaning and Features.
- Land Reforms with Special Reference to J&K.
- Green Revolution : Significance and Adverse Effects.
- 73rd Amendment Act : Panchayati Raj Institution.

Unit 9 : Globalization and Social Change

Marks 08

- Globalization : Meaning and Concept.
- Economic Globalization.
- Cultural Globalization.
- Political Globalization.

Unit 10 : Mass Media and Society

Marks 08

- Mass Media : Concept and Classification.
- Role of Mass Media in Modern India (Environmental protection, Gender Sensitisation , Health Education)
- Social Media : Emergence, Merits and Demerits.

Unit 11 : Social Movements

Marks 08

- Class Movement : Peasant Movement (Meaning, Impact and Trends).
- Caste Movement : Dalit movement (Meaning, Impact and Trends).
- Environmental Movement : Meaning, Impact and Trends (Chipkoo Movement).

BOOK PRESCRIBED :

- A Textbook of Sociology for Class XII (Part 1 & 2) Published by NCERT , New Delhi.



Scheme and Pattern of the Question Paper

Class: 12th

Subject: Sociology

Marks: 80 + 20 = 100 (80 marks for Theory and 20 marks for Practicals)

Section: A

Five (05) long answer type questions from the following units with internal choice:-

Units: - II, V, VI, VIII XI

5 x 5 = 25 marks

Section : B

Ten short answer type questions, two from each of the below mentioned units :-

Units :- III, IV, VII, IX, X

13 x 3 = 30 marks

Section : C

Ten very short answer type questions from each unit mentioned in the syllabus.

10 x 2 = 20 marks

Section: D

Five objective type questions from the following units :-

II, V, VI, VIII XI

5 x 1 = 5 marks

Practical Examination

Max. Marks : 20

Time Allotted : 3 Hours

External : 15 Marks

Internal : 5 Marks

A. Project (undertaken during the academic year at school level)

5 marks

I. Statement of the Purpose

1½ marks

II. Methodology / Technique

1½ marks

III. Conclusion

2 marks

B. Viva - based on the project work

2 marks

C. Research Design

8 marks

a. Overall format

1 marks

b. Research Questions / Hypothesis

1 marks

c. Choice of Technique

2 marks

d. Detailed Procedure

2 marks

e. Limitations of the above technique

2 marks

B and C to be administered on the day of the external examination.



APPLIED MATHEMATICS

Maximum Marks : 100

Time : 3 Hours

Unit 1st :- Matrices and Determinants (20 marks)

Definition of a matrix. Various types of matrices. Addition and multiplication of matrices. Transpose of a matrix and its properties (without proof).

Determinants of order not exceeding order three. Minors and cofactors of the elements of a determinants. Properties (without proof) of determinants and their application. Solution of a system of linear equations using determinants (Cramm's Rule). Singular and non-singular matrices. Adjoint of a matrix, inverse of a matrix. Solution of linear equations with the help of matrices having two and three variables.

Unit 2nd :- Limits and Continuity of a Function (12 marks)

Definition of limit of a function, algebra of limits,
Fundamental limits

$$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a}, \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta}, \lim_{x \rightarrow 0} \frac{a^{mx} - 1}{x}, \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n$$
$$\lim_{x \rightarrow 0} \frac{\log(1+x)}{x}$$

and their applications.
Continuity of a function.

Unit 3rd :- Derivative (12 marks)

Derivative of a function, its geometrical and physical significance, derivation of some simple functions by first principle, derivative of sum, product and quotient of two functions. Derivative of inverse trigonometric functions (without proof) with applications only.

Unit 4th :- Applications of Derivatives (10 Marks)

Tangents and normal (Cartesian Co-ordinates only), Increasing and decreasing functions. Maxima and Minima. Rolles and Mean Value Theorem (without proof) and their simple applications.



Unit 5th :- Integrals

(16 Marks)

Integration as inverse of differentiation, integration of various functions by substitution, using trigonometric functions, partial fractions by parts integrals of the type.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{a^2 - x^2}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{\sqrt{x^2 \pm a^2}},$$

$$\int \frac{dx}{ax^2 + bx + c}, \int \frac{(px + q)dx}{ax^2 + bx + c}, \int \sqrt{x^2 \pm a^2} dx, \int \sqrt{a^2 - x^2} dx,$$
$$\int \frac{dx}{\sqrt{ax^2 + bx + c}}; \int \frac{(px + q)dx}{\sqrt{ax^2 + bx + c}}$$

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof). Properties of definite integrals and evaluation of definite integrals using properties of definite integrals.

Unit 6th :- Differential Equations

(10 marks)

Differential equations : Order and degree of differential equation, solving of differential equations by variable separable method, homogenous differential equations, first order linear differential equations.

Unit 7th :- Statistics

(10 marks)

Parallelogram law of forces, Resolution of forces, Triangle law of forces. Polygon law of forces. Lami's theorem. Parallel forces with applications.

Unit 8th :- Dynamics

(10 marks)

Velocity acceleration , equations of motion along a straight line with uniform acceleration.

$V = u + at$; $X = ut + \frac{1}{2}at^2$; $v^2 - u^2 = 2ax$; motion under gravity.



ISLAMIC STUDIES

Max. Marks : 100

Time allowed : 3 Hours

Units :

	Marks
I. Worship in Islam (Ibadah and Arkan)	10
II. Ethical Values in Islam	10
III. Human Rights in Islam	10
IV. Status of Women in Islam	10
V. Introduction to the Qu'ran	10
VI. Knowledge and the Quranic Teachings	10
VII. Social Teachings of the Qu'ran	10
VIII. Economic Teachings of the Qu'ran.	10
IX. Introduction to Hadith	10
X. Introduction to Fiqh (Law)	10

DETAILED SYLLABUS

Unit 1 : Worship In Islam (Ibadah and Arkan) 10 Marks

- I. Worship : meaning and importance
- II. Arkan : concept and importance
 - a. *Salah*(Prayer)
 - b. *Sawm*(Fasting)
 - c. *Zakah*(Alms giving)
 - d. *Hajj* (Holy Pilgrimage)

Unit 2 : Ethical Values in Islam 10 Marks

- I. Meaning and importance
- II. Virtues (*Fada'il*)
 - a. Truthfulness (*Sidq*)
 - b. Justice (*adl*)
 - c. Modesty (*Haya*)
 - d. Trust (*Amanah*)
- III. Vices (*Rada'il*)
 - a. Backbiting (*ghibah*)
 - b. Lying (*kidhb*)
 - c. Anger (*gayd*)
 - d. Theft (*sarq*)

Unit 3 : Human Rights in Islam 10 Marks

- I. Meaning and importance
- II. A brief account of the following human rights :
 - a. Right to life
 - b. Right to belief
 - c. Right to property
 - d. Right to freedom of expression
 - e. Right to privacy



Unit 4 : Status of Woman in Islam

10 Marks

- I. As a mother
- II. As a wife
- III. As a sister
- IV. As a daughter

Unit 5 : Introduction to the Quran

10 Marks

- I. Qu'ran : A revelation (*wahy*) from Allah
- II. Earlier revealed books of Allah
- III. The event of first Quranic revelation
- IV. Qu'ran : The final universal message

Unit 6 : Knowledge and the Quranic Teachings

10 Marks

- I. Qu'ran : A Book of Divine Knowledge
- II. Importance of knowledge in the Qu'ran
- III. Commandments :
 - a. Lawful (*Halal*)
 - b. Unlawful (*Haram*)

Unit 7 : Social Teachings of the Qu'ran

10 Marks

- a. Respect and obedience to parents
- b. Respect and obedience to teachers
- c. Behaviour with relatives
- d. Treatment towards neighbours

Unit 8 : Economic Teachings of the Qu'ran

10 Marks

- a. Charity (*Sadaqah*)
- b. Crop tax (*Ushr*)
- c. Public treasury (*Bait-ul-Maal*) : concept and importance
- d. Usury (*Riba*) : meaning and prohibition

Unit 9 : Introduction to Hadith

10 Marks

- I. Meaning and importance
- II. Place of Hadith in Islam
- III. Kinds of Hadith : Sahih, Hasan, Maudu, Daif

Unit 10 : Introduction to Fiqh (Law)

10 Marks

- I. Meaning and importance
- II. Development of Fiqh : early period
- III. Sources of Fiqh :
 - a. The Qu'ran
 - b. Hadith
 - c. Ijma
 - d. Qiyas



VEDIC STUDIES

Max. Marks : 100

Time Allowed : 3 Hours

Unit I :	Vedic Scholars – Indian and Western	Marks 10
Unit II :	Allied Vedic Literature	Marks 10
Unit III :	Universe	Marks 10
Unit IV :	The Land and the People	Marks 20
Unit V :	Literature having Vedas as Source I	Marks 15
Unit VI :	Literature having Vedas as Source II	Marks 15
Unit VII :	Vedic Science and Technology	Marks 10
Unit VIII :	Vedic Concepts	Marks 10

Unit I : Vedic Scholars – Indian and Western .

- (i) Indian Scholars:
Yask, Venkat Madhav, Sayana,
Swami Dayanand, Aurobindo Ghosha and
Vinoba Bhave.
- (ii) Western Scholars :
Rudalf Roth, Friedrich, Max Muller,

Unit II : Allied Vedic Literature.

- (i) Vedangas
(ii) Upavedas

Unit III : Universe

- (i) Origin of Universe
(ii) Parts of Universe

Unit IV : The Land and the People.

- (i) Mother Land
(ii) People
(iii) Flora and Fauna.

Unit V : Literature having Vedas as Source I.

- (i) Ramayana
(ii) Mahabharata

Unit VI : Literature having Vedas as Source II.

- (i) Smritis
(ii) Puranas



Unit VII : Vedic Science and Technology.

- (i) Ganita
- (ii) Physics
- (iii) Chemistry

Unit VIII : Vedic Concepts.

- (i) Universal Law
- (ii) Sacrifice
- (iii) Equality and Unity
- (iv) Punya and Paap
- (v) Four Aims of Life

BOOK PRESCRIBED :

Vedic Studies Part – II
Published by Jammu and Kashmir State Board of School Education.



MUSIC

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

Time : 3 Hours

THEORY :

1. History of Ancient Indian Music.
2. Define Shruti and Swar. Establishment of Seven Shudh Swars on 22 Shruties. (according to ancient, medieval and modern scholars)
3. Classification of Indian Instruments.
4. Define Naad and its kinds.
5. Time Theory of Indian Raagas.
6. Life history and contribution of following Musicians:
(i) Bhimsen Joshi (ii) Vilayat Khan (iii) Kashori Amonkar
7. Qualification and disqualification of Musicians (Vocalist and Instrumentalist).
8. Writing of Notation of the Raagas of your course of study.
9. Definition of Ragaas.
10. Notation of Talas of your course of study.
11. Definition of Talas.

BOOKS SUGGESTED :

1. Sangeet Shastra Darpan Part II.
2. Sangeet Visharad by Shri Vasant.
3. Rag Parichay Part I and II by Srivastava.
4. Kramik Pustak Malika (Part I and Part II) by Pt. Bhat Khanday.
5. Humar Sangeet Rattan.

Practical :

Note : 25 marks reserved for internal assessment shall be awarded on the basis of performance.
External examination / assessment will be of 25 marks.

PRACTICALS :

1. Singing and playing of ten Alankars. Students should have concept to create new Alankars of their choice with two or three swars combination. **03 marks**
2. Vilambit Khayal or Maseet Khani Gat in any of the prescribed Ragas of your course of study. **05 marks**
3. Drut Khayal & Razakhani Gat with initial Alap, Tanas or Todas & Jhalla in following Ragas : **05 marks**
(i) Bhopali (ii) Bhairav (iii) Kafi
4. Any devotional or patriotic or folk song or folk dun. **02 marks**
5. Playing of the following Talas in single & double Layakaries : **05 marks**
(i) Ek Taal (ii) Tilwara Taal (iii) JhapTaal (iv) Rupak Taal
6. Viva - Voce . **05 marks**

Note : Maintenance of the File for Practical work to be included in internal assessment.



SCHEME OF ASSESSMENT :

04 Long Answer Type Questions	= 04Q x 7 marks	= 28 marks.
05 Short Answer Type Questions	= 05Q x 3 marks	= 15 marks.
04 Very Short Answer Type Questions	= 04Q x 1 marks	= 04 marks.
03 Objective / Multiple Choice Questions	= 03Q x 1 marks	= 03 marks.



MATHEMATICS

Theory : Marks 100

Time Allowed : 3 hrs.

I.	RELATIONS AND FUNCTIONS	Marks 10
II.	ALGEBRA	Marks 13
III.	CALCULUS	Marks 44
IV.	VECTORS AND THREE - DIMENSIONAL GEOMETRY	Marks 17
V.	LINEAR PROGRAMMING	Marks 06
VI.	PROBABILITY	Marks 10

UNIT I. RELATIONS AND FUNCTIONS.

1. Relations and Functions :

Types of relations : reflexive, symmetric, transitive and equivalence relations. One to one and onto functions, composite functions, inverse of a function. Binary operations.

2. Inverse Trigonometric Functions :

Definition, range, domain, principal value branches. Graphs of inverse trigonometric functions. Elementary properties of inverse trigonometric functions.

UNIT II. ALGEBRA

1. Matrices.

Concept, notation, order, equality, types of matrices, zero matrix, transpose of a matrix, symmetric and skew symmetric matrices. Addition, multiplication and scalar multiplication of matrices, simple properties of addition, multiplication and scalar multiplication. Non - commutativity of multiplication of matrices and existence of non - zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Concept of elementary row and column operations. Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

2. Determinants.

Determinant of a square matrix (up to 3 x 3 matrices), properties of determinants, minors, cofactors and applications of determinants in finding the area of a triangle, Adjoint and inverse of a square matrix. Consistency, inconsistency and number of solutions of system of linear equations by examples, solving system of linear equations in two or three variables (having unique solution) using inverse of a matrix. Cramer's rule and its applications.

UNIT III : CALCULUS

1. Continuity and Differentiability.

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions to the base, e. Logarithmic functions as inverse of exponential functions.

$$\lim_{x \rightarrow 0} \frac{1}{x}, \lim_{x \rightarrow \infty} \frac{1}{x}, \lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x, \lim_{x \rightarrow 0} (1+x)^{1/x}, \lim_{x \rightarrow 0} \frac{\log(1+x)}{x}, \lim_{x \rightarrow 0} \frac{e^x - 1}{x}$$

Derivative of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives. Rolle's and Lagrange's Mean Value



Theorems (without proof) and their geometric interpretations and simple applications.

2. Applications of Derivatives.

Applications of derivatives : rate of change, increasing / decreasing functions, tangents & normals, approximation, maxima and minima (first derivative test motivated geometrically and second derivative test given as a provable tool). Simple problems (that illustrate basic principles and understanding of the subject as well as real-life situations).

3. Integrals.

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, only simple integrals of the type to be evaluated.

$$\int \frac{dx}{x^2 \pm a^2}, \int \frac{dx}{\sqrt{x^2 \pm a^2}}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{ax^2 + bx + c}, \int \frac{dx}{\sqrt{ax^2 + bx + c}}$$
$$\int \frac{(px + q)}{ax^2 + bx + c} dx, \int \frac{(px + q)}{\sqrt{ax^2 + bx + c}} dx, \int \sqrt{a^2 \pm x^2} \cdot dx, \int \sqrt{x^2 - a^2} dx,$$
$$\int \sqrt{ax^2 + bx + c} dx, \int \frac{dx}{a + b \cos x}, \int \frac{dx}{a + b \sin x}, \int (px + q) \sqrt{ax^2 + bx + c} dx$$

Definite integrals as a limit of a sum, Fundamental Theorem of Calculus (without proof), Basic properties of definite integrals and evaluation of definite integrals.

4. Applications of the Integrals.

Applications in finding the area under simple curves, especially lines, area of circles / parabolas / ellipses (in standard form only), area under the curve $y = \sin x$, $y = \cos x$, area between the two above said curves (the region should be clearly identifiable).

5. Differential Equations.

Definition, order and degree, general and particular solutions of a differential equation. Formation of differential equation whose general solution is given. Solution of differential equations by method of separation of variables, homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type :

$$\frac{dy}{dx} + py = q, \text{ where } p \text{ and } q \text{ are functions of } x \text{ and}$$

$$\frac{dx}{dy} + px = q, \text{ where } p \text{ and } q \text{ are functions of } y.$$



UNIT IV : VECTORS AND THREE – DIMENSIONAL GEOMETRY

1. Vectors.

Vectors and scalars, magnitude and direction of a vector. Direction cosines / ratios of vectors. Types of vectors (equal, unit, zero, parallel and collinear vectors), position vector of a point, negative of a vector, components of a vector, addition of vectors, multiplication of a vector by a scalar, position vector of a point dividing a line segment in a given ratio. Scalar (dot) product of vectors, projection of a vector on a line. Vector (cross) product of vectors. Scalar triple product.

2. Three –dimensional Geometry.

Direction cosines / ratios of a line joining two points. Cartesian and vector equation of a line, coplanar and skew lines, shortest distance between two lines. Cartesian and vector equation of a plane. Angle between (i) two lines (ii) two planes (iii) a line and a plane. Distance of a point from a plane.

UNIT V : LINEAR PROGRAMMING

1. Linear Programming.

Introduction, definition of related terminology such as constraints, objective function, optimization, different types of linear programming (L.P) problems, mathematical formulation of L.P. problems, graphical method of solution for problems in two variables, feasible and infeasible regions, feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

UNIT VI : PROBABILITY

1. Probability.

Multiplication theorem on probability. Conditional probability, independent events, total probability. Baye's Theorem, Random variable and its probability distribution, mean and variance of random variable. Repeated independent (Bernoulli) trials and Binomial distribution.

Suggested Textbook :

- 1) Mathematics Textbook for Class XII, NCERT, Publication.



STATISTICS

Max. Marks : 100

Theory : 70 Marks

Time Allowed : 3 hrs

Unit I : Probability - I

(08 marks)

Random experiment, trial, sample space, sample point, event, impossible event, exhaustive events, equally like and mutually exclusive events. Independent & dependent events. Classical / mathematical and statistical definition of Probability. Axioms of Probability. Law of addition for two event. Multiplication law for two events. Concept of conditional probability. Statement of Baye's Theorem (without proof) and examples.

Unit II : Probability - II

(08 marks)

Random variable, Discrete & continuous random variable. Distribution function. Discrete & continuous Discrete function. Probability mass function, probability density function. Examples on distribution function, probability mass function & probability density function. Definition of Bernoulli, Binomial & Poisson distributions and their applications.

Unit III : Regression Analysis

(10 marks)

Concept of Regression. Regression lines, Regression coefficients. Properties of Regression coefficients. Angle between two Regression lines. Examples on Regression Analysis.

Unit IV : Theory of Attributes

(08 marks)

Introduction, Dichotomy, Notations, Manifolds Classifications. Class frequencies. Order of class frequencies. Ultimate Class Frequency. Consistency of Data. Criteria for checking independence & association between two attributes. Yule's Coefficient of association.

Unit V : Index Numbers

(10 marks)

Introduction, Characteristics of Index numbers, Uses of Index numbers, Problems in the construction of Index numbers. Price relatives. Methods of constructing Index Numbers. Simple or unweighted Index numbers and its limitations. Simple average of price relatives, its merits and demerits. Weighted Index numbers. Method of Laspeyer's Paasche's and Fisher's ideal index numbers. Time and factor reversal tests.



Unit VI : Vital Statistics

(08 marks)

Meaning and nature of Vital Statistics. Its uses. Vital events, rates of Vital events. Measurements of population, mean population, measures of fertility and mortality. Crude birth rate, specific birth rate, standardized birth rate. Crude death rate, specific death rate, standardized death rate.

Unit VII : Sampling Theory

(08 marks)

Meaning and objectives of Sampling. Concept of Statistical population and Sample. Requisites of a good sample. Complete enumeration of population, advantages & disadvantages of complete enumeration over sample survey. Concept of Sampling and non Sampling errors. Types of Samples. Methods of Sampling. (Simple Random Sampling, stratified random Sampling and systematic Sampling), advantages and disadvantages of these methods.

Unit VIII : Time Series and Computers.

(10 marks)

Introduction and importance of Time Series. Components of Time Series (secular trend, seasonal variation. Cyclic variation and irregular movements). Measure of trend (free hand graphical methods and semi average method).

Computers :- Introduction to operating systems (OS), functions of operating systems, graphical representation of data charts through Excel. Calculation of measures of central tendency through Excel. Concept of Internet & its applications.

PRACTICAL WORK :-

(30 marks)

1. Practical's based on Baye's Theorem.
2. Calculation of two Regression lines.
3. Construction of Index numbers (Laspyer's, Paasche's and Fisher's method).
4. Practical's based on measures of fertility and mortality.
5. Estimate of Trend values by free hand and semi average method.
6. Drawing of Charts through Excel.
7. Measures of central Tendency through Excel.

BOOKS SUGGESTED :-

1. Fundamentals of Mathematical Statistics by S. C. Gupta and V. K. Kapoor (S. Chand, New Delhi).
2. Fundamentals of Applied Statistics by S. C. Gupta & V. K. Kapoor (S. Chand, New Delhi).
3. Practical Statistics by S. C. Gupta (Himalayan Publishing House, New Delhi).
4. Mathematical Statistics by H. C. Saxena (S. Chand, New Delhi).
5. Introduction to Mathematical Statistics by Robert V. Hogg & Allen. T Craig (Macmillan International Publishers Co. Ltd).



BUSINESS MATHEMATICS

Max. Marks: 100

Time: 3 hrs

Unit 1st:- Matrices and determinants

(15 marks)

Definition of a matrix, various types of matrices. Addition and multiplication of matrices. Transpose of a matrix and its properties (without proof).

Determinants of order not exceeding order three. Minors and cofactors of the elements of a determinant. Properties (without proof) of determinants and their applications. Solution of a system of linear equations using determinants (Cramer's Rule). Singular and non-singular matrices. Adjoint of a matrix, inverse of a matrix, solution of linear equations with the help of matrices having two and three variables.

Unit 2nd Limits and continuity of a function

(10 marks)

Definition of limit of a function, algebra of limits, Fundamental limits

$$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a}, \lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta}, \lim_{x \rightarrow 0} \frac{a^{mx} - 1}{x}, \lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n,$$
$$\lim_{x \rightarrow 0} \frac{\log(1+x)}{x}$$

and their applications. Continuity of a function.

Unit 3rd Derivative

(15 marks)

Derivative of a function, its geometrical and physical significance, derivative of some simple functions by first principle method (x^3 , $(ax + b)^n$, $\sin x$, $\cos x$, $\tan x$, $\log x$, a^x), derivative of sum, product and quotient of two functions. Derivative of inverse trigonometric functions (without proof) with applications.

Unit 4th Integration

(15 marks)

Integration as inverse of differentiation. Integration of various functions by substitutions, partial fractions & by parts. Evaluation integrals of the type

$$\int \frac{dx}{x^2 \pm a^2} dx, \int \frac{dx}{a^2 - x^2}, \int \frac{dx}{\sqrt{a^2 - x^2}}, \int \frac{dx}{\sqrt{x^2 \pm a^2}},$$
$$\int \frac{dx}{ax^2 + bx + c}, \int \frac{(px + q)dx}{ax^2 + bx + c}, \int \sqrt{x^2 \pm a^2} dx, \int \sqrt{a^2 - x^2} dx,$$
$$\int \frac{dx}{\sqrt{ax^2 + bx + c}}; \int \frac{(px + q)dx}{\sqrt{ax^2 + bx + c}}$$



Unit 5th Differential equation

(15 marks)

Differential equations :- Order and degree of differential equations. Solution of differential equations (variable separable method, homogenous differential equations. First order linear differential equations)

Unit 6th Applications of Integration

(10 marks)

Definite integrals as a limit of a sum, Fundamental theorem of calculus (without proof) Properties of definite integrals and evaluation of definite integrals using properties.

Unit 7th Application of calculus in commerce and economics

(10 marks)

Average cost and marginal costs. Total revenue, average revenue and marginal revenue. Break even analysis, maximization of total revenue and total profits. Maximization of average costs.

Unit 8th Computing

(10 marks)

What are computers, what they can perform and what they can't perform. Role and use of computers in modern society, meaning of a problem- algorithm, a detailed and precise step by step method of solution of the problem illustrated by means of simple day to day problems. Problems (like buying of an article, multiplication, compound interests, discount, L.C.M and H.C.F with easy exercises.



COMPUTER SCIENCE

Maximum Marks=100

Theory=70 Marks

Practical=30 Marks (Internal=10: External=20)

Time 03 : hours

- | | |
|---------------------------------------|----------|
| 1. Object Oriented Programming in C++ | 15 marks |
| 2. Constructors and destructors | 05 marks |
| 3. Inheritance | 05 marks |
| 4. Pointers | 05 marks |
| 5. Data structures | 10 marks |
| 6. Database and SQL | 10 marks |
| 7. Boolean Logic | 10 marks |
| 8. Networking and Cyber security | 10 marks |

UNIT 1: Object Oriented Programming in C++

- Advantages of OOPs
- Basic elements of OOPs: Class, Object, Data hiding, Data abstraction, Data encapsulation, Polymorphism, Inheritance.
- Implementation of Polymorphism using function overloading.
- Implementation of OOP in C++
 - Defining a Class
 - Members of a Class(Data members and Member functions)
 - Defining an Object
 - Array of Objects
- Access Specifiers
- Concept of Scope resolution operator
- Member function definition (Inside and Outside a Class)

UNIT 2 Constructors and Destructors

- Constructors:
 - Special characteristics
 - Declaration and Definition of Constructors
 - Types of constructors (Default constructor, Parameterized constructor)
- Destructors
 - Special characteristics
 - Declaration and Definition of destructors



UNIT 3: Inheritance (Extending Classes)

- Concept of inheritance
- Base Class, Derived Class
- Visibility modes
- Types of Inheritance
 - Single level inheritance
 - Multilevel inheritance
 - Multiple inheritance

UNIT 4: Pointers

- Concept of Pointer
- Declaration of Pointers
- Initialization of Pointers
- Dynamic memory allocation/deallocation operators: new, delete

UNIT 5: Data Structures

- One dimensional array
 - Traversal
 - Searching (Linear search, Binary search)
 - Sorting (Bubble sort)
- Stack
 - Definition of a stack
 - Operations on stack (Push and Pop)
- Queue
 - Definition of a queue
 - Operations on queue (Enqueue and Dequeue)

UNIT 6: Database and SQL

- Database and its advantages
- Rational data model
- Concept of Domain, Relation, Attribute, Tuple, Candidate key, Primary key, Alternate key
- SQL and its advantages
- Data types in SQL (NUMBER, CHAR, DATE)
- Data Definition Language and Data Manipulation Language
- SQL Commands:
 - DDL commands (CREATE, DROP, ALTER)
 - DML commands (SELECT, INSERT, UPDATE, DELETE)
- SQL functions: SUM(), AVG(), COUNT(), MIN(), MAX()



UNIT 7: Boolean Logic

- Boolean Operators: AND, OR, NOT
- Truth Table
- Basic Logic Gates: AND, OR, NOT, NAND, NOR
- Laws of Boolean Algebra: Cumulative law, Associative law, Distributive law, DeMorgan's law, Principle of Duality (Proving these laws using Truth Tables only)

UNIT 8: Networking and Cyber Security

- Networking and its advantages
- Types of Networks: PAN, LAN, MAN, WAN
- Transmission Media: Twisted pair cable, Coaxial cable, Optical fiber, Infra-Red, Satellite transmission.
- Network Topologies: Bus, Star, Ring
- Modem

- Cyber safety and security
 - Cyber Bullying: Preventive Measures
 - Computer Safety and Security
 - Internal Safety and Ethics
 - Safe Social Networking
 - Safe Email Practices
 - Dos and Don'ts for Cyber Safety



PRACTICALS:

➤ Programming in C++

1. WAP to implement function definition inside the class.
2. WAP to implement function definition outside the class.
3. WAP to implement concept of function overloading.
4. WAP to implement the concept of constructors.
5. WAP to implement concept of single level inheritance.
6. WAP to implement concept of multilevel inheritance.
7. WAP to initialize 1D array and display its elements.
8. WAP for linear search.
9. WAP for binary search.
10. WAP to sort an array using bubble sort.

➤ SQL Commands

1. Use SQL command to create a table with specified columns.
2. Use SQL command to insert data into a table.
3. Use SQL command to retrieve data from existing table.
4. Use SQL command to delete records from a table.
5. Use SQL command to drop an existing table.

➤ Practical file:

Practical file must contain the entire mentioned practical.

➤ Viva Voce:

Viva will be asked from syllabus covered.

➤ Distribution of 20 marks for External Practical:

- Programming (Logic, Syntax, Documentation/Indentation, Output) **(07 marks)**
- SQL commands **(03 marks)**
- Practical file **(05 marks)**
- Viva **(05 marks)**



INFORMATICS PRACTICES

Maximum Marks : 100

Theory : Marks 70

Time : 3 hours

Practicals : Marks 30. External : 20 marks, Internal : 10 marks

Topic	Marks
Computer Networking & OSS	20
Visual Basic Programming	15
Fundamentals of DBMS	20
Internet & Web Application Development	15

UNIT I: COMPUTER NETWORKING & OSS

A brief overview of Networking, Identifying computers over a network; Types of Network Address (MAC, IP); Domain Name Resolution; Types of Networks (PAN LAN, MAN, WAN); Networking Topologies (BUS, RING, STAR, TREE); Network Media – Guided (Twisted Pair, Fiber Optics, Co-axial), Unguided (Infrared, Radio, Microwave); Network Devices – Modem, Repeater, Hub, Switch, Gateway and their function; Network Technologies – Ethernet, Bluetooth, WiFi; Network Security – Brief Overview, Network Threats, Virus, Worms, Trojan Horse, Denial Of Service, Snooping; Network Security Measures – Anti-virus, Firewall, Intrusion Detection.

Open Source Concepts – Open Source Software Overview, Common Foss Examples (GNU/ LINUX, Firefox, Open Office).

UNIT II : VISUAL BASIC PROGRAMMING

Revision of Decision Structures (IF, IF-Then-Else, Select Case), Revision of Looping Structure (Do-While, While – Wend, For – Next); Functions – Inbuilt Functions (String – Space) (), chr(), Str(), Right(), Left(), Mid(), InStr(), Len(), LTrim(), RTrim(), UCase(), LCase(), String(), Number Function – Sgn(), Val(), Int(), Abs(), Fix(), Sqr(), Power(), Round(), Trunc(): Time Functions– Now(), Time(), Minute(), Month(), MsgBox(), InputBox(); Types of Forms (SDI & MDI).

UNIT III : FUNDAMENTALS OF DBMS

Introduction to Database, definition of Database. Table, Attribute, Tuple / Rows, Field, Data; Data Types & Data Integrity, Candidate Key, Alternate Key, Primary Key, Foreign Key; Constraints (Unique, NULL, Not NULL); Front End and Back End of a DBMS, Examples of Front End Software like Oracle, VB, Visual C++, Etc;



Types of SQL Commands – SQL Data types (Varchar2, Char, Number, Date, Long); SQL Operators (Arithmetic, Relational, Logical); Types of SQL Commands (DDL, DML); DDL Commands (Create, Alter, Drop), DML Commands (Select, Insert, Update, Delete including different Clauses); TCL Commands (Commit, RollBack, SavePoint).

SQL Functions – Brief Overview, Character & String Function; Character Function (Lower, Upper, InitCap), Character Manipulation Function (Concat, Substr, Length, Instr, LPad, Trim), Number Functions (Abs, Ceil, Exp, Len, Long, Mod, Power, Round, SQRT, Trunc, Floor); Date Functions (Months_Between, Add_Months, Next_Day, Last_Day); Conversion Functions (To_Date, To_Number, To_Char); Group Functions (Avg (), Count(), Max(), Min(), Sum()).

UNIT IV : INTERNET & WEB APPLICATION DEVELOPMENT

Introduction, hardware/Software requirement, Uses and facilities of Internet, ISP, WWW, Web Browser, Web Page & Types, Web Address, Search Engines, Web Applications, URL Address.

Introduction to HTML Scripting language, Page Structure, Head Section, Body Section, Base Font, Font, Text Links, Text Format, Text Size, Text Layout, Marquee, HTML Lists – Bulleted, Numbered, Lists, Images – GIF, JPG, Resizing, Body Around, Alternate Text, Spacing Around, Alignment; Background Color, Background Image; Html Tables, Basic Tags, Table Tags, Row/Cell Tags.

PRACTICALS

Time : 3 Hours

Marks 30

1. LAN Implementation of School Computer Lab. & Identifying different Network Devices used during the setup.
2. Establishing a PAN using PDU (Personal Data Units) any one of the wireless technologies given in the syllabus.
3. WAP to check whether a given number is Even/Odd.
4. WAP to print the Factorial of a given Number.
5. WAP to SWAP two given values.
6. WAP to find min/max of three given numbers.
7. WAP to print the Multiplication table of a given number.
8. WAP to generate the Fibonacci Series.
9. WAP to convert a given string from Lower Case to Upper Case or Vice Versa.



10. Create an Application using Scroll Barr Control and Text Boxes to mix different colors.
11. Students are supposed to workout 25 SQL queries based on one/two tables.
12. Create five Web Pages using different HTML Tags (Heading, Links, Marquee, Images, Background Color).



ENGLISH LITERATURE

Section A: Poems (from the prescribed text book)

(25 marks)

- | | |
|------------------------------------|-----------------------|
| 1. A Lecture upon a Shadow | John Donne |
| 2. Poems | William Blake |
| 3. Time and Time Again | A.K. Ramanujan |
| 4. Vaakhs | Lal Ded |
| 5. Shrukhs | Sheikh Nooruddin Wali |
| 6. A will in the Name of a New Man | Kehari Singh Madhukar |
| 7. The Wail | Naseem Shafaie |
| 8. A Last Memory of Delhi | Agha Shahid Ali |

Section B: Drama (from the prescribed text book)

(20 marks)

- | | |
|-------------------------|---------------|
| 1. <i>Broken Images</i> | Girish Karnad |
|-------------------------|---------------|

Section C: Essays (from the prescribed text book)

(25 marks)

- | | |
|-----------------------------|----------------|
| 1. Of Delay | Francis Bacon |
| 2. Freedom | G.B. Shaw |
| 3. Film-making | Ingmar Bergman |
| 4. Why the Novel Matters | D.H. Lawrence |
| 5. The Argumentative Indian | Amartya Sen |
| 6. On Science Fiction | Isaac Asimov |

Section D: Novel

(30 marks)

- | | |
|---------------------------------|------------|
| 1. <i>To Kill a Mockingbird</i> | Harper Lee |
|---------------------------------|------------|



Scheme of Assessment for ENGLISH LITERATURE

Maximum Marks: 100

Time: - 3 Hours

The paper shall have four (04) sections based on the textbook published by the J&K Board of School Education and the novel *To Kill a Mockingbird*.

(Section A) Poem (from the prescribed textbook) 25 Marks

1. Two reference to the context questions to be attempted out of four. (100 words) (2x4 = 8)
2. Three questions on poetic devices to be attempted out of six. (40 words) (3x3 = 9)
3. Two questions on theme, structure, background, technique etc to be attempted out of four. (100 words) (2x4 = 8)

(Section B) Drama 20 Marks

Prescribed text: Broken Images by Girish Karnad

4. One question on theme/plot/character/background/technique etc to be attempted out of two. (250 words) (1x10 = 10)
5. One question on incident/scene/character/situation etc to be attempted out of two. (200 words) (1x8 = 8)
6. Two objective type questions including MCQ's true/false, fill in the blanks etc. (1x2 = 2)

(Section C) Essays (from the prescribed textbook) 25 Marks

7. One question on theme/structure/background etc to be attempted out of two. (200 words) (1x8 = 8)
8. Two questions on technique/moral/literary devices etc to be attempted out of four excluding the essays on which Q.7 above is based. (150 words) (2x5 = 10)
9. One reference to the context question to be attempted out of two. (150 words) (1x5 = 5)
10. Two objective type questions including MCQ's, true/false, fill in the blanks etc. (2x1 = 2)

(Section D) Novel 30 Marks

Prescribed text: To Kill a Mockingbird by Harper Lee

11. One question on theme/plot/character/background/narration, etc to be attempted out of two questions. (300 words) (1x15 = 15)
12. Two questions on incident/scene/character/situation/technique/critical appreciation etc to be attempted out of four. (150 words) (2x5 = 10)
13. Five objective type question including MCQ's, true/false, fill in the blanks etc. (1x5 = 5)



PHYSICS

Maximum Marks: 100

Theory: Marks 70

Practicals: Marks 30

Time: 3 hour

I. Electrostatics	08 marks
II. Current Electricity	07 marks
III. Magnetic effects of current and magnetism	08 marks
IV. Electro-magnetic induction and alternating currents	08 marks
V. Electro-magnetic waves	03 marks
VI. Optics	14 marks
VII. Dual nature of matter and radiation	04 marks
VIII. Atoms and Nuclei	06 marks
IX. Electronic devices	07 marks
X. Communication system	05 marks

Unit I : Electrostatics

Electric charges; conservation of charge, coulomb's law – force between two point charges, forces between multiple charges, superposition principle and continuous charge distribution.

Electric field, electric field due to point charge, electric field lines, and electric dipole. electric field due to dipole, Torque on a dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its application to find field due to infinitely long straight wire, uniformly charged infinite plane sheet and uniformly charged thin spherical shell (field inside and outside).

Electric potential, potential difference, electric potential due to point charge, a dipole and system of charges; equipotential surfaces, electric potential energy of a system of two point charges and of electric dipole in an electrostatic field.

Conductor and insulators, free charges and bound charges inside a conductor. Dielectrics and electric polarization, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with and without dielectric medium between the plates, energy stored in a capacitor. Van de Graaff generator.

Unit-II : Current Electricity

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current. Ohm's law, electric resistance. V-I Characteristics, (linear, non-linear), electrical energy and power, electric resistivity and conductivity, carbon resistors, colour code for carbon resistors; Temperature dependence of resistance.

Internal resistance of a cell, potential difference and emf of a cell, combination of cells in series and in parallel. Elementary idea of secondary cells. Kirchoff's laws and their applications. Wheat stone bridge, meter bridge.



Potentiometer-principle and its application to measure potential difference and for comparing e.m.f. of two cells; measurement of internal resistance of a cell.

Unit-III : Magnetic Effects of Current and Magnetism

Concept of magnetic field, Oersted's experiment, Biot-Savart law and its application to current carrying circular loop. Ampere's law and its applications to infinite long straight wire, straight and toroidal solenoids.

Force on a moving charge in a uniform magnetic and electric fields. Cyclotron. Force on a current carrying conductor in a uniform magnetic field. Force between two parallel current carrying conductors-definition of ampere.

Torque experienced by a current loop in uniform magnetic field, moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Current loop as a magnetic dipole and its magnetic dipole moment. Magnetic dipole moment of a revolving electron. Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. Torque on a magnetic dipole (bar magnet) in uniform magnetic field, bar magnet as an equivalent solenoid, magnetic field lines, Earth's magnetic field and magnetic elements. Para, dia, and ferro-magnetic substances with examples. Electromagnets and factors affecting their strength, permanent magnets.

Unit IV : Electro-magnetic Induction and Alternating Currents

Electromagnetic induction, Faraday's laws, induced e.m.f. and current; Lenz's law. Eddy currents, self and mutual inductance.

Alternating currents, peak and rms value of alternating current/voltage. Reactance and impedance, LC oscillations (qualitative treatment only) & LCR circuits series, Resonance, power in A.C. circuits, wattless current, AC Generator and transformer.

Unit-V : Electro-magnetic Waves

Need for displacement current, Electro-magnetic waves and their characteristics (qualitative ideas only), transverse nature of electromagnetic waves.

Electromagnetic spectrum (radio-waves, micro-waves, infra-red, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Unit VI : Optics

Ray Optics - Reflection of light; spherical mirrors; mirror formula, Refraction of light- total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lenses formula, lens-makers formula, Newton's relation: displacement method to find position of images (conjugate points), Magnification, power of lens, combination of thin lenses in contact. Combination of a lens and a mirror, Refraction and dispersion of light through a prism.

Scattering of light-blue colour of the sky and reddish appearance of the sun at sunrise and sunset. Elementary idea of Raman effect.

Optical instruments - Human eye, image formation and accommodation, correction of eye defects (myopia, hypermetropia, presbyopia and astigmatism) using lenses. Microscopes and astronomical telescopes (reflecting and refracting) and their magnifying powers.

Wave optics-wave front and Huygen's principle, reflection and refraction of plane wave at



a plane surface using wavefronts. Proofs of laws of reflection and refraction using Huygen's Principle, Interference, Young's double slit experiment and expression for fringe width, coherent sources and sustained interference of light.

Diffraction due to a single slit, width of central maximum. Resolving power of microscopes and astronomical telescopes. Polarization, plane polarized light, Brewster's law, uses of plane polarized light and polaroids.

Unit VII : Dual Nature of Matter and Radiation

Dual nature of radiation. Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation- particle nature of light.

Matter waves, wave nature of particles, de-Broglie relation, Davisson- Germer experiment (experimental details should be omitted; only conclusion should be explained).

Unit VIII : Atomic Nuclei

Alpha-particle scattering experiment, Rutherford's model of atom, Bohr's Model of atom; energy levels, Hydrogen spectrum. Continuous and characteristics of X-rays. Composition and size of nucleus; atomic masses, isotopes, isobars, isotones, Radioactivity (alpha, beta and gamma) particles/ rays and their properties, Radioactive decay law, Mass – energy relation, mass defect, binding energy/nucleon and its variation with mass no., nuclear fission and nuclear fusion.

Unit IX : Electronic Devices

Energy bands in solids, conductors, insulators and semiconductors, semiconductor diode, I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photo diode, solar cell and Zener diode; Zener diode as a voltage regulator, Junction transistors and its action; characteristics of a transistor, transistor as an amplifier (common emitter configuration and oscillator (common emitter). Logic gates (OR, AND, NOT), concept of NAND and NOR gates, Transistor as a switch.

Unit X : Communication System

Elements of communication system (block diagram only), Band width of signals (speech, T.V and digital data); bandwidth of transmission medium, propagation of electromagnetic waves in the atmosphere, sky and space wave propagation.

Need for modulation; Production and detection of an amplitude modulated wave.



Practicals : 30 marks

External: 20

Internal:10

Every student will perform at least 15 experiments (7 from section A & 8 from section B). The activities mentioned here should be for the purpose of demonstration. One project of three marks is to be carried out by the students.

Evaluation Scheme for Practical Examination:

- One experiment from each of the two sections = 10 marks
- One activity from each of the two sections (2 activities in total) = 2+2= 04 marks
- Record of one Investigatory Project and viva based on Project = 02 marks
- Practical Record of experiments and activities = 02 marks
- Viva-voce on experiments and activity = 02 marks

Total Marks = 20

Section – A

Experiments:

1. To determine resistance per cm. of a given wire by plotting a graph of pot. difference vs. current (Ohm's law).
2. To find resistance of a given wire using metre bridge and hence determine the specific resistance of its material.
3. To verify the laws of combination (series/parallel) of resistance using a metre bridge.
4. To compare the e.m.f of two given primary cells using potentiometre.
5. To determine internal resistance of a given primary cell using potentiometre.
6. To determine resistance of a galvanometre by using half deflection method and also find its figure of merit.
7. To convert the given galvanometre (of known resistance and figure of merit) into an ammetre and voltmeter of desired range and to verify the same.
8. To find the frequency of the a.c. mains with a Sonometre.

Activities:

1. To measure the resistance and impedance of an inductor with or without iron core.
2. To measure resistance voltage (AC/DC), current (AC) and check continuity of a given circuit using multi metre.
3. To assemble a household circuit comprising three bulbs, three (on/off) switches, a fuse and a power source.
4. To study the variation in potential drop with length of a wire for a steady current.
5. To draw the diagram of a given open circuit comprising at least a battery, rheostat, key;



ammeter and voltmeter. Make the components that are not connected in proper order and correct the circuit and also circuit diagram.

Section - B

Experiment:

1. To find the focal length of a convex mirror, using a convex lens.
2. To find the focal length of a concave lens using a convex lens.
3. To find the value of v for different values of u in case of a concave mirror and also to find its focal length.
4. To find the focal length of a convex lens by plotting a graph between u and v or between $1/u$ and $1/v$.
5. To determine angle of minimum deviation (d_m) for a given prism by plotting a graph between angle of incidence and angle of deviation (d_m).
6. To determine refractive index of a glass slab using a traveling microscope.
7. To find refractive index of a liquid using I) concave mirror II) convex lens and plane mirror.
8. To draw the characteristics of a common-emitter npn or pnp transistor and to find out the values of current and voltage gains.
9. To draw the I-V characteristics curve of a p-n junction in forward bias and reverse bias.
10. To draw the characteristic curve of a zener diode and to determine its reverse break down voltage.

Activities:

1. To study effect of intensity of light by varying distance of the source on an L.D.R.
2. To identify a diode, a LED, a transistor, and IC, a resistor and a capacitor from mixed collection of such items.
3. Use of multimeter to i) identify base of transistor ii) Distinguish between npn and pnp-transistors iii) see the unidirectional flow of current in case of a diode and an LED. iv) Check whether a given electronic component (e.g. diode, transistor or IC) is in working order.
4. To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab.
5. To observe polarization of light using two polaroids.
6. To observe diffraction of light due to a thin slit.
7. To study the size and nature of the image formed by i) convex lens, ii) concave mirror, on a screen by using a candle and screen for different distances of the candle from the lens/mirror.
8. To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses.



Investigatory Projects:

1. To investigate whether the energy of a simple pendulum is conserved.
2. To determine the radius of gyration about the centre of mass of a scale used as a bar pendulum.
3. To investigate changes in the velocity of a body under the action of a constant force and determine its acceleration.
4. To compare effectiveness of different materials as absorbers of sound or heat.
5. To determine the wave length of laser beam by diffraction.
6. To study various factors on which the internal resistance, emf of a cell depends.
7. To construct a time switch and study dependence of its time constant on various factors.
8. To study infrared radiations emitted by different sources using photo-transistor.
9. To compare effectiveness of different materials and insulators.
10. To design an automatic traffic signal system using suitable combination of logic gates.
11. To study luminosity of various electric lamps of different powers and make.
12. To compare the Young's modulus of elasticity of different specimens of rubber and also draw their elastic hysteresis curve.

Book Suggested: A Textbook of Physics for class XII published by NCERT, New Delhi.



CHEMISTRY

Maximum Marks: 100

Theory: Marks 70

Practicals: Marks 30

Time: 3 hour

Unit I	Solid State	4 marks
Unit II	Solutions	5 marks
Unit III	Electrochemistry	5 marks
Unit IV	Chemical Kinetics	5 marks
Unit V	Surface Chemistry	4 marks
Unit VI	General Principles and Processes of Isolation of Elements	3 marks
Unit VII	p-Block Elements	8 marks
Unit VIII	d- and f- Block Elements	5 marks
Unit IX	Coordination Compounds	3 marks
Unit X	Haloalkanes and Haloarenes	4 marks
Unit XI	Alcohols, Phenols and Ethers	4 marks
Unit XII	Aldehydes, Ketones and Carboxylic Acids	6 marks
Unit XIII	Organic Compounds containing Nitrogen	4 marks
Unit XIV	Biomolecules	4 marks
Unit XV	Polymers	3 marks
Unit XVI	Chemistry in Everyday Life	3 marks

Unit-I: SOLID STATE

Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous solids and crystalline solids (elementary idea only), unit cell in two dimensional & three dimensional lattices, packing efficiency, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects. Properties of solids (electrical, magnetic & dielectric), Band theory of metals, conductors, semi-conductors and insulators and n & p type semiconductors.

Unit-II: SOLUTIONS

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties: relative lowering of vapor pressure of a solution, Raoult's law, elevation of boiling point, depression in freezing point temperature and osmotic pressure), determination of molecular masses using colligative properties. Abnormal molecular mass, van't Hoff factor and calculations involving it..

Unit-III: ELECTROCHEMISTRY

Redox reactions, conductance in electrolytic solutions, specific conductivity, molar



conductivity, variation of conductivity with concentration, Kohlrausch's law and its applications Electrolysis and laws of electrolysis (elementary idea), dry cell- electrolytic cells and galvanic cells; lead accumulator, emf of a cell, standard electrode potential, Nernst equation and its application to chemical cells, relation between Gibb's energy change and emf of a cell, fuel cells, corrosion

Unit-IV: CHEMICAL KINETICS

Rate of reaction (average and instantaneous rate of a reaction), factors affecting rate of reactions: (concentration, temperature, catalyst), rate law, specific rate constant and order, molecularity of a reaction, integrated rate expression of zero and first order reactions and their derivations, half life period. Concept of collision theory (elementary idea, no mathematical derivation), Activation energy, Arrhenius equation.

Unit-V: SURFACE CHEMISTRY

Adsorption- physical and chemical adsorption, factors affecting adsorption of gases on solids; Catalysis: homogeneous and heterogeneous, activity & selectivity. Enzyme catalysis, Colloidal state: distinction between true solution, colloids and suspensions. Types of colloids- lyophilic and lyophobic, multimolecular, macromolecular and associated colloids (micelles), properties of colloids: Tyndall effect, Brownian movement, Electrophoresis, Coagulation, Emulsions-types of emulsions. Elementary idea about nanomaterials.

Unit-VI: GENERAL PRINCIPLES AND PROCESSES OF ISOLATION OF ELEMENTS

Principles and methods of extraction: concentration, oxidation, reduction, electrolytic method & refining; occurrence & principles of extraction of aluminium, copper, zinc and iron.

Unit- VII: p-BLOCK ELEMENTS

Group 15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen: preparation, properties & uses. Compounds of nitrogen: preparation & properties of ammonia and nitric acid, oxides of nitrogen (structure only), Phosphorus – allotropic forms; compounds of phosphorus: preparation & properties of phosphine, halides (PCl_3 , PCl_5) and oxo- acids (elementary idea only).

Group 16 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; dioxygen: preparation, properties & uses. Classification of oxides; ozone. Sulphur- allotropic forms; compounds of sulphur: preparation, properties & uses of SO_2 and Sulphuric acid: industrial process of manufacture, properties and uses, other oxides and oxoacids of sulphur (structures only).

Group 17 Elements: General introduction, electronic configuration, oxidation states, trends in physical and chemical properties; compounds of halogens-preparation, properties and uses of Chlorine and hydrochloric acid, interhalogen compounds, oxoacids of halogens (structures only)

Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical & chemical properties & Uses.

Unit- VIII: d and f-BLOCK ELEMENTS

General introduction, electronic configuration, occurrence and characteristics of the transition metals, general trends in properties of first row transition metals (metallic character, IE, electrode



potential, oxidation state, ionic radii, catalytic properties, colored ions, complex formation, magnetic properties, interstitial compounds, alloy formation). Preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$.

Lanthanides: electronic configuration, oxidation state, chemical reactivity and lanthanide contraction and its consequences.

Actinides- electronic configuration, oxidation states and comparison with lanthanoids.

Unit- IX: CO-ORDINATION COMPOUNDS

Co-ordination compounds: Introduction, ligands, co-ordination number, color, magnetic properties and shapes, IUPAC nomenclature of mononuclear co-ordination compounds. Bonding (Werner's theory, VBT and CFT); structural and stereoisomerisms, importance of coordination compounds in qualitative inclusion of analysis, extraction of metals and biological systems.

Unit-X: HALOALKANES AND HALOARENES

Haloalkanes: Nomenclature, nature of C-X bond, physical & chemical properties, mechanism of substitution reactions. Stability of carbocations, R-S and d-l configurations.

Haloarenes: Nature of C-X bond, substitution reactions (directive influence of halogens for monosubstituted compounds only), Stability of carbocations, R-S and D-L configurations

Uses and environmental effects of- dichloromethane, trichloromethane, tetrachloromethane, iodoform, freon, and DDT.

Unit- XI: ALCOHOLS, PHENOLS AND ETHERS

Alcohols: Nomenclature, methods of preparation, physical & chemical properties (of primary alcohols only), identification of primary, secondary & tertiary alcohols; mechanism of dehydration of alcohols, uses, some important compounds – methanol and ethanol.

Phenols: Nomenclature, methods of preparation, physical & chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.

Ethers: Nomenclature, methods of preparation, physical & chemical properties and uses.

UNIT- XII: ALDEHYDES, KETONES AND CARBOXYLIC ACIDS

Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical & chemical properties & mechanism of nucleophilic addition reaction to C = O group, reactivity of alpha hydrogen in aldehydes, uses.

Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical & chemical properties and uses

UNIT- XIII: ORGANIC COMPOUNDS CONTAINING NITROGEN

Amines: Nomenclature, classification, structure, methods of preparation, physical & chemical properties, uses, identification of primary, secondary & tertiary amines.

Cyanides and Isocyanides: Structures of cyanide and isocyanide groups, nomenclature, preparation, physical properties and chemical reactions.



Diazonium Salts: Preparation and chemical reactions (mechanism of diazotization), and importance in synthetic organic chemistry.

UNIT- XIV: BIOMOLECULES

Carbohydrates: Classification (aldoses and ketoses), monosaccharides: Glucose, fructose: structure, preparation and chemical reactions; oligosaccharides (sucrose, lactose & maltose) Polysaccharides: (starch, cellulose and glycogen); importance.

Proteins: Elementary idea of amino acids: peptide bond, polypeptides and primary, secondary, tertiary and quaternary structure of proteins (Qualitative idea only). denaturation of proteins; enzymes, lipids & hormones, their classification & functions.

Nucleic Acids: DNA and RNA (purines and pyrimidines, nucleosides, nucleotides and fragments up to four nucleotides).

Vitamins: Classification and functions, sources and deficiency diseases.

UNIT- XIV: POLYMERS

Natural & synthetic polymers, methods of polymerization (addition and condensation), copolymerization, and some important polymers: natural and synthetic like polythene, nylon, Bakelite, polyesters and rubber. Biodegradable and non- biodegradable polymers.

Unit-XVI: CHEMISTRY IN EVERYDAY LIFE

- i) **Chemicals in medicine and health care-** analgesics, tranquillizers, antiseptics, disinfectants, antimicrobials, anti-fertility drugs, anti-histamines, antibiotics, antacids.
- ii) **Chemicals in food-** preservatives, artificial sweetening agents.
- iii) **Cleansing agents** – Soaps and detergents, cleansing action.

PRACTICALS

External: 20

Internal:10

Evaluation Scheme for Practical Examination:

- Volumetric analysis	=	06 marks
- Salt Analysis	=	06 marks
- Content based experiment	=	04 marks
- Class record, Project work and viva	=	04 marks
		Total = 20 marks

A. SURFACE CHEMISTRY

- i) Preparation of one lyophilic and one lyophobic sol
Lyophilic sol-starch, egg albumin and gum
Lyophobic sol-aluminium hydroxide, ferric hydroxide, arsenious sulphide.
- ii) Study of the role of emulsifying agents in stabilizing the emulsion of different oils.



B. CHEMICAL KINETICS

- i) Effect of concentration and temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid.
- ii) Study of reaction rates of any one of the following:
 - a) Reaction of iodide ions with hydrogen peroxide at room temperature using different concentration of iodide ions.
 - b) Reaction between potassium iodate (KIO_3) and sodium sulphite (Na_2SO_3) using starch solution as indicator (clock reaction).

C. THERMOCHEMISTRY

Any one of the following experiments:

- i) Enthalpy of dissolution of CuSO_4 or KNO_3 .
- ii) Enthalpy of neutralization of strong acid (HCl) and strong base (NaOH).
- iii) Determination of enthalpy change during interaction (Hydrogen bond formation) between acetone & chloroform.

D. ELECTRO CHEMISTRY

- i) Variation of cell potential in $\text{Zn}/\text{Zn}^{2+} // \text{Cu}^{2+}/\text{Cu}$ with change in concentration of electrolytes (CuSO_4 or ZnSO_4) at room temperature.

E. CHROMATOGRAPHY

- i) Separation of pigments from extracts of leaves and flowers by paper chromatography and determination of R_f values.
- ii) Separation of constituents present in an inorganic mixture containing two cations only (constituents having wide difference in R_f values to be provided)

F. PREPARATION OF INORGANIC COMPOUNDS

- i) Preparation of double salt of ferrous ammonium sulphate or potash alum.
- ii) Preparation of potassium ferric oxalate.

G. TEST FOR THE FUNCTIONAL GROUPS PRESENT IN ORGANIC COMPOUNDS

Unsaturation, alcoholic, phenolic, aldehydic, ketonic, carboxylic and amino (primary) groups.

H. Study of carbohydrates, fats and proteins in pure form and detection of their presence in given foodstuffs.

I. Determination of concentration/ molarity of KMnO_4 solution by titrating it against a standard solution of:

- i) oxalic acid
- ii) ferrous ammonium sulphate.



J. Qualitative Analysis

Determination of one cation and one anion in a given salt (insoluble salts to be excluded):

Cations: Pb^{2+} , Cu^{2+} , As^{3+} , Al^{3+} , Fe^{3+} , Mn^{2+} , Zn^{2+} , Ni^{2+} , Co^{2+} , Ca^{2+} , Sr^{2+} , Ba^{2+} , Mg^{2+} , NH_4^+

Anions: CO_3^{2-} , S^{2-} , SO_3^{2-} , SO_4^{2-} , NO_2^- , NO_3^- , Cl^- , Br^- , I^- , PO_4^{3-} , $\text{C}_2\text{O}_4^{2-}$, CH_3COO^-

PROJECT WORK

Wherever feasible may include

1) Model Preparation

2) Investigatory Project

- To prepare rayon thread from filter paper by cupra ammonium process.
- Determine the oxalate content of Guava fruits at different stages of ripening.
- Study of insecticides and pesticides in various fruits and vegetables.
- To determine the amount of casein present in different samples of milk from different sources.
- Preparation of soyabean milk and its comparison with natural milk.
- To determine the presence of adulterants in common foods such as sugar, butter, oil, red chilly paper, turmeric powder, rice.
- Prevention of rusting of iron by using cathode protection method.

3) Science Exhibits.

4) Participation in Science Fairs

Book Suggested: Textbook of Chemistry for class XII published by NCERT, New Delhi



BIOLOGY

Maximum Marks: 100

Theory: Marks 70

Time: 3 hour

Practicals: Marks 30

SECTION A (Botany)

Marks: 35

Unit-I: Reproduction in Flowering Plants

Marks:07

Asexual Reproduction: Vegetative propagation in plants, micropropagation.

Sexual Reproduction: Flower structure, Development of male & female gametophytes. Pollination: types, agencies & examples, Out breeding devices. Pollen- Pistil interaction, Double fertilization, Post fertilization events, Development of endosperm, embryo, seed and fruit. Special modes: apomixis and polyembryony, significance of seed & fruit formation.

Unit-II: Genetics

Marks 09

- Heredity and variation
- Mendelian inheritance, Deviations from Mendelism: incomplete dominance, co-dominance, Multiple alleles, Pleiotropy, Chromosomal theory of inheritance, Elementary idea of polygenic inheritance, Chromosomes & genes,
- Search for genetic material & DNA as genetic material: Structure of DNA & RNA, DNA packaging, DNA Replication (Semiconservative), Central dogma, Protein Biosynthesis: Transcription, translation, genetic code, Gene expression and regulation (lac-operon).

Unit-III: Biology and Human welfare

Marks: 07

- **Plant breeding:** Introduction, steps in plant breeding and application of plant breeding, and single cell protein, Biofortification.
- **Tissue culture:** Cellular totipotency, technique and application of tissue culture
- **Microbes in Human Welfare:** in household food processing, industrial production, sewage treatment, Production of energy (Biogas), biocontrol agent (Biopesticides) & Biofertilizers.
- Genetically Modified organism- Bt crops
- Biopiracy and patents.

Unit- IV: Ecology and Environment

Marks: 12

Meaning of ecology, environment, habitat and niche: Organisms and environment.

Population and ecological adaptations: Population Interactions-mutualism, competition, predation, parasitism. Population attributes-growth, birth rate and death rate, age distribution.

Ecosystems: Patterns, Components, energy flow, nutrient cycling (carbon and phosphorus), decomposition and productivity. Pyramids of number, biomass, energy. Ecological succession. Ecological Services: Carbon fixation, Pollination, Oxygen release.

Biodiversity and its conservation: Threats to, and need for biodiversity conservation. Hotspots, endangered organisms, extinction, Red Data Book. Biodiversity conservation-biosphere reserves, national parks and sanctuaries.



Environmental Issues: Air and water pollution and their control, solid waste management, agrochemicals and their effects, Radioactive waste management, Green house effect and global warming, Ozone depletion in stratosphere, Deforestation, Any three case studies as success stories addressing environmental issues.

SECTION B (Zoology)

35 Marks

Unit-I : Reproduction

Marks 11

- i) **Asexual Reproduction:** Uniparental, modes: binary fission, sporulation, budding, gemmule, fragmentation, regeneration.
- ii) **Human Reproduction-** Male and female reproductive systems, Microscopic anatomy of testis & ovary; Gametogenesis (spermatogenesis & oogenesis. Menstrual cycle), Fertilization, embryo development upto blastocyst formation, implantation; Pregnancy and placenta formation (elementary idea), Parturition (elementary idea) and Lactation (elementary idea).
- iii) **Reproductive Health:** Need for reproductive health & prevention of Sexually Transmitted Diseases (STD), Birth control- need & methods, Contraception and Medical Termination of Pregnancy (MTP), Amniocentesis, Infertility & assisted reproductive technologies: IVF, ZIFT, GIFT (Elementary idea for general awareness).

Unit-II: Genetics and Evolution

Marks 12

- Sex determination in humans, birds and honeybee.
- Inheritance pattern of Hemophilia and Color blindness in human beings.
- Mendelian Disorders in humans: Chromosomal disorders in humans, Down's syndrome, Turner's & Klinefelter's syndromes.
- Genome and Human Genome project.
- DNA fingerprinting.
- Origin of life: Theories & evidences with special reference to Darwin & Modern Synthetic theory of evolution, Hardy – Weinberg's principal. Adaptive radiation.
- Origin and evolution of Man.

Unit-III : Biology and Human Welfare

Marks 07

- **Health and Disease:** Basic concepts of immunology, vaccines; pathogens, parasites causing human diseases (Typhoid, Hepatitis, Malaria, Filariasis, Ascariasis, Common Cold, Amoebiasis, Ring Worm); Cancer, HIV and AIDS.
- **Insects & human welfare:** Silk, honey, lac.
- Adolescence, drug & alcohol abuse.
- Poultry, Dairy Farming

Unit IV: Biotechnology and its Application

Marks 05

- i) Genetic Engineering (Recombinant DNA technology), cloning
- ii) Applications in Health: Human insulin & vaccine production, gene therapy
- iii) Biosafety issues.



Practicals
External: 20

Time: 3 Hours
Internal: 10

Marks: 30

Botany based Practical: 15 Marks

- i) Internal assessment: 05 marks
- ii) External assessment: 10 marks

Zoology based Practical: 15 Marks

- i) Internal assessment: 05 marks
- ii) External assessment: 10 marks

List of Experiments

1. Study pollen germination on a slide.
2. Collect and study soil from at least two different sites and study them for texture, moisture content, pH and water holding capacity of soil. Correlate with the kinds of plants found in them.
3. Collect water from two different water bodies around you and study them for pH, clarity and presence of any living organisms.
4. Study the presence of suspended particulate matter in air at the two widely different sites.
5. Study of plant population density by quadrat method.
6. Study of plant population frequency by quadrat method.
7. Prepare a temporary mount of onion root tip to study mitosis.
8. To study the effect of the different temperatures and three different pH on the activity of salivary amylase on starch.

Study/observation of the following (Spotting)

1. Flowers adapted to pollination by different agencies (wind, insect)
2. Pollen germination on stigma through a permanent slide.
3. Identification of stages of gamete development i.e. T.S. testis and T.S. ovary through permanent slides. (from any mammal)
4. Meiosis in onion bud cell or grasshopper testis through permanent slides.
5. T.S. of blastula through permanent slides.
6. Mendelian inheritance using seeds of different color / size of any plant.
7. Prepared pedigree charts of genetic traits such as rolling of tongue, blood groups, widow's peak, and color blindness.
8. Exercise on controlled pollination-Emasculation, tagging and bagging.
9. Identification of common disease causing organisms like Ascaris, Entamoeba, Plasmodium, Ringworm through permanent slides or specimens. Comment on symptoms of diseases that they cause.
10. Two plants and two animals found in xerophytic conditions. Comment upon their morphological adaptations.
11. Plants and animals found in aquatic conditions. Comment upon their morphological adaptations.

Book Prescribed: A Textbook of Biology for class XII published by NCERT, New Delhi.



BIOTECHNOLOGY

Maximum Marks=100

Theory=70 Marks

Practical=30 Marks

UNIT I :- Recombinant DNA Technology

15 Marks

- Introduction,
- Tools of DNA Technology,
- Vectors-plasmid, cosmid, phage, BAC and YAC, animal and plant viral vectors,
- Enzymes used in cloning-Restriction enzymes, DNA ligase and Alkaline phosphatase,
- Host cells, Marking recombinant DNA, Introduction of recombinant DNA into host cells,
- Identification of recombinants, DNA library (Elementary Idea)
- DNA isolation from bacteria, Plants and blood, Plasmid DNA isolation, Polymerase chain reaction,
- DNA probes DNA hybridization techniques-Southern and Northern blotting, DNA sequencing-chain termination method, Site directed mutagenesis.(Brief Idea)

UNIT II :- Protein Structure and Engineering

15 Marks

- Introduction to the world of protein,
- 3-D shape of proteins,
- Structure- function relationship in proteins-Chymotrypsin and Hemoglobin,
- Purification of proteins- salting out, chromatography, Dialysis, SDS-PAGE, Western blotting,
- Characterization of proteins- Two dimensional gel electrophoresis, Peptide mapping, Protein sequencing, Mass spectrometry,
- Protein based products- blood products and vaccines, enzymes, antibodies, hormones and growth factors, industrial enzymes, non catalytic proteins, nutraceutical proteins,
- Designing proteins- Improving laundry detergent Subtilisin, Creation of novel proteins, Improving nutritional value of cereals and legumes, Proteomics- basic idea.



UNIT III :- Genomics and Bioinformatics

10 Marks

Introduction, Genomics, Structural genomics and Functional genomics, Genome sequencing projects- Directed sequencing of Bacterial Artificial Chromosome (BAC) contigs, Random shotgun sequencing, Genome Similarity, SNPs and Comparative Genomics.

Introduction to Bioinformatics, Information sources- Major databases (NCBI, Entrez and EMBL), BLAST family of search tools, Analysis using Bioinformatics tools.

CELL CULTURE TECHNOLOGY

UNIT IV :- Microbial cell culture and applications

10 Marks

Introduction, Microbial culture techniques- Nutrient for microbial culture, Culture Procedures, Equipment for microbial culture, Types of microbial culture- Batch culture, Fed-batch culture and Continuous culture, Measurement and kinetics of microbial growth, Microbial growth measurement: quantifying cell concentration.

Scale-up of microbial processes, Isolation of microbial products, Strain isolation, improvement, metgenomics and preservation, Culture Collections Centers, Applications of microbial culture technology, Biosafety issues in Microbial Technology.

UNIT V :- Plant cell culture and applications

10 Marks

Introduction, Cell and Tissue Culture Techniques- Nutritional media, Types of cultures, Plant regeneration pathways, Applications of Cell and Tissue culture- Micro propagation, Virus-free plants, Artificial seeds, Embryo rescue, Haploids and Triploids, Somatic hybrids and cybrids, Production of Secondary metabolites, Somaclonal variation, In vitro plant germplasm conservation,

Gene transfer methods in plants- vector and non-vector mediated, Transgene analysis- a brief idea),

Transgenic plants with beneficial traits- Stress tolerance (biotic and abiotic), Delayed fruit ripening, Male sterility, Transgenic plants as bioreactors (Molecular farming), Metabolic engineering and secondary products, Biosafety issues in Plant Genetic Engineering.

UNIT VI :- Animal cell culture and applications

10 Marks

Introduction, Animal Cell Culture Techniques- Features of animal cell growth in culture, Primary Cell Cultures, Secondary Cell Cultures and cell lines, Types of cell lines, Finite Cell Lines, Continuous Cell Lines, Physical environment for culturing Animal Cells- Temperature, pH, Osmolality, Medium, Serum and Antibiotics, Vessels and Equipments, Characterization of Cell Lines, Storage and Revival of cells.



Methods of Gene Delivery into cells, Scale-up of Animal Culture Process, Applications of Animal Cell culture, Hybridoma Technology, Stem Cell Technology, Tissue engineering- a brief idea.

Practicals:

30 Marks

1. Precipitation of serum albumins and globulins by ammonium sulphate.
2. Separation of plant pigments/amino acids by paper chromatography
3. Isolation of genomic DNA from bacteria/plant/blood.
4. Analysis of genomic or plasmid DNA using agarose gel electrophoresis
5. Download a DNA, mRNA and a Protein sequence from NCBI, analyze and comment on it.
6. Culture bacteria by Streak Culture Technique.
7. Production and estimation of ethanol from microbial culture.
8. Preparation of explants for plant tissue culture.
9. Preparation of Murashige Skoog medium.
10. Synthesis of artificial seed.
11. Blood group typing.
12. Cell viability test by dye exclusion method.

Project work:

- a. Lab visits, sum up the list of equipments, facilities and conditions and their utilities.
- b. Interaction with a faculty/ Ph.D scholar during visit and submit a report on the work that is being carried out by the duo.
- c. Access the internet at www.ncbi.nlm.nih.gov or www.google.com and download the articles form and any of the discipline pertaining to syllabus and critically comment on the download articles.
- d. Field visit to plant gene banks of IIM(Jammu/Srinagar or DRDO(Leh) or and Biotechnology departments of SKUAST Jammu/Kashmir or Universities of J&K/ Ladakh/Colleges.

Scheme of Evaluation

Internal Assessment: 10 Marks

Project work : 06 Marks

Viva: 04 Marks

External Assessment: 20 Marks

One Experiment 12 marks

Practical record: 04 Marks

Viva: 02 Marks

Attendance: 02 Marks.



MICROBIOLOGY

Maximum Marks: 100

Theory : 70 Marks

Time: 03 hr

Practical: 30 Marks

External : 20 Marks

Internal : 10 Marks

Unit I: Host Microbe Interaction

Marks 11

Chapter I: Host-microbe relationship and disease process: mutualism, commensalism and parasitism. Pathogen virulence, infection, pathogenicity and disease. Classification of diseases like infectious, non-infectious, congenital, communicable, non-communicable, contagious and zoonotic.

Chapter II: Epidemiology: Definition, Carrier state, Prevalence, Incidence of diseases, Case fatality, transmission of diseases by contact, water, food, soil and air. Sporadic, epidemic, endemic and pandemic.

Unit II: Bacterial Genetics

Marks 12

Chapter III: Historical background, DNA structure, replication, RNA types, plasmids and transposons, genetic code, protein synthesis (transcription, translation), *lac* operon, Mutation, recombination (conjugation, transduction and transformation).

Chapter IV: Gene cloning, definition and steps. Vectors (plasmid, bacteriophage, cosmid) .

Unit III: Immunology

Marks 12

Chapter V: Introduction and history of Immunology. Immunity: specific and non specific, innate and acquired. Antigens and haptens and their characteristics. Antibody (polyclonal and monoclonal).

Chapter VI: Organs and cells of immune system. Humoral and cell mediated immunity. Structures and classes of immunoglobulin, Phagocytosis, Complement system, Hypersensitivity, Vaccines, Interferons.

Unit IV: Applied Microbiology

Marks 20

Chapter VII: Environmental Microbiology

Air: Microorganisms found in air. Methods of controlling microorganisms in air.

Soil: Microorganisms in soil, Brief outline of bio- geochemical cycles (carbon, nitrogen, phosphorus and sulphur).

Water: Microflora of fresh water and marine environment, Water pollution, Presumptive coliform count. Bacteriological standards of safe drinking water. Sewage Treatment. Definition of biodegradation, bioremediation, biocontrol and biosafety. .



Chapter VIII: Food Microbiology

Microorganisms commonly found in food and food products, Food poisoning, Prevention of food borne diseases, Pasteurization of milk. Definition of fermentation.

Unit V: Diseases

Marks 15

Definition, Etiology, transmission, Pathogenesis, diagnosis and control of Human diseases (AIDS and tuberculosis), Animal diseases (Rabies and Brucellosis) and Plant diseases (Apple scab and Rice blast).

Practical

1. Sterilization by autoclave and hot air oven
2. Media preparation: Nutrient broth and agar
3. Demonstration of motility by hanging drop method.
4. Demonstration of colony characteristics
5. Lactophenol, cotton blue, staining of fungi.
6. Visit to govt. institutions (microbiology laboratories) for demonstration and working of refrigerator, deep freeze, bacteriological loop, ELISA reader, thermal cyclor, fermenter etc.
7. Project work with ten page write up on any one : like collection and transport of clinical sample, serum separation, sample preservation, antibiotic sensitivity test.



TRAVEL, TOURISM AND HOTEL MANAGEMENT

Max Marks : 100

Time : 03 Hours

Part A: TRAVEL & TOURISM MANAGEMENT (ADVANCED)

- Unit I** Travel Agency & Tour Operator – Definition & Differentiation, Origin, History & Development, Types of Travel Agency – Group, Retail, Outbound, Inbound & Independent Tour Operations. **Marks 10**
- Unit II** Functions of Travel & Tour Operations: Ticketing, Reservations, Itinerary preparation, Tour packaging – Concept, Organisations & Agencies in Tour packaging, Various Types of Tour packages. **Marks 10**
- Unit III** Significance of Linkages, Networking & Coordination in travel trade, Coordination with Accommodation & Transport Sector, Public sector tourism organizations, Shopping enterprises, Various Concessions, Discounts & other Incentives offered by Hospitality, Transportation & other sectors of tourism to Travel agents & Tour operators. **Marks 10**
- Unit IV** Concept of Carrying Capacity, Meaning and Concept of Tourism Impacts, Types of Impacts; Physical, Socio-cultural, Economic, Tourism Organizations: PATA and IATA, MAP WORK: Location of important Tourist Destinations of J & K in the tourist map. **Marks 10**
- Unit V** Introduction and Concept of Marketing, Approaches to marketing, components of marketing -mix with special reference to tourism. **Marks 10**

Part B: HOTEL MANAGEMENT (ADVANCED)

- Unit I FRONT OFFICE** **Marks 10**
Front Office operations, Organization Chart, Staffing, Scheduling, Work Shifts, Job Specifications and Job Descriptions of Front Office Personnel.
- Unit II HOUSE KEEPING** **Marks 10**
Meaning and Definition of House keeping, Importance of House keeping, Responsibility of House keeping Department, a Career in House keeping Department.
- Unit III FOOD AND BEVERAGE** **Marks 14**
Introduction to Food & Beverage Industry, Types of Catering Establishments, Introduction to Food and Beverage Operations, F& B service areas in a Hotel, Restaurant, Coffee Shops, Room service, Bars, Banquet, Discotheques, Still rooms, Grill room, Snack bar, Executive Lounges, Business Centres and Night Clubs



Unit IV COMMUNICATION SKILLS

Marks 10

Verbal and Non-verbal, Telecommunication Skills ;Telephonic situations/ Queries Handlings, e-Telecommunication.

Unit V ACCOUNTING

Marks 06

Journal, Ledger and Cash book, Trading account, Profit & Loss Account and Balance sheet.

REFERENCES:

1. Travel Agency & Tour Operations: Concepts and Principles – Jagmohan Negi.
2. Tourism Development and its Impacts – S P Bansal, Sai Printographer, New Delhi
3. Tourism and Travel Concepts and Principles-Jagmohan Negi.
4. Front office training manual by Sudhir Andrews, Tata McGraw Hills



BIOCHEMISTRY

Maximum Marks: 100

Theory: 70 marks

Time: 3 hours

Practical: 30 marks

UNIT I: METABOLISM IN BIOCHEMISTRY I:

Chapter 01:

Carbohydrate Metabolism: ATP as energy currency of cell. Aerobic and Anaerobic Glycolysis. Mitochondrial reactions of TCA cycle, Various photosystems for electron transport chain. Elementary idea of Glycogenesis and Glycogenolysis. **(7 marks)**

Chapter 02:

Amino acid metabolism: Deamination, Decarboxylation and Transamination of Amino acids. **(6 marks)**

UNIT II: METABOLISM IN BIOCHEMISTRY II:

Chapter 01:

Lipid Metabolism: Action of Lipases, beta oxidation of fatty acids, Activation of fatty acids. Atherosclerosis **(6 marks)**

Chapter 02:

Elementary idea of salvage and de novo pathway of nucleotides. LeschNyhan Syndrome. **(4 marks)**

Chapter 03: Metabolic Disorders: Overview of metabolic disorders. Phenylketonuria, Alkaptonuria, Albinism, Tyrosinemia. **(4 marks)**

UNIT III: CHEMICAL MESSANGERS:

Chapter 01:

Introduction of Hormones. Nature and properties of Hormones. Classification of hormones on the basis of chemical nature. Physiological and Biochemical role of Cortisol, Cortisone, Aldosterone, Progesterone and Testosterone. **(7 marks)**

Chapter 02:

Peptide hormones: Physiological and Biochemical role of Thyroxine (T3 & T4), Insulin and Glucagon. Role of Vassopresin. **(6 marks)**

UNIT IV: PLANT BIOCHEMISTRY:

Chapter 01:

Plant Hormones: Physiological and Biochemical role of Plant hormones, Auxins, Gibberlins and Cytokinins. **(5 marks)**

Chapter 02:

Photosynthesis: Light phase (Cyclic and Non Cyclic Phosphorylation). C3, C4 and CAM pathway. **(7 marks)**



UNIT V: MOLECULAR BIOLOGY AND IMMUNOLOGY:

Chapter 01:

Genomics: Replication of DNA. DNA polymerases and their function. Leading and lagging strand synthesis. Transcription. Initiation, elongation and termination. Activation of amino acids, aminoacyl tRNA. Initiation elongation and termination of translation. **(8 marks)**

Chapter 02:

Introduction to immunology: Cells of immune system. Immunoglobulins and types (Elementary idea). Humoral and cell mediated immunity. **(4 marks)**

UNIT VI: APPLICATION AND SCOPE OF BIOCHEMISTRY:

(6 marks)

Genetic engineering, Gene Cloning (Concept), Application of Genetic engineering in Fermentation, Forensic and clinical usage. Various non-communicable diseases like Cancer, AIDS.

PRACTICAL

30 marks

I. Laboratory course:

1. Handling of Biological samples for various tests and estimations.
2. Centrifugation: basic principles and separation of plasma.
3. Quantitative estimation of Glucose.
4. Paper chromatography of amino acids Alanine and Glycine.
5. Collection of blood samples aseptically.
6. Blood grouping.

II. Institutional visits:

- Lab visits and get to know about the equipment's and lab conditions.
- Get to know about sampling of blood and tissue for various tests.
- The students will interact with the Scholars of the concerned Institutions, have an Interaction session and develop a write up of the interaction.

III. Project work:

- a. Collection of blood samples and separation of plasma and sera using centrifugation.
- b. Quantitative estimation of
 - Serum Glucose
 - Serum Cholesterol
 - Serum Bilirubin.
- c. Separation of RBC Ghost cell.



ENVIRONMENTAL SCIENCE

Maximum Marks: 100
Theory: 70 Marks

Time: 3 Hours.
Practical: 30 Marks

UNIT 1 : Air and Noise Pollution

(10 Marks)

- Air pollution : sources and types
- Impact of air pollution on environment
- Control of air pollution (gaseous and particulate matter)
- Noise pollution : sources and effects on health
- Control of noise pollution

UNIT 2 : Water Pollution

(10 Marks)

- Water pollution : sources and impacts
- Concept of eutrophication and bio magnification
- Marine pollution
- Water pollution control
- Sewage treatment (primary and secondary)

UNIT 3 : Soil Degradation

(10 Marks)

- Soil composition and profile
- Soil types (Indian classification of soils)
- Soil erosion : causes, impacts and control
- Soil pollution : causes and impacts
- Control of soil pollution

UNIT 4 : Solid and Hazardous Waste Management

(10 Marks)

- Solid Wastes: sources, generation and impacts.
- Disposal of solid wastes (composting, incineration, sanitary landfill)
- Management of solid waste.
- Hazardous waste : definition and characteristics
- Management of hazardous waste (deep well injection, plasma torch, incineration)

UNIT 5 : Biodiversity Management

(10 Marks)

- Biodiversity and its levels
- Importance of biodiversity
- Threats to biodiversity : causes and impacts
- Concept of threatened species (as per IUCN : extinct, endangered, vulnerable, rare)
- Biodiversity conservation : in-situ, ex-situ



UNIT 6 : Global Environmental Issues

(10 Marks)

- Climate change and global warming : causes, impacts and international efforts for combating global warming (Kyoto protocol)
- Ozone layer depletion: causes, impacts and global efforts for control (Montreal protocol)
- Acid rain: causes, impacts and control.
- Smog and its types.
- Desertification and its control.

UNIT 7 : Environmental Management and Legislation:

(10 Marks)

- Concept of sustainable development
- Environmental Impact Assessment: Scope and Key Elements.
- Salient features of Water (Prevention and Control of Pollution) Act, 1974.
- Salient features of Air (Prevention and Control of Pollution) Act, 1981.
- Salient features of Environment Protection Act, 1986.

PRACTICALS:

1. Determination of pH of different water and soil samples.
2. Determination of soil texture using feel method.
3. Documentation of macrophytic aquatic plants.
4. Visit to a nearby lake/wetland/river/hydropower plant and preparation of a field report.
5. Collection of data regarding different types of solid waste generated in your locality.
6. Compilation of names of different endangered and endemic plant and animal species of your locality.



PHYSICAL EDUCATION

Max. Marks 100

Theory: 60 Marks

Practical: 40 Marks (External: 25, Internal: 15)

Time: 2.30 hrs.

THEORY

Unit I. PHYSICAL FITNESS

05 Marks

- Meaning and importance of Physical Fitness
- Components and types of Physical Fitness
- Factors effecting Physical Fitness

Unit II. TRAINING METHODS

10 Marks

- Meaning and concept of training.
- Methods of training: Isometric and Iso-kinetic Exercise, Continuous Method, Interval Training and Fertlek, Circuit training, Acceleration Runs and Pace Races.

Unit III. SOCIOLOGICAL ASPECTS OF PHYSICAL EDUCATION

10 Marks

- Meaning of Sociology and its Importance in Physical Education and Sports.
- Games and Sports as man's cultural heritage.
- Development of leadership qualities and group dynamics through Physical Education.
- Value Education through Physical Education programmes.

Unit IV. MORAL EDUCATION

05 Marks

- Need and Importance of Moral Education.
- Moral Education through Physical Education.

Unit V. SPORTS AND ENVIRONMENT

10 Marks

- Concept of environment.
- Need of environment in physical education programme.
- Role of individual in improvement of environment for health promotion and prevention of sports related accidents.

Unit VI. YOGA

05 Marks

- Meaning and importance of yoga.
- Yoga and Indian heritage.
- Elements of Yoga.



Unit VII. CONCEPT OF MAJOR GAMES/ SPORTS

10 Marks

- Cricket, Athletics, Basketball and Table Tennis.
- History of games (Above Games)
- Rules, measurement of the field/court. (Above Games)

Unit VIII. SPORTS MEDICINE FIRST AID REHABILITATION

05 Marks

- Meaning and Importance of Sports Medicine
- Doping (meaning and drugs for doping)
- First Aid and Rehabilitation of the following sports injuries:
 - Acute injuries: such as dehydration, heat stroke and exercise-induced asthma.
 - Chronic injuries: such as aches and pain of unknown origin, tendinitis (swelling in the tendons), and stress fractures (hairline fractures of the bone due to overuse).

PRACTICAL:

40 Marks

Internal Assessment:

15 Marks

Internal assessment shall comprise Games/ sports (kho-kho, badminton, shot put) and Project work. The break up of the marks is as under:

- | | |
|---|----------|
| 1. Games/ Sports (kho-kho, badminton, shot put) | 10 Marks |
| 2. Trekking | 05 Marks |

External Assessment:

25 Marks

External assessment shall comprise skill test of Games/ sports (any game/ sport of student's choice) and Record file (the students shall maintain the practical file by drawing the field/ court with measurement and rules of the games/sports. The break up of the marks is as under:

- | | |
|---|----------|
| 1. Skill test of Games/sports. (students choice game) | 15 Marks |
| 2. Record file | 05 Marks |
| 3. Vivo-voce | 05 Marks |



BUDDHIST STUDIES

Max. Marks: 100 Marks

Time Allowed: 03 hours

I. Trisharanagamana (Refuge to Three Jewels)	Marks 10
II. Panchashila	Marks 10
III. Karma and Re-birth	Marks 10
IV. Post Gautama Buddha Preceptors	Marks 10
V. Buddhism and Modern World	Marks 10
VI. Introduction to Sacred Books of Buddhism	Marks 10
VII. Introduction to Sadalankara (Six Acharyas of Buddhism)	Marks 10
VIII. Bodhichitta	Marks 10
IX. Paramita	Marks 10
X. Introduction to the Buddhist Art and Architecture	Marks 10

Unit I : Trisharanagamana

- (i) Definition of Taking Refuge
- (ii) Cause for Taking Refuge
- (iii) Literal Meaning of Jewel
- (iv) Precepts Concerning Taking Refuge
- (v) Benefits of Taking Refuge

Unit II : Panchashila

- (I) Classification of Panchashila
- (II) Explanation of Panchashila

Unit III : Karma and Rebirth

- (i) Definition of Karma
- (ii) Classification of Karma
- (iii) Concept of Re-birth

Unit IV : Post Gautama Buddha Preceptors

- (i) Mahakashyapa
- (ii) Ananda
- (iii) Upagupta
- (iv) Shvenavastra
- (v) Dhindhika



- (vi) Krishna
- (vii) Sudarshana

Unit V : Buddhism and Modern World

- (i) Buddhism and World Peace
- (ii) Buddhism and Science
- (iii) Buddhism and Ecology

Unit VI : Introduction to Sacred Books of Buddhism

- (i) Tripitaka
- (ii) Kangyur
- (iii) Stangyur

Unit VII : Introduction to Sadalankara (Six Acharyas of Buddhism)

- (i) Nagarjuna
- (ii) Asanga
- (iii) Vasubandhu
- (iv) Aryadeva
- (v) Dinnaga
- (vi) Dharmakirti

Unit VIII : Bodhichitta

- (i) Definition of Bodhichitta
- (ii) Classification of Bodhichitta
- (iv) Cultivating of Bodhichitta
- (v) Benefits of Bodhichitta

Unit IX : Paramita

- (i) Definition of Paramita
- (ii) Classification of Paramita
- (iii) Practice of Paramita
- (iv) Benefits of Paramita

Unit X : Introduction to the Buddhist Art and Architecture

- (i) The Buddhist Art and Architecture of Kashmir
- (ii) The Buddhist Art and Architecture of Jammu
- (iii) The Buddhist Art and Architecture of Ladakh



ELECTRONICS

Total Marks : 100

Theory : 70 marks

Practicals : 30 marks

Internal Assessment: 10 marks

External Exam : 20 marks

UNIT – I

(08 Marks)

MEASUREMENT & PMMC MOVEMENT

Significance of measurement, methods of measurement (Direct and Indirect methods). Basic definitions of instruments, Performance parameters: Accuracy, Precision, Sensitivity, Resolution, Types of Errors, Significant figure, D'Arsonval movement, Construction and working, Conversion of PMMC to voltmeter & Ammeter.

UNIT - II

(08 Marks)

Instruments:

Multi range voltmeter and ammeter. Series ohmmeter. Introduction to multimeter (qualitative treatment only). CRO: Construction (Electron Gun, Electrostatic focusing, deflection plates). Block diagram of CRO. Working of CRO, Measurement of voltage, Frequency and phase angle.

UNIT-III

(08 Marks)

Transducers :

Classification of transducers (active and passive), types of transducers (temperature , pressure, light and displacement). Working of transducers - Strain gauge, gauge factor, thermocouple, LDR. Measurement of temperature and resistance

UNIT – IV

(16 Marks)

Electronics communication :

Elements of communication system: transmitter, communication channel (various types), receiver. Function of each element with examples like telephone and Radio.



Types of Electronic Communication: Simplex, duplex, analog, digital, baseband and modulated.

Electromagnetic spectrum and Bandwidth: Idea of electromagnetic spectrum used in electronic communication, various frequency ranges used for communication*, idea of band width, and its importance in limiting the number of communication channels.

Modulation: necessity, types (AM & FM only), Expression for amplitude modulation, basic wave forms. Modulation index and percentage of modulation. Idea of side bands. Basic principles of FM, idea of side bands. Merits/demerits of FM over AM.

Satellite Communication (qualitative treatment only): Geo synchronous satellite, idea of a transponder, application of satellite communication (TV, Telephony, surveillance, observation).

Students need not remember the values of there frequency ranges for the examination purpose.

UNIT –V

(12 Marks)

Number system and logic gates:

Number system- decimal, binary, octal, hexadecimal, inter conversion of various number systems. Binary Addition, subtraction, multiplication & division, 2's complement of a number, Boolean algebra & De-Morgan's Theorem, Logic gates, OR, AND, NOT, NAND, NOR EX-OR gates Truth Table & NAND/NOR as universal gates. Implementation of simple logic expressions using Logic Gates.

UNIT –VI

(10 Marks)

Combinational Logic circuits :

Half adder, full adder, half subtractor and full subtractor, comparator (2 bit), Multiplexer, Demultiplexer, Encoder, Decoder, Parity checker and generator.

UNIT–VII

(08 Marks)

Fundamentals of computer :

Block Diagram of computer (input-output, ALU, Control Unit, Main Memory, Secondary Memory, Control and Data Lines (busses). software, hardware, firmware. Classifications of computers (on the basis of type, data processing capability, word length and application). Input devices- keyboard, mouse, MICR, optical scanner; Output devices — Display, printers, plotter. Memory : RAM (Static and Dynamic), ROM, PROM, EPROM, EEPROM. Secondary Memory: Floppy Disk, Hard Disk, Compact Disk (CDROM), magnetic tape.

Recommended/ Suggested books

1. Electronic Instrumentation by Cooper Helfrick.
2. Basic Electronics by A.P.Godse & U.A. Bakhshi.



3. Electronic Communication by Dennis Roddy.
4. Digital electronics by R.P. Jain.
5. Principles of Electronics by V.K. Mehta & R. Mehta

PRACTICALS HSP II

Marks : 30

Marks Internal : 10 Marks

External: 20 Marks

Section I

1. To construct a voltmeter using a galvanometer
2. To construct an ammeter using a galvanometer.
3. To extend the range of a voltmeter.
4. To extend the range of an ammeter.
5. To study and analyze Multimeter for various measurements.
6. To study front panel controls of CRO.
7. To calculate the amplitude, time period and frequency of a sinusoidal wave Using CRO.
8. To generate various waveforms using a waveform generator and study their characteristics. with the help of a CRO.
9. To generate an A.M wave and find the Modulation index using a CRO. Modulation Index = $(E_{max} - E_{min}) / (E_{max} + E_{min})$

Section II

1. To Study OR gate using IC-7432.
2. To Study AND gate using IC-7408.
3. To Study NOT gate using IC-7404.
4. To Study NAND gate.
5. To Study NOR gate.
6. To Study Ex-OR gate.
7. To study half adder.
8. To study full adder.
9. To study half subtractor.
10. To study parity checker/generator.
11. To study NAND gate as a universal gate.
12. To study NOR gate as a universal gate.



COMMERCE STREAM

BUSINESS STUDIES

Max Marks: 100

Time: 03 hours

Part A: Principles and Functions of Management

Unit 1: Nature and Significance of Management

Marks 07

- Management - concept, objectives, importance
- Management as Science, Art, Profession.
- Levels of management
- Management functions - planning, organizing, staffing, directing and controlling
- Coordination - characteristics and importance

Unit 2: Principles of Management

Marks 07

- Principles of Management - concept, nature and significance
- Fayol's principles of management
- Taylor's Scientific Management - principles and techniques

Unit 3: Management and Business Environment

Marks 05

- Business Environment - importance
- Dimensions of Business Environment - Economic, Social, Technological, Political and Legal
- Economic Environment in India; Impact of Government policy changes on business and industry, with special reference to adoption of the policies of liberalization, privatization and globalisation.

Unit 4: Planning

Marks 07

- Concept, features, importance, limitations
- Planning process
- Types of Plans - Objectives, Strategy, Policy, Procedure, Method, Rule, Budget, programme.

Unit 5: Organising

Marks 10

- Concept and importance.
- Steps in the process of organizing.
- Structure of organization - functional and divisional.
- Formal and informal organization.



- Delegation: concept, elements and importance.
- Decentralization: concept and importance.
- Difference between delegation and Decentralization

Unit 6: Staffing

Marks 08

- Concept and importance of staffing
- Staffing as a part of Human Resource Management
- Staffing process
- Recruitment - meaning and sources
- Selection - process
- Training and Development - Concept and importance. Methods of training

Unit 7: Directing

Marks 10

- Concept and importance
- Elements of Directing
 - Supervision - concept and role
 - Motivation - concept, Maslow's hierarchy of needs; Financial and non-financial incentives.
 - Leadership - concept; qualities of a good leader
 - Communication - concept, formal and informal communication; barriers to effective communication.

Unit 8: Controlling

Marks 06

- Concept and importance
- Relationship between planning and controlling
- Steps in the process of control
- Techniques of controlling : budgetary control,

Part B : Business Finance and Marketing

Unit 9: Business Finance

Marks 12

- Concept, importance, objectives of Business finance
- Financial decisions : factors affecting
- Financial planning - concept and importance.
- Capital Structure - concept and factors affecting
- Fixed and Working Capital - concept and factors affecting its requirements.
- Difference between Capital Market and Money Market.



Unit 10: Financial Markets

Marks 08

- Concept of Financial Market: Money Market and its instruments.
- Capital market and types - primary and secondary market.
- Stock Exchange - Functions, Trading Procedure, NSEI, OCTEI.
- Securities and Exchange Board of India (SEBI)- Objectives and Functions.

Unit 11: Marketing Management

Marks 14

- Marketing - meaning, functions and role, marketing and selling
- Marketing mix - elements
 - Product - nature, classification, branding, labeling and packaging
 - Price - Factors determining fixation of price
 - Physical distribution: Elements; Channels of distribution: types, function, choice of channels
 - Promotion-Elements of promotion mix; Advertising - role, limitations, objections against advertising.
- Personal selling - concept, importance; Sales promotion - merits, limitations, methods; Publicity - concept and role.
- Personal Setting
- Sales promotions

Unit 12: Consumer Protection

Marks 06

- Importance of consumer protection
- Consumer rights
- Consumer responsibilities
- Ways and means of consumer protection - Consumer awareness and legal redressal with reference to Consumer Protection Act.
- Role of consumer organizations and NGOs.

Suggested textbook

1. Business Studies published by NCERT, New Delhi



ACCOUNTANCY

Max Marks: 100

Time: 03 hours

Theory: 80 Marks

Project work: Marks 20

Internal : 05 Marks

External : 15 Marks

Part A: Accounting for partnership firms and companies

Marks 60

Unit-1: Accounting for partnership firms

A. Fundamentals and Admission of a partner

Marks 15

1. Partnership features, partnership deed.
2. Provision of the Indian partnership Act 1932 in the absence of partnership deed.
3. Fixed vs Fluctuating capital accounts, preparation of profit and loss appropriation account, division of profit among partners.
4. Past adjustments (relating to interest on capitals interest as drawings, salary and profit sharing ratio)
5. Goodwill : Nature, factors affecting and methods of valuation, Average profit, super profit, weighted average profit and capitalization of average and super profit.
6. Calculation of sacrificing ratio and new profit sharing ratio. Treatment for revaluation of assets and reassessment profits, adjustments of capital accounts and preparation of balance sheet.

B. Retirement and death of a partner.

Marks 10

1. Calculation of Gaining ratio and new profit sharing ratio, treatment of goodwill as per AS-26, treatment for re-valuation of assets and re-assessment of liabilities, adjustment of accumulated profits and balance sheet, preparation of loan account of the retiring partner.
2. Calculation of deceased partners share of profit till the date of death, preparation of deceased partners capital account-executors account.

C. Dissolution of Partnership firm:

Marks 10

1. Types of dissolution of a firm, settlement of accounts, preparation of realization account and other related accounts: Capital Accounts of partners, cash / bank account.

Unit-2 Accounting for Companies.

A. Accounting for share capital

Marks 15

1. Share and share capital nature and types.
2. Disclosure of share capital in company's balance sheet.
3. Accounting for share capital Issue and allotment of equity and preference shares. Public subscription of shares, oversubscription and under subscription of shares, Issue of shares at par, at premium and at



discount, calls in advance and arrears, issue of shares in consideration other than cash, Meaning of private placement of shares, employees stock option, sweat equity shares and right issue.

4. Accounting treatment for forfeiture and reissue of shares.

B Accounting for Debentures

Marks 10

1. Issue of debentures at par, at premium and at a discount, issue of debenture for consideration other than cash writing off discount and loss on issue of debentures, issue of debentures with terms of redemption.
2. Issue of debentures as collateral security journal entries for interest an debentures.
3. Sources of redemption of debentures-out of profit, out of capital and creation debenture redemption reserve.
4. Methods of redemption Lump sum method, draw of lots, purchase in open market and conversion into equity shares and new debentures.

Part B:

Unit-3 Financial Statement Analysis:

Marks 12

1. Financial Statement of company-preparation of simple Balance sheet of a company in prescribed from as per schedule III to the Companies Act 2013, with major headings only.
2. Financials statement analysis- meaning, significance, limitations.
3. Accounting ratios - meaning and objectives.

Types of ratios-

Liquidity ratios- Current ratio, liquid ratio.

Solvency ratios- Debt to equity, proprietary ratio.

Total asset to debt ratio.

Activity ratios- Inventory turnover ratio, debtors turnover ratio, working capital turnover.

Profitably ratio- Gross profit ratio, net profit ratio, operating ratio, operating net profit ratio, return on investment.

Unit 4 : Cash Flow statement

Marks 8

1. Meaning, objective and preparations of cash flow statement (as per AS3 (revised) (Indirect method only)
2. Adjustment relating to depreciation, profit or loss on sale of assets, dividend and tax.

Part C: Project Work

1. Project file - 3 marks
2. Written Test - 9 marks (one hour)
3. Viva-voca - 3 marks



Note:

1. Written test of 9 marks should be from Part - B only (analysis of financial statement).
2. Project work should include one comprehensive problem and one specific problem.
3. Comprehensive problem should include full accounting process i.e. journal, posting trial balance, final accounts and its analysis (expressed in ratios)
4. One specific problem relating to the analysis of balance sheet of any multinational corporation or body corporate (Using comparative statement or common-size statements or ratio analysis)
5. Representation of data in the form of bar graphs, pie-diagram, tables or tally marks.

Or

Part B: Computerized accounting

Unit-3 : Overview of computerized accounting system

Marks 5

1. Concept of computer accounting system.
2. Features and types of computer accounting systems (Generic, specific, tailor-made)
3. Structure of a computerized accounting system.
4. Accounting software packages - tally, busy (latest version)

Unit 4: Accounting using Database Management system (DBSM)

Marks 8

1. Concept of DBSM.
2. DBSM in business application
3. Creating data tables for accounting.
4. Applications of DBSM in generating accounting information such as shareholders records, sales report, customer's profile, supplier's profile, payroll, employee's profile and petty cash register.

Unit 5: Accounting Applications of Electronics Spread.

Marks 7

1. Concept and features of electronic spreadsheet.
2. Applications of electronic in generating accounting information, preparing depreciation schedule, loan repayment schedule, payroll accounting and other such applications.

Part C : Project Work

4. **Project file - 3 marks**
5. **Written Test - 9 marks (one hour)**
6. **Viva -voce - 3 marks**



ENTREPRENEURSHIP

Maximum Marks: 100

Theory: 80

Practicals: 20

Internal: 05, Marks

External: 15 Marks

Time: - 3 Hours

UNIT-I

20 Marks

ENTREPRENEURIAL OPPORTUNITIES & ENTERPRISE CREATION

- I. Entrepreneurial Opportunities: Meaning & Objectives.
- II. Environment Scanning: Meaning & Importance.
- III. Market Assessment: Meaning & Steps in Market Assessment.
- IV. Factors affecting Identification of Entrepreneurial Opportunities.
- V. Factors in selection of an enterprise.
- VI. Steps in setting up of an enterprise.

UNIT-II

30 Marks

ENTERPRISE PLANNING & RESOURCING

- I. Business Planning: Meaning, Importance & Steps in business planning.
- II. Preparation of a Project Report.
- III. Resource Assessment: Financial & Non Financial, Meaning, Definition & Importance.
- IV. Fixed & Working Capital requirement: Meaning, Factors affecting the estimation of fixed and working capital.
- V. Mobilising Financial & non-financial resources for setting up of an enterprise.

UNIT-III

30 Marks

ENTERPRISE MANAGEMENT

- I. General Management: Basic Management Function.
- II. Managing Market: Meaning, Functions of marketing & Marketing Mix-Product, Price, Place, Promotion (Advertising & Sales promotion).
- III. Managing Finance: Sources of long term & Short term finances.
- IV. Human Resource Management: Meaning, objectives and functions.
- V. Managing Growth & Sustenance: Meaning & Importance of Modernisation, Expansion, Diversification, Franchising & Merger.
- VI. Entrepreneurial Discipline: Law of Land, Ecology, Consumer's concept, Adherence to contracts & credits.



PRACTICAL

Marks 15

- | | |
|---------------------------------|----------|
| 1. Project Report/Survey Report | 09 Marks |
| 2. Viva-Voce on PW /SR | 03 Marks |
| 3. Case Study | 03 Marks |

Guidelines for Project Report/Survey Report.

1. Project Report/Market Survey Report 09 Marks

a) Project Report:

Preparation of a Project Report for an enterprise involving products/services

Students may be provided adequate guidance to choose a project based on their interests and availability of information and authentic inputs in the locality. The specimen proforma of project report given in the textbook may be used for preparing the report. However, mechanical preparation of the report by filling in the information in the proforma should be discouraged.

Further, as the students will be required to appear for a Viva-voce on the basis of their projects, sufficient care should be taken by the students to prepare the report after studying the various aspects involved thoroughly. In a nutshell, the project report should lead to viable enterprise.

b) Market Survey Report

Market research is the process and technique of finding out who your potential customers are and what they want. The survey may be on products and services already available in the market or students may also conduct surveys for new products and services. The report of the survey should be organised under the following broad headings:

1. Objectives.
2. Methods and tools (interviews, questionnaires etc.) to be used to collect information.
3. Records of data and information.
4. Analysis of data and information.
5. Interpretation and conclusion.

For example, a survey may be conducted to find out the choice of households in toiletry soap, tooth paste etc. The data may be analysed to establish a pattern that may be useful to an entrepreneur.

Guidelines for assessment of Project Report / Survey Report

1. Presentation: Format, Clarity, Use of graphs, tables and other visuals, organisation, methodical recording of data and information and general neatness of execution. **4 marks**
2. Originality and Creativity **3 marks**
3. Authenticity of information and correctness of calculations and general feasibility of the project/ sustainability of conclusion drawn in the survey. **2 marks**

2. Viva Voce on the Project /Market Survey Report

03 Marks

The questions should establish that the report is the original work of the student and that the student has a reasonably clear understanding of the work carried out by him/her. Entrepreneurial qualities such as leadership, self-belief, creativity, originality, initiative etc. may also be assessed by asking a variety of questions related to the report.



3. Case Study

03 marks

A case study is a focused research on an organization, enterprise, practice, behavior or person undertaken to highlight an aspect that the study attempts to examine. For instance, a case study may be conducted on the pollution control methods being employed by an industry. Or a successful industrialist may be chosen as a subject of a case study to analyze and understand the strategies that the industrialist adopted: to achieve success. Ideally, a case study should be conducted on subjects with the objectives of bringing to the fore beliefs, practices, strategies, values etc. that have made them what they are. Such studies help us to understand the way in which great minds think and operate. We may also conduct case studies on failures; why a company collapsed, how a service lost its market etc. From both the types of case study, we learn lessons; how to do something or how not to do something. They also provide valuable insight into the processes involved in an enterprise. A few topics are suggested for carrying out case studies:

- i) Drawing a profile of a successful entrepreneur.
- ii) Studying a public sector undertaking and highlighting its success/failure, by analyzing the factors responsible.
- iii) Studying a small scale unit in the locality to bring out the procedures and processes adopted by the unit to become a feasible business venture.
- iv) A study of competition in business by choosing two or more rivals in the market and analyzing their strengths and weaknesses.
- v) Take the school itself for a case study and analyze any two aspects of the school plant for chalking out a plan of action: infrastructure, academics, co-curricular activities etc.
- vi) A case study on a thriving fast food shop/restaurant in your locality. What makes it so popular?
- vii) A case study on the ways in which a business unit has mobilized its financial resources.
- viii) A case study on the enterprise management techniques adopted by a business house.
- ix) A case study on the marketing strategies of a successful consumer durable company.
- x) A case study on the financial management of a Public Limited Company.
- xi) A case study on any Specialized Institution that supports and guides the establishment of a small scale unit.
- xii) Studying the balance sheets of two big private companies to assess their trade and credit worthiness.
- xiii) Studying the inventory management of a large manufacturing industry to ascertain the processes involved for optimizing cost.
- xiv) Carrying out a case study on an established industrial house/company to find out the value system of the company and how it fulfils its social commitment/obligations.
- xv) Carrying out a case study on an established industry to ascertain the processes followed to reduce/prevent pollution.
- xvi) Study on environment friendly companies and their contribution to preservation.

Assessment of Case Studies

- i) Presentation: Format, accuracy, clarity, authenticity and general neatness
- ii) Analysis and Conclusions



TYPEWRITING AND SHORTHAND

Maximum Marks : 100

Time allowed : 3 hours

External : 60

Internal : 40

Section A

(TYPEWRITING ON TYPE MACHINE/COMPUTER KEY BOARD)

External Examination : 30

Internal assessment : 20 marks

There shall be one practical paper of 30 marks and 3 hours duration. The paper shall contain the following exercises :

- | | |
|---------------------------------------|-----------------|
| i) Passage of 400 – 500 words (prose) | 10 Marks |
| ii) A business letter | 08 Marks |
| iii) A tabular statement | 07 Marks |
| iv) Viva – voce | 05 Marks |

In viva-voce, knowledge of the following be tested :

- Key board of Typing machine/Computer.
- Function of different parts of machine, Type writer/Computer
- Table setting and
- Maintenance of typewriter shall be tested.

The length of the above material will be in accordance with the time allowed.

Accuracy and arrangement shall be given paramount importance.

The speed expected of the examinees shall be 30 words per minute.

Actual time taken by the examinees in typing out the passage shall be noted on the answer sheet.

INTERNAL ASSESSEMENT : 20 Marks

20 Marks allocated for internal assessment shall be awarded on the basis of two tests one of 10 marks and the other of 10 marks.

1ST TEST : 10 Marks

SECOND TEST : 10 Marks

Section B (SHORTHAND)

External Examination : 30 marks

Internal assessment : 20 marks

EXTERNAL EXAMINATION :

The candidates shall be required to take down dictation in shorthand at speed of 60 words per minute. The material for shorthand may be a passage of 800 – 1000 words.



After taking down dictation students shall be required to transcribe the same in their own handwriting, in long hand.

The outline of the shorthand shall have to be attached by the candidate with the answer sheet. 7 marks are reserved for outline (shorthand).

Outline	07 Marks
Transcription in long hand	18 marks
Viva-voce	05 marks

In Viva-voce, knowledge of consonants and vowels, Grammoalogues. Contractions, abbreviations, suffixes and prefixes, etc shall be tested.

INTERNAL ASSESSMENT

Marks in internal assessment shall be awarded on the basis of two tests (internal) as given below:

1 st Test	10 marks
2 nd Test	10 marks

Note : The school shall maintain a cumulative record card indicating marks awarded to candidates in the internal assessment both in typewriting and shorthand.



HOME SCIENCE (FULL STREAM) HUMAN DEVELOPMENT

Maximum Marks : 100

Theory: 70 marks

Time: 3 Hours

Practicals: 30 Marks (External: 20; Internal:10)

UNIT I: GROWTH AND DEVELOPMENT

- Understanding the concept of child development, History and scope of child development.
- Child study and its Importance, methods of child study.
- Meaning and definition of growth and development.
- Principles & characteristics of growth & development.
- Heredity and environment: - Factors influencing hereditary and environment.
- Influence of hereditary and environment on the development of the child.

**Marks: 14
Periods: 22**

UNIT II: PRENATAL DEVELOPMENT

- The menstrual cycle.
- Preparatory process before life begins (maturation, ovulation and fertilization).
- Importance of Fertilization.
- Stages of prenatal development.
- Factors affecting prenatal development.
- Hazards during prenatal period.

**Marks: 14
Periods: 22**

UNIT III: POSTNATAL CARE

Post natal care of the mother.

Post natal care of the infant sleeping, bathing, clothing and feeding.

Immunization — Importance and immunization schedule.

Characteristics and changes in infancy and babyhood.



- Development of motor skills, developmental task from 0 to 2 yrs.
- Language development.

Marks: 14
Periods: 22

UNIT IV: DEVELOPMENT DURING EARLY CHILDHOOD

- Characteristics and changes in early childhood.
- Needs of early childhood. Social and self help skill developed during early childhood.
- Play — Importance and types, factors affecting play in children, causes of imbalance in play.
- Creative activities: - Importance and need.
- Importance of story-telling and music.

Marks: 14
Periods: 22

UNIT V: DEVELOPMENT DURING LATE CHILDHOOD

- Characteristics and changes in late childhood.
- Meaning and definition of socialization.
- Functions of socialization.
- Agents of socialization, family, school, peer group and community.
- Moral development — discipline, role of reward and punishment in maintaining the discipline.

Marks: 14
Periods: 22

PRACTICALS

- 1) Visit to a Primary Health Care Center.
- 2) Visit to a baby clinic.
- 3) Preparing a kit for a new born baby.
- 4) Preparing of weaning foods.
- 5) Visit to a nursery school and observe the various play activities of children.
- 6) Prepare a packed lunch for a school going child (6 to 12 years)
- 7) Prepare a chart showing prenatal development in a tabular form.

Marks: 30
Periods: 24



CLOTHING FOR THE FAMILY

Maximum Marks : 100

Theory: 70 marks

Time: 3 Hours

Practicals: 30 Marks (External: 20; Internal:10)

UNIT I: CLOTHING

- Clothing needs of the family with reference to climate, family income, age of family members, activity and fashion.
- The clothing budget, choice of textiles with reference to utility, durability and cost.

**Period: 15
Marks: 10**

UNIT II: FABRIC CONSTRUCTIONS

- Classification of Textile Fabric (Fibre).
- Characteristics, physical and chemical properties of cotton, wool, silk, rayon, polyester, Dacron and nylon.
- Various types of yarns and basic procedure of making yarn.
- Weaving—Construction of weaves—Plain, Basket, Twill sateen, Satin, Rib weave. A brief mention of special weaves pile and Jacquard weaves.
- Knitting and non woven fabrics, felting and bonding.

**Period: 30
Marks: 20**

UNIT III: FABRIC FINISHES

- Meaning and its importance.
- Classification of finishes: - Basic finishes— Calendaring, scouring, seinging, stiffening, tentering, bleaching.
- Special finishes—Mercerisation, shrinkage control, sanforizing, water proofing, dyeing and printing.

**Period: 18
Mark: 15**

UNIT IV: WASHING AND FINISHING OF GARMENTS

- Different method of washing: Friction, suction method, by kneading and squeezing, washing by machine.
- General methods for drying and ironing.
- Washing and finishing of cotton, wool, silk, rayon and nylon.
- Removal of common stains.

**Periods: 15
Marks: 10**



UNIT V: EQUIPMENT AND SUPPLIES USED IN CLOTHING CONSTRUCTION

- Their use and care with special reference to sewing machine and its accessories.
- A study of Anthropometry (Body measurement)
- Factors to be considered while taking body measurements — Round neck, round bust, round waist, round hip, Armhole line, waist front and back length, across back, across front and across shoulder, Arm length.
- Definition of drafting, important points to be considered while making draft.
- Drafting of Apron, Jangia, and baby frock.
- Basic principles involved in laying out pattern on cloth.
- Mending of cloth, darning and patching.
- Handlooms of Jammu and Kashmir.

Periods: 30
Marks: 15

PRACTICALS

- 1) Identification of fibres, microscopic appearance of fibres, physical and chemical test.
- 2) Washing and finishing of cotton, wool and silk.
- 3) Removal of common stains.
- 4) Ability to use following stitches.
 - a) Tacking
 - b) Running stitch
 - c) Back stitch
 - d) Hemming.
- Seams
 - a) Plain
 - b) French seam
 - c) Run and fell seam
- Hems — Straight and curved
- Fasteners—
 - a) Hook and eye
 - b) Button hole
 - c) Placket opening
 - d) Zippers
 - e) Press button
- Decorative stitches at least (6 to 8)
- 5) Methods of mending garments darning and patching.
- 6) Drafting of Jangia and apron.

M Marks: 30
Periods: 25



EXTENSION EDUCATION

Maximum Marks: 100

Theory: Marks 70

Practicals: Marks 30

Time: 3 hours

External: 20, Internal : 10

UNIT I: CONCEPT OF HOME EXTENSION

- Meaning, philosophy and scope of Home science.
- Historical review of development of Home Science in India and Abroad.
- Meaning and scope of Extension Education. Its philosophy and Contribution to Women empowerment.
- Objectives of Home Science in relation to objectives of extension education.

Period: 22

Marks: 14

UNIT II: INTERDISCIPLINARY NATURE OF HOME SCIENCE

- Branches of Home science – Food & Nutrition, Human Development and family resource, management of resources, clothing and textiles, extension education, the areas studied under these branches.
- The role of Home science scientist in the community.

Period: 22

Marks: 14

UNIT III: METHODS OF TEACHING AND PLANNING

- Methods of Teaching Home science in formal and non-formal situation
- Steps in teaching Home Science extension.
- Extension teaching process - for any effective education prgm.
- Evaluation - meaning, importance, scope and types of evaluation.
- Qualities of a Good extension worker.
- Developmental programs in Home Science extension.

Period: 22

Marks : 14

UNIT IV: DEVELOPMENT COMMUNICATION

- Concept, meaning, purpose of Communication, importance of communication and development.
- Types of Communication
 - Verbal and non-verbal



- Intra-personal & inter-personal
- Formal and informal
- Traditional and modern

Communication through mass media - Concept, Characteristic of mass communication, mass communication media, functions of mass Communication, advertising and effect of mass communication.

Period: 20

Marks 14

UNITY: COMMUNICATION

- Mass Communication in Home science. Familiarity with various media for Communication: visual media, Audio media, Audio-visual media, Literature, books and journals.
- Learning to prepare a lesson for a class; realization/appreciation understanding of Home Science programs on radio, TV, articles or features in newspapers, magazines, etc. Preparing simple low-cost materials for communication purposes, charts, flip charts, exhibits, graphs, flash cards, radio and TV scripts writing & illustrating a story of children.
- Demonstration of the use of commonly available equipment.
- Approaches of Communication in development.
 - i) Individual – personal rents, phone calls, letters.
 - ii) Group lectures, Group discussions, demonstration, excursions and field trips.
 - iii) Audio-visual aids, meaning, classification, importance, advantages, limitations and use.

Period: 20

Marks 14

PRACTICALS:

- 1) Prepare a chart to depict interdisciplinary nature of Home Science.
- 2) Prepare a chart showing scope of employment/self employment in the areas of Home Science.
- 3) Planning and organizing a shot extension program within the school itself.
- 4) Preparation of visual aids – charts, posters, flash cards, transparencies.
- 5) Displaying Material on bulletin board, Flannel graph board.
- 6) Practical experience in giving demonstration.
- 7) Preparation of folk media of J&K.
- 8) Organization of an exhibition displaying decorative items prepared out of waste material.
- 9) Preparation of printed material – leaflets, holders, pamphlets.

Marks: 30

Periods: 24



हिंदी (Hindi)

समय 3 घंटे

पूर्णांक 100

पाठ्य क्रम एवं अंक विभाजन

अंक

क निबंध लेखन	08
ख काव्य भाग मानसर	24
ग काव्य नाटक अंधा युग	24
घ उपन्यास निर्मला	24
ड हिंदी साहित्य का इतिहास	20
ए (आधुनिक काल-द्विवेदी युग छायावाद तथा प्रगतिवाद) काल परिचय विशेषताएं एवं कवि ज्ञान	
बी भाषा राज भाषा राष्ट्रभाषा एवं सम्पर्क भाषा (अंतर महत्व एवं हिंदी में स्थान)	

खण्ड क

1. रचनात्मक लेखन (निबंध)
विषय सामाजिक समस्याएं विज्ञान एवं तकनीक देश-प्रेम, अनुशासन, खेल संबंधी एक प्रश्न होगा? 08
2. काव्य भाग मानसर में से विकल्प सहित सप्रसंग व्याख्या संबंधी एक प्रश्न होगा? 05
3. काव्य भाग मानसर में से कविता सार साहित्य परिचय
आलोचनात्मक एक प्रश्न पूछा जाएगा (विकल्प सहित) 05
4. हिंदी साहित्य का इतिहास में से विकल्प सहित एक प्रश्न पूछा जाएगा 05
5. काव्य नाटक अंधा युग में से विकल्प सहित एक सप्रसंग व्याख्या संबंधी प्रश्न पूछा जाएगा। 05
6. काव्य नाटक अंधा युग में से विकल्प सहित अंक सार चरित्र-चित्रण एवं आलोचनात्मक संबंधी प्रश्न पूछा जाएगा। 05
7. उपन्यास निर्मला में से विकल्प सहित चरित्र-चित्रण एवं आलोचनात्मक एक प्रश्न पूछा जाएगा। 05

खण्ड (ख) (लघु उत्तरापेक्षी प्रश्न)

8. काव्य भाग मानसर में से कविता संबंधी 2 प्रश्न पूछे जाएंगे। (2Q×3M=6)
9. काव्य नाटक अंधा युग में से कविता संबंधी 2 प्रश्न पूछे जाएंगे (2Q×3M=6)
10. हिंदी साहित्य (आधुनिक काल 2 प्रश्न भाषा संबंधी 1 प्रश्न) में से 3 प्रश्न पूछे जाएंगे। (3Q×3M=9)
11. उपन्यास निर्मला में से 3 प्रश्न पूछे जाएंगे दो प्रश्न उपन्यास संबंधी होंगे तथा एक प्रश्न गद्यांश प्रश्नोत्तर संबंधी (3Q×3M=9)



खण्ड ग (अति लघुतरोक्षी प्रश्न केवल बारह)

12. काव्य भाग मानसर में से कवि और कविता संबंधी 3 प्रश्न पूछे जाएंगे (3Q×2M=6)
13. हिंदी साहित्य का इतिहास में से इतिहास एवं भाषा संबंधी 2 प्रश्न पूछे जाएंगे। (2Q×2M=4)
14. काव्य नाटक अंधा युग में से नाटक कार एवं काव्य नाटक संबंधी 3 प्रश्न पूछे जाएंगे। (3Q×2M=6)
15. उपन्यास निर्मला में से उपन्यास एवं उपन्यास कार संबंधी 4 प्रश्न पूछे जाएंगे (4Q×2M=8)

खण्ड घ

वस्तुनिष्ठ प्रश्न केवल

16. (क) काव्य भाग मानसर में से दो प्रश्न पूछे जाएंगे (2Q×1M=2)
- (आ) काव्य भाग अंधा युग में से दो प्रश्न पूछे जाएंगे (2Q×1M=2)
- (इ) उपन्यास निर्मला में से दो प्रश्न पूछे जाएंगे (2Q×1M=2)
- (ई) हिन्दी साहित्य का इतिहास में से दो प्रश्न पूछे जाएंगे (2Q×1M=2)

पाठ्यक्रम में निर्धारित पुस्तक

1. काव्य भाग 'मानसर' - जम्मू एवं कश्मीर राज्य विद्यालय शिक्षा बोर्ड द्वारा प्रकाशित
2. हिंदी साहित्य का परिचयात्मक इतिहास भागीरथ मिश्र लेखक राष्ट्रीय शैक्षिक अनुसंधान विकास परिषद द्वारा प्रकाशित।
3. काव्य नाटक : 'अनुसंधान' लेखक डॉ धर्मवीर भारती - प्रकाशन महल इलाहाबाद द्वारा
4. उपन्यास 'निर्मला' लेख उपन्यासकार सम्राट मुंशी प्रेमचंद प्रकाशन कला मंदिर दिल्ली द्वारा

नोट- उपन्यास निर्मला में से सप्रसंग व्याख्या से संबंधित कोई प्रश्न नहीं पूछा जाएगा।

नोट- परीक्षा में प्रश्न-पत्र निर्माण हेतु मार्गदर्शन

प्र. 1	8 अंक	08 अंक	
प्र. 2-7		6×5	30 अंक
प्र. 8-17		10×3 अंक	30 अंक
प्र. 18-29	12×2 अंक	24 अंक	
प्र. 30	8×1 अंक	08 अंक	
	30 प्रश्न	100 अंक	



PUNJABI

Max. Marks: 100

Time : 3 Hours

1. ਪੁਸਤਕ 'ਕਾਵਿ ਪ੍ਰਵਾਹ' ਵਿਚੋਂ - 30 Marks
2. ਪੁਸਤਕ 'ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ' ਵਿਚੋਂ - 26 Marks
3. ਪੁਸਤਕ 'ਆਰਸੀ' ਵਿਚੋਂ - 26 Marks
4. ਵਿਆਕਰਨਕ ਭਾਗ - 18 Marks
 - (i) 'ਕਾਵਿ ਪ੍ਰਵਾਹ' ਪੁਸਤਕ ਵਿਚੋਂ ਇਹਨਾਂ ਕਵੀਆਂ ਦੀਆਂ ਕਵਿਤਾਵਾਂ ਅਤੇ ਜੀਵਨੀਆਂ ਹਨ।
 - (ੳ) ਭਾਈ ਵੀਰ ਸਿੰਘ
 - (ਅ) ਪ੍ਰੋ. ਪੂਰਨ ਸਿੰਘ
 - (ੲ) ਪ੍ਰੋ. ਮੋਹਨ ਸਿੰਘ
 - (ਸ) ਅੰਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ
 - (ਹ) ਪਿਆਰਾ ਸਿੰਘ ਸਹਿਰਾਈ।
 - (ii) 'ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ' ਪੁਸਤਕ ਦੀਆਂ 13 ਕਹਾਣੀਆਂ ਵਿਚੋਂ ਹੇਠ ਲਿਖੀਆਂ 3 ਕਹਾਣੀਆਂ (Non-Evaluative) ਹਨ।
 - (ੳ) ਸਫ਼ਰ
 - (ਅ) ਕੇ ਨਹੀਂ ਲਿਖਣੀ
 - (ੲ) ਸੜਕ ਵਾਪਸ ਜਾਂਦੀ ਹੈ।
 - (iii) 'ਆਰਸੀ' (ਸਵੈਜੀਵਨੀ) ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ।
 - (iv) ਵਿਆਕਰਨ
 - (1) ਲੇਖ-ਚਰਚਨਾ
 - (2) ਬਹੁਆਰਥਕ ਸ਼ਬਦ, ਉਲਟ-ਭਾਵੀ ਸ਼ਬਦ, ਸ਼ੁੱਧ ਸਰੂਪ ਵਾਲੇ ਸ਼ਬਦ।

Books Prescribed

1. ਕਾਵਿ ਪ੍ਰਵਾਹ (ਆਧੁਨਿਕ-ਕਾਵਿ) ਸੰਪਾਦਕ ਦੀਵਾਨ ਸਿੰਘ, ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਯੂਨਿਵਰਸਿਟੀ, ਅੰਮ੍ਰਿਤਸਰ।
2. ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ, ਸੰਪਾਦਕ ਅਮਰੀਕ ਸਿੰਘ। ਜੇ ਐਂਡ ਕੇ ਕਲਚਰਲ ਅਕੈਡਮੀ, ਜੰਮੂ।
3. ਆਰਸੀ (ਸਵੈਜੀਵਨੀ) ਪ੍ਰਿੰ. ਤੇਜਾ ਸਿੰਘ, ਕਸਤੂਰੀ ਲਾਲ ਐਂਡ ਸੰਨਜ, ਅੰਮ੍ਰਿਤਸਰ।
4. ਪੰਜਾਬੀ ਵਿਆਕਰਣ ਅਤੇ ਲੇਖ ਚਰਚਨਾ। by ਨਰਿੰਦਰ ਸਿੰਘ 'ਦੁੱਗਲ'।



SCHEME OF ASSESSMENT

Max. Marks: 100

Time Allowed : 3 Hours.

Long Answer Type Questions

1. ਕਾਵਿ-ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਇੱਕ ਬੰਦ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ ਕਰੋ (ਕੋਈ ਦੋ ਚੋਂ ਇੱਕ)। 05
2. ਕਾਵਿ-ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਇੱਕ ਕਵਿਤਾ ਦਾ ਸਾਰ (ਕੋਈ ਤਿੰਨ ਚੋਂ ਇੱਕ) 05
3. ਕਾਵਿ-ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਇੱਕ ਕਵੀ ਦੀ ਜੀਵਨੀ (ਕੋਈ ਦੋ ਚੋਂ ਇੱਕ) 05
4. ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਪੁਸਤਕ 'ਚੋਂ - ਕਹਾਣੀ ਉੱਤੇ ਚਰਚਾ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ। (ਕੋਈ ਦੋ ਚੋਂ ਇੱਕ) 05
5. ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਪੁਸਤਕ 'ਚੋਂ - ਪਾਤਰ ਚਿਤਰਣ ਸੰਬੰਧੀ ਪ੍ਰਸ਼ਨ। (ਕੋਈ ਤਿੰਨ ਚੋਂ ਇੱਕ) 05
6. 'ਆਰਸੀ' ਪੁਸਤਕ 'ਚੋਂ - ਇੱਕ ਵਾਰਤਕ - ਟੋਟੇ ਦੀ ਪ੍ਰਸੰਗ ਦੱਸ ਕੇ ਵਿਆਖਿਆ। (ਕੋਈ ਦੋ ਚੋਂ ਇੱਕ) 05
7. ਆਰਸੀ ਪੁਸਤਕ 'ਚੋਂ ਕਿਸੇ ਇੱਕ ਲੇਖ ਉੱਤੇ ਨੋਟ। (ਕੋਈ ਦੋ ਚੋਂ ਇੱਕ) 05
8. ਵਿਆਕਰਣ 'ਚੋਂ ਲੇਖ-ਰਚਨਾ (Essays) (ਕੋਈ ਤਿੰਨ ਚੋਂ ਇੱਕ) 05

Short Answer Type Questions

9. ਕਾਵਿ-ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਕੋਈ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 3 ਹਨ) $3 \times 3 = 09$
ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਪੁਸਤਕ 'ਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 3 ਹਨ)
 $3 \times 3 = 09$
10. ਆਰਸੀ ਪੁਸਤਕ 'ਚੋਂ ਤਿੰਨ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 2 ਹਨ) $3 \times 3 = 09$
ਵਿਆਕਰਣ ਵਿੱਚੋਂ - ਬਹੁਆਰਥਕ ਸ਼ਬਦ, ਉਲਟੇ ਸ਼ਬਦ ਅਤੇ ਸ਼ੁੱਧ ਕਰਨੇ ਲਿਖੇ ਆਦਿ। $3 \times 3 = 09$

Very Short Answer Type Questions

- ਕਾਵਿ ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 2 ਹਨ) $2 \times 2 = 04$
ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਪੁਸਤਕ 'ਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 2 ਹਨ)
 $2 \times 2 = 04$
11. ਆਰਸੀ ਪੁਸਤਕ 'ਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 2 ਹਨ) $2 \times 2 = 04$
ਵਿਆਕਰਣ 'ਚੋਂ ਕੋਈ ਦੋ ਪ੍ਰਸ਼ਨ ਕਰਨੇ ਹਨ। (ਹਰ ਪ੍ਰਸ਼ਨ ਦੇ ਅੰਕ 2 ਹਨ) $2 \times 2 = 04$

Multiple Choice Type Questions

- ਕਾਵਿ ਪ੍ਰਵਾਹ ਪੁਸਤਕ 'ਚੋਂ ਦੋ ਕਰਨੇ ਹਨ। $1 + 1 = 02$
- ਚੋਣਵੀਆਂ ਪੰਜਾਬੀ ਕਹਾਣੀਆਂ ਪੁਸਤਕ 'ਚੋਂ ਤਿੰਨ ਕਰਨੇ ਹਨ। $1 + 1 + 1 = 03$
- ਆਰਸੀ ਪੁਸਤਕ 'ਚੋਂ ਤਿੰਨ ਕਰਨੇ ਹਨ। $1 + 1 + 1 = 03$

Total = 100 Marks



DOGRI

Marks: 100

Time: 3 Hours

- प्र.1 "इन्दर-धनख" पुस्तक का संकलन काव्य-रचनाएं चा
- (क) कुसै इक पद्यांष की सप्रसंग व्याख्या जा षैऽरे दी व्याख्या (अंदरूनी विकल्प समेत) 5
- (ख) "इन्दर-धनख" पुस्तक च संकलत निबंधे चा कुसै इक गद्यांष दी सप्रसंग व्याख्या (अंदरूनी विकल्प समेत) 5
- (ग) "इन्दर-धनख" पुस्तक च संकलत कहानियें थमां कुसै इक गद्यांष दी सप्रसंग व्याख्या (अंदरूनी विकल्प समेत) 5
- प्र.2 (क) "इन्दर-धनख" पुस्तक च संकलत कुसै इक कवि दा जीवन ते साहित्यक परिचे (अंदरूनी विकल्प समेत) 5
- (ख) "इन्दर-धनख" पुस्तक च संकलत कुसै इक काव्य-रचना दा सार ते केंद्री भाव (अंदरूनी विकल्प समेत) 5
- (ग) "इन्दर-धनख" पुस्तक चा कुसै इक निबंधकार दा जीवन ते साहित्यक परिचे (अंदरूनी विकल्प समेत) 5
- (घ) "इन्दर-धनख" पुस्तक च संकलत गजगोऽ षायरें चा कुसै इक षायर दी षायरी ते ओदी विशेषता बारै सुआल (अंदरूनी विकल्प समेत) 5

लौहके जवाब

- प्र.3 इन्दर-धनख पुस्तक च संकलत
- (क) काव्य-रचनाएं बारै 4 सुआल 3+3+3+3=12
- (ख) निबंधें बारै 3 सुआल 3+3+3=9
- (ग) कहानियें बारै 3 सुआल 3+3+3=9



मते लीहके जवाब

- प्र.4 (क) "डोगरी साहित्य दा इतिहास" थमां उपन्यास ते नाटक दी विकास-यात्रा बारे 2 सुआल 2+2=4
- (ख) "डोगरी साहित्य दा इतिहास" थमां गजल दी विकास-यात्रा बारे इक सुआल 2
- (ग) "इन्दर-धनख" पुस्तक दे निबधे दी पाठ्य समग्री थमां 3 सुआल 2+2+2=6
- (घ) "इन्दर-धनख" पुस्तक दे निबधे दी पाठ्य समग्री थमां 3 सुआल 2+2+2=6
- (ङ) "इन्दर-धनख" पुस्तक दिये काव्य-रचनाएं थमां 4 सुआल 2+2+2+2=8

वस्तुनिष्ठ सुआल

- प्र.5 "इन्दर-धनख" पुस्तक दिये
- (क) काव्य-रचनाएं थमां 2 सुआल 1+1=2
- (ख) कहानिये थमां 2 सुआल 1+1=2
- (ग) निबधे थमां 2 सुआल 1+1=2
- (घ) "डोगरी साहित्य दा इतिहास" चा नाटक, उपन्यास ते प्राचीन कविये बारे 3 सुआल 1+1+1=3



संस्कृत (SANSKRIT)

Marks: 100

Time: 3 Hours

- प्र 1 09 वस्तुनिष्ठ प्रश्न
- क) 3 प्रश्न 'प्रतिमा नाटक' से 3
- ख) 2 प्रश्न संस्कृत साहित्य की रूपरेखा से 2
- ग) 2 प्रश्न 'मेघदूत' से 2
- घ) 2 प्रश्न व्याकरण से 2
- प्र 2) संस्कृत साहित्य से सम्बन्धित 3 प्रश्न:-
- क) संस्कृत साहित्य की उत्पत्ति पर एक लघु टिप्पणी, अथवा रामायण तथा महाभारत महाकाव्य का संक्षिप्त वर्णन एवं संस्कृत साहित्य का महत्वा। (आन्तरिक विकल्प सहित) 5
- ख) शूद्रक, अश्वघोष तथा हर्ष नाटककारों में से किसी एक नाटककार के जीवन तथा उसकी कृतियों का संक्षिप्त वर्णन (आन्तरिक विकल्प सहित) 4
- ग) दण्डी, सबन्धु तथा बाणभट्ट लेखकों में से किसी एक गद्यकार के जीवन तथा उसकी कृतियों का संक्षिप्त परिचय (आन्तरिक विकल्प सहित) 4
- प्र 3 'प्रतिमानाटकम्' में से किन्ही तीन श्लोकों की प्रसंग सहित व्याख्या।
प्रत्येक श्लोक अपने आप में पूर्ण होना चाहिए। श्लोकों अथवा दोनों का संस्कृत से हिन्दी अनुवाद (आन्तरिक विकल्प सहित) 6+6+6=18
- प्र 4 'प्रतिमानाटकम्' में से किन्ही दो गद्यांशों, श्लोकों अथवा दोनों का संस्कृत से हिन्दी अनुवाद (आन्तरिक विकल्प सहित) 4+4=8
- प्र 5 'प्रतिमानाटक' के पाठ्यविषय से सम्बन्धित एक प्रश्न:-
चरित्र-चित्रण अथवा नाटक के प्राकृतिकम् पक्ष के प्रश्न एवं प्रतिमानाटक के पहले चार अंकों में से एक अंक का सार 5
- प्र 6 'मेघदूत' के दो श्लोकों की सप्रसंग व्याख्या 5+5=10
एक श्लोक 1 से 15 में से तथा एक श्लोक 16 से 30 श्लोकों में से हो।
(प्रत्येक श्लोक आन्तरिक विकल्प सहित)
- प्र 7 'मेघदूत' के चार श्लोकों का हिन्दी में अनुवाद।
2 श्लोक 1 से 17 में से हो तथा 2 श्लोक 18 से 35 में से हों। 3+3+3+3=12
- प्र 8 'मेघदूत' से पाठ्य-विषय संबंधी एक प्रश्न गीतिकाव्यों में मेघदूत का स्थान अथवा मेघ के जाने वाले मार्ग का वर्णन अथवा मेघदूत में प्राकृतिक वर्णन (आन्तरिक विकल्प सहित) 5



प्र 9 व्याकरण:-

क) 1. हल संधि, विरग संधि	2+2=4
2. हल संधिच्छेद (आन्तरिक विकल्प सहित)	
ख) 1. दो हलन्त शब्दों की रूपावली तीनों वचनों में:- गजन्, श्वन्, विद्वस्, चन्द्रमस्	3+3=6
2. दो सर्वनाम शब्दों की रूपावली तीनों लिंगों में: युष्मद् अस्मद् तथा तद् (आन्तरिक विकल्प सहित)	
ग) धातुओं के क्रियारूप (केवल परस्मैपद) दिवादिगणः नश् नृत् तथा भ्रम् (दो धातु प्रत्येक गण से बहुविकल्प सहित)	2+2=4
घ) कृदन्त प्रत्ययः तुमुर्नः क्त्वा, ल्यप् अनीयर, यत्। (कोई तीन प्रत्यय बहुविकल्प)	3
ङ) अव्यय का सामान्य परिचय उदाहरण सहित	1
च) समास-बहुव्रीहि और अव्ययीभाव (प्रत्येक समास का एक-एक उदाहरण आन्तरिक विकल्प सहित)	2
प्रतिमानाटक के आखिरी तीन अंक (5,6,7)	Non-evaluative



PERSIAN

Maximum Marks: 100

Time : 3 Hours

There shall be one theory paper of 100 marks of 3 hours duration that contains three following parts:

1. Language portion of the prescribed textbook 40
2. Prose portion of the prescribed textbook 30

Selected Chapter:--

۱. به نام خدا
۲. پندو طبیب با بیمار
۳. حکایت از گلستان (۱،۲،۶)
۴. شام در رستوران
۵. حکایت از رساله دلگشا (۲،۴)
۶. روباه و خروس
۷. ابن سینا و ابن مسکویه

3. Poetry portion of the prescribed textbook 30

Selected Chapter:--

۱. گل، آئینه، قرآن
۲. نوبت دیدار
۳. آرام جان
۴. دوست
۵. مادر
۶. بی ثباتی این جهان (۱-۳)
۷. خصلت
۸. کدو بن

Scheme of Assessment:--

1. Translation of five Persian Sentences into English/Urdu out of eight sentences 5 Marks
2. Translation of five English/Urdu sentences into Persian out of eight sentences 5 Marks
3. One seen passage from "Gulistan-i-Farsi-II" Followed by questions with internal choice. 5 Marks
4. Congugation of Persian verbs with respect to Past, Present and Future tense with internal choice. 5 Marks
5. Fill in the blanks with suitable Persian words with internal choice. 5 Marks
6. (a) To write the meaning and sentences of five Persian words out of eight 5 Marks
(b) Persian verbs 2 1/2 x 2 1/2
7. Arrangement of sentences 5 Marks
8. To write down the five Persian sentences about any following topic: 5 Marks

بهار در کشمیر، هوای کشمیر، خزان در کشمیر، استاد و مدرسه کتابخانه



Part - II (Prose)

1. Translation of selected Persian Prose portion into English/Urdu (3 part with internal choice) **(3×5) 15 Marks**
2. Translation of selected prose portion from English/Urdu to Persian (3 part with internal choice). **(3×5) 15 Marks**

Part - III (Poetry)

1. Translation of one selected Persian verse into English/Urdu (3 parts with internal choice) **(3×5) 15 Marks**
2. Translation and explanation with reference to context of two selected Persian verse into English/Urdu (2 parts with internal choice) **(2×5) 10 Marks**
3. One objective type question consisting of 5MCQs based on prescribed prose and poetry section. **5 Marks**

Textbook Prescribed

A textbook of Persian entitled **گلستانِ فارسی دوم** for class 12th published by Jammu and Kashmir State Board of school education.



ARABIC

Maximum Marks: 100

Time : 3 Hours.

The Paper shall have four Parts i.e. Part-I (Prose), Part-II (Quranic Portion and Al-hadith), Part-III (Writing Skills) and Part-IV (Grammar).

Part-I (Prose)

1. Translation of Quranic Verses of the prescribed textbook into Urdu or English with internal choice. **5 Marks**
2. Translation of Al-hadith and phrases of Arabic into Urdu or English with internal choice. **5 Marks**
3. Explanation with reference to context in Urdu or English based on passage extracted from the prescribed textbook with internal choice. **5 Marks**
4. One literary question pertaining to the topics contained in the prose portion of the textbook. **5 Marks**
5. One question regarding the sum and substance of the topics of prose portion with internal choice. **5 Marks**
6. Meaning of ten words from the prose portion with internal choice. **5 Marks**

Poetry-II (Quranic Portion and Al-hadith)

1. Translation of two poetry sections out of three into Urdu and English. **5 Marks**
2. Explanation with reference to context of two poetry sections out of three into Urdu or English. **5 Marks**
3. One literary question pertaining to the poetry portion of the textbook prescribed. **5 Marks**
4. A note of 100-150 words on life and contribution of a poet prescribed in the textbook. **5 Marks**

Part-III (Writing Skill)

- A. Write a short paragraph in Arabic with internal choice. **5 Marks**
- B. Five multiple choice questions from prose portion of the prescribed textbook. **5 Marks**
- C. Five multiple choice questions from poetry portion of the prescribed textbook. **5 Marks**
- D. Translation of ten simple sentences of Urdu into Arabic. **5 Marks**



Part-IV (Grammar)

30 Marks

Question on Applied Grammar.

The topics are:

- ١- اَدَابُ الْفِعْلِ الثَّلَاثِي الْمَجْرُودِ - لم - لَوَاصِبُ الْفِعْلِ
- ٢- اَدَابُ الْفِعْلِ الرَّبَاعِيِّ الْمَجْرُودِ - ٥ - حُرُوفُ الْكِبْرِ
- ٣- الْمُسْتَقَامَاتُ اسْمُ الْفَاعِلِ - اسْمُ الْمَفْعُولِ ٤- الْاَفْعَالُ نَائِقَةٌ
- ٤- التَّوَابِيعُ - اسْمُ الصِّفَةِ - اسْمُ التَّفْضِيلِ ٥- الْاَعْرَابُ
- ٥- الْمُرُوفُ الْمَشْبَبَةُ بِالْفِعْلِ

Textbook Prescribed

A textbook of Arabic entitled "تسهيل العربية" for Class-12th published by Jammu and Kashmir State Board of School Education



- (۲) نصاب میں شامل شعراء میں سے کسی ایک کے حالات زندگی یا شاعرانہ خصوصیات قلمبند کرنا۔ (۵ نمبرات)
- (۳) شامل نصاب نظموں سے دی گئی دو نظموں میں سے کسی ایک کا خلاصہ تحریر کرنا۔ (۴ نمبرات)
- (۴) تین شعری اصناف میں سے کسی ایک شعری صنف پر نوٹ لکھنا۔ (۴ نمبرات)
- (۵) دی گئی چار شعری اصطلاحات میں سے دو کی تعریف کرنا اور مثالیں دینا:
(مطلع۔ قافیہ۔ تہیہ۔ حسن تعلیل۔ تلمیح۔ صفت۔ تجنیس)

یا

- منظومات کے آخر پر دیے گئے چار مختصر سوالات میں سے دو کا جواب تحریر کرنا۔ (۶ نمبرات)
- حصہ ج (تخلیقی کام)
- ۱۔ دیے گئے پانچ غیر روایتی عنوانات میں سے کسی ایک پر مضمون تحریر کرنا۔ (۱۰ نمبرات)
- ۲۔ خط یا درخواست لکھنا (تین میں سے ایک) (۸ نمبرات)
- ۳۔ کسی واقعہ کی اخباری رپورٹ یا کوئی تشہیری پیغام یا کسی جملے کی کاروائی تحریر کرنا۔ (۷ نمبرات)
- حصہ د اردو ادب کی تاریخ سے متعلق سوالات اور objective

سوالات

i پوچھے گئے ۴ سوالات میں سے دو کے جوابات:

۱۔ علی گڑھ تحریک

۲۔ ترقی پسند تحریک

۳۔ اردو زبان کا آغاز و ارتقاء

۴۔ دبستان دہلی یا دبستان لکھنؤ کی ادبی اہمیت

۵۔ خطوط غالب

(۱۵ = ۷r + ۷r) (۵ نمبرات)

ii۔ نصاب میں شامل نثری اسباق، شعری مشمولات اور تاریخ ادب اور گرائمر پر مبنی دس

(۱۰ = ۱x) Objective سوالات۔



اُردو

طلبہ کو بہارستان اُردو کی بارہویں کتاب میں شامل نثری اسباق اور منظومات کا مطالعہ کرنا ہوگا۔ امتحان میں شامل کتاب نثری اسباق کے حوالے سے ۲۵ نمبرات کے سوالات پوچھے جائیں گے جب کہ منظومات کے حوالے سے بھی ۲۵ نمبرات کے سوالات پوچھے جائیں گے۔ طلبہ کی تحریری اور تخلیقی صلاحیتوں کو جانچنے کے لیے ۲۵ نمبرات کے سوالات پوچھے جائیں گے جب کہ تاریخ ادب اُردو اور objective نوعیت کے سوالات کے لیے ۲۵ نمبرات مختص ہوں گے۔

امتحانی پرچہ چار حصوں پر مشتمل ہوگا۔ ہر حصے کے خدو خال کچھ اس طرح ہوں گے۔

حصہ الف نثر

(۱) نثری اسباق سے لیے گئے دو مختصر اقتباسات میں سے مضمون اور مصنف کا حوالہ دے کر ایک کی تشریح کرنا۔
۵ نمبرات

(۲) نثری اسباق سے لیے گئے دو اقتباسات میں سے کسی ایک کے بارے میں پوچھے گئے تین سوالات کا مختصر جواب لکھنا۔
۶=۲+۲+۲ نمبرات

(۳) دیے گئے دو اسباق میں سے کسی ایک کا خلاصہ تحریر کرنا (۵ نمبرات)

(۴) نصاب میں شامل اسباق سے متعلق چار میں سے دو سوالات کا جواب لکھنا۔

۲+۲+۲ نمبرات

(۵) نصابی کتاب میں شامل تین نثر نگاروں میں سے کسی ایک کے حالات زندگی اور ادبی

کارناموں پر روشنی ڈالنا۔ یا

شامل کتاب دو نثری اصناف میں سے کسی ایک پر نوٹ لکھنا۔ (۵ نمبرات)

حصہ ب شاعری

(۱) نصابی کتاب میں شامل غزلیات سے لیے گئے چھ اشعار میں سے تین اشعار بحوالہ شاعر

تشریح کرنا یا

اصناف شعر (ما سوائے غزلیات) سے دیے گئے دو شعری اجزا میں سے کسی ایک کا مفہوم

بحوالہ شاعر و عنوان تحریر کرنا۔ (۶ نمبرات)



حصہ.....شاعری

- ☆ کتابیہ منز کذبہ آمتہ اٹھو شعر و منز شاعر ہند حوالہ دتھ ڈورن ہنز تشریح۔..... 4 نمبر
- ☆ کتابیہ منز حائل شاعر و منز اکر ہنز زندگی پتھ نوٹ۔ یا
- ☆ کتبہ شعری صنفہ تخلق مختصر نوٹ۔ ز پتھر 150 تا 200 لفظن تام۔..... 4 نمبر
- ☆ کتابیہ منز حائل منظوماتن ہندس اخرس پتھ دتھ آمتہ ہنیو مشقی سوالو منز وزن ہند جواب۔ زمکر 100 پتھ
- 150 لفظن تام۔..... 3+3+3=9 نمبر
- ☆ اٹھ سبھ ہے موخصر سوال
- 1+1+1+1+1+1+1+1=8 نمبر

حصہ..... تخلیقی تہ تحریری سوال

- ☆ تزیو اشاراتی خاکو منز اکر کس پتھ 200 پتھ 250 لفظن ہند مضمون۔..... 10 نمبر
- ☆ چتھر یاد رخاس۔..... 8 نمبر
- ☆ اخباری رپورٹ، مینٹکھ ہنز کارو آلی، پوسٹر یا اشتہار لیکھن۔ 7 نمبر
- حصہ د..... گرامر
- ☆ نمبرہ جمائو ہنز کاشیر کتابیہ منز حائل پتھ کتبہ دتھ آمتن مشقن ہند حوالہ گرامر۔
- 15 سوالو منز 10 ہن سوالن ہند کر جواب۔
- 4+4+3+3+3+2+2+2+1+1=25



کامیاب

- ☆ دی جی اے ایڈ کسٹیمڈ بورڈ آف سکول ایجوکیشن کے طرفہ شائع کردہ آہو "کامیاب کتاب" نمبرہ جہاڑ پاتھہ چھے مجھے
- ☆ کتاب پر ڈی ضروری۔ امتحان میں سوال نمبرہ حسابہ پڑھنیے۔
- ☆ نثری سبقن ہندی حوالہ ہن 25 ہن نمبرن ہندی سوال پڑھنیے۔
- ☆ کتابہ منزہا مل ہا عری ہندی حوالہ ہن 25 ہن نمبرن ہندی سوال پڑھنیے۔
- ☆ بچن ہندی تحریری ہن تخلیقی صلاحیتوں کو کڈنیے ہا پاتھہ ہن 25 ہن نمبرن ہندی سوال پڑھنیے
- ☆ گرامر نخلق ہن 25 ہن نمبرن ہندی سوال پڑھنیے
- ☆ سوالنامہ آسہ ڈون حصن پٹھہ مشتعل۔ الف۔ ب۔ ج۔ د۔

حصہ الف نثر

- ☆ سبقک ہن لکھاری ہندی حوالہ سان دنیے آمتہ دو ہندی اقتباسوں ہا کچ تشریح۔ 5 نمبر
- ☆ کدی سبقہ منز کڈنیے آمتہ ا۔ کس اقتباس نخلق پڑھنیے آمتہ نزن سوالن ہندی جواب۔ $2+2+1=5$ نمبر
- ☆ کدی سبقک خلاصہ، تنقیدی ہا بچہ یا کانہہ کردارن نخلق نوٹ۔ زمجر 150 پٹھہ 200 لفظن تام۔ 5 نمبر
- ☆ سبقن ہن کدی دنیے آمتہ ڈور مشقی سوالوں ہن دون ہندی جواب۔ زمجر 100 پٹھہ 150 لفظن تام۔
..... $3+3=6$ نمبر
- ☆ کتابہ منزہا مل ہندی ہندی نگار و نثر ا کہ ہندی زندگی ہندی حالات ہن ادبی کارنامہ۔ 4 نمبر



BHOTI

ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན།

སློབ་དཔེ་བཀའ་རྒྱ་ལྷོ་ཁྱིམ་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།

སློབ་ཚན་གྱི་མངའ་ ༡༠༠

དུས་ཕྱིན་ཆུ་ཚོད། ༣

༡༥ རྒྱུ་མཐུག་ལྷོ་ཁྱིམ་

༣༠

༡༦ རྒྱུ་མཐུག་ལྷོ་ཁྱིམ་

༣༠

༡༧ བཅའ་རྒྱུ་མཐུག་ལྷོ་ཁྱིམ་

༤༠

༡༥ རྒྱུ་མཐུག་ལྷོ་ཁྱིམ་

༡ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན་གྱི་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༢ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༣ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༤ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༥ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༦ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན་གྱི་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༡༦ རྒྱུ་མཐུག་ལྷོ་ཁྱིམ་

༡ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན། ལྷོ་ཁྱིམ་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།

༢ ལྷོ་ཁྱིམ་འཛིན་ལྷོ་ཁྱིམ་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན། ལྷོ་ཁྱིམ་སློབ་ཚན་ལྷོ་ཁྱིམ་སློབ་ཚན།



- ३ རྟལ་རྒྱ་དམ་པའི་ཡོན་ཏན་རྣམས། ཞེས་པ་ནས། དམ་པའི་ཡོན་ཏན་སྤེལ་གྱུར་ཡང་། ཞེས་པའི་བར།
- ༤ རྒྱལ་པོ་ལྷན་པ་འབྱོར་ཐོབ་ཡང་། ཞེས་པ་ནས། རྒྱལ་པོའི་དབུས་ན་དགའ་ཞིང་ཅེ། ཞེས་པའི་བར།
- ༥ རྒྱུན་རྒྱུས་འབད་པས་འཛིན་བྱེད་ཅིང་། ཞེས་པ་ནས། རྒྱལ་པོ་ལྷན་པའི་ཚོགས་ནང་། ཞེས་པའི་བར།

ག༽ བར་སྐྱོད་དང་སྐྱབ་དག

- ༡ རྒྱུན་རྒྱུས་ཀྱི་རོ་བོ་དང་དབྱེ་བ། ༢ འགོག་རྒྱུན་ཀྱི་དོན་དང་དབྱེ་བ། ༣ དོན་གཞན་གྲོག་དེ་པའི་རྒྱུན་ཀྱི་རོ་བོ་དང་དབྱེ་བ། ༤ ལྷོག་པ་ཅན་རྒྱུན་ཀྱི་མཚན་ཉིད་དང་དབྱེ་བ། ༥ ཚོགས་དཀའ་བ་བརྩེད་དོན་གྱིས་ཉེ་བཅོལ་པ་བཅོལ་བ།
- ༦ མཛོན་བཅོལ་ལས། ས་གཞི། ལྷུང་སྤོང་། ཚངས་པ། འཇམ་པའི་དབྱེད་ལ། ལྷ། ཉ། མེ། ལྷ། བརྒྱུན།
- ༧ བཤད་པ་ཞིག་འབྲི་བ། ལ་དུགས་ཀྱི་ལོ་གསར། ང་ཡི་སྐྱེ་ཡུལ། ཁོར་ལུགས་སྤྱང་སྐྱོབ་སྐྱོར། ང་ཡི་དགོ་ཚུ།



GEOLOGY-XII

Max Marks : 100

Theory : 70

Practicals : 30

Time : 3 Hrs

Unit I	GEODYNAMICS	Marks 12
Unit II	GENERAL GEOLOGY	Marks 12
Unit III	PALAEONTOLOGY	Marks 11
Unit IV	REMOTE SENSING	Marks 10
Unit V	ECONOMIC GEOLOGY	Marks 14
Unit VI	STRUCTURAL GEOLOGY	Marks 11

Unit I GEODYNAMICS

A. Volcanoes

- (i) Definition
- (ii) Parts of a Volcano
- (iii) Types of volcanoes
- (iv) Products of volcanoes
- (v) Distribution of volcanoes in the world

B. Earthquakes

- (i) Definition
- (ii) Causes and effects of earthquakes
- (iii) Focus and epicenter
- (iv) Seismic waves
- (v) Richter scale of earthquake intensity
- (vi) Seismograph and seismograms
- (vii) Seismic belts of the world



Unit II GENERAL GEOLOGY

A. Elementary study of the interior of the earth.

B. Age of the Earth

- (i) Methods based on rate of sedimentation and rate of increase of salinity of seawater.
- (ii) Radioactive methods, Uranium - Lead ratio method and C¹⁴ method

Unit III PALAENTOLOGY

A. Morphological description of the following :

- (i) Brachiopoda
- (ii) Bivalvia (Lamelibranchia)
- (iii) Trilobita

B. Systematic position, Stratigraphical range and morphological features of the following genera :
Spirifer, Productus, Syringothyris, Cardita, Trigonina, Pecten, Calymene, Paradoxides and Agnostus

Unit IV REMOTE SENSING

- (i) Definition of remote Sensing.
- (ii) Scope and advantages of Remote Sensing.
- (iii) Remote Sensing Platforms viz; Ballons, Air crafts, Rockets and Satellites.
- (iv) Aerial Photography and types of aerial photographs.

UNIT V ECONOMIC GEOLOGY

- (i) Definition; Economic minerals, Critical, Strategic and Essential minerals.
- (ii) Physical characters, chemicals composition and distribution of ores of Copper, Iron and Aluminum in India.
- (iii) Distribution of coal and petroleum in India.
- (iv) Mineral wealth of J&K State.



Unit VI STRUCTURAL GEOLOGY

A. FOLDS

- (i) Definition of Fold.
- (ii) Description of the following types of folds: Anti-Clinorium, Synclorium, Symmetrical fold, Asymmetrical fold, Over turned fold, Dome and Basin.

B. FAULTS

- (i) Definition of fault
- (ii) Description of the following types of faults : Normal Fault, Reverse fault, Step fault, Horst and Graben, Thrust fault and strike slip fault.

C. UNCONFORMITY

- (i) Definition of Unconformity
- (ii) Types and importance of unconformities

PRACTICALS

Max Marks : 30

Time : 3 Hrs

Internal Assessment : 10

External Assessment : 20

1. Systematic position, Stratigraphical range and description (with suitable sketches) of the following genera :
Spirifer, Productus, Syringothyris, Cardita, Trigonina, Pecten, Calymene, Paradoxides and Agnostus.
2. Megascopic, description and identification of the following minerals. Hornblende Orthoclase, Hematite, Chalcopyrite, Malachite, Bauxite, Quartz, Muscovite, Biotite, Megnetite, Beryl, Tourmaline and Galena
3. Drawing of a section of a simple geological map.
4. Fieldwork and viva-voce : Field Work compulsory for at least fifteen days.



Books Suggested :-

1. A Textbook of Geology by P.K Mukherjee
2. A Textbook of Palaentology by S.K Chadha
3. Engineering Geology by K.M Banger
4. Ruttleys Elements of Mineralogy by H.H Read
5. Principles of Remote Sensing by Surindera & Patel.



PUBLIC ADMINISTRATION

(INDIAN ADMINISTRATION)

Maximum Marks: 100

Time: 3 hours

Unit I: Historical Background

Ancient Indian Administration, Delhi Sultanate and Mughal Administration, British Administration in India. Indian Administration - Continuity and Change.

Unit II: Indian Constitution

Formulation of Indian Constitution and Constituent Assembly Salient Features of Indian Constitution. Fundamental Rights and Duties.

Unit III: Central Administration

President, Prime Minister and Parliament and Judiciary Cabinet Secretariat; Ministries and Departments

Unit IV: Personnel Administration in India

Evolution of Civil Service in India, Recruitment Training Process; Recruitment Agencies; UPSC and JKPS

Unit V: Planning in India

NITI AAYOG- Role, Composition and Function; National Development Council; Finance Commission; National Informatics Centre

Unit VI: Centre State Relations

Union—State Administrative, Legislative and Financial Relations, Emerging Contours and Issues

Unit VII: State Administration

Governor; Chief Minister, Council of Ministers; Chief Secretary; State Secretariat and Directorates

Unit VIII: District Administration

Institution of Deputy Commissioner and Changing Role of the Deputy Commissioner; District Administration and Democratic Decentralization

Unit IX: Rural and Urban Government

Rural Local Government and Panchayati Raj; Main Features and Structures; 73rd Constitutional Amendment;
Urban Local Government; Main Features and Structures; 74th Constitutional Amendment

Unit X: E-Governance

Concept and Meaning of E-Governance; Application of E-Governance In Jammu and Kashmir, Khidmat Center and Himayat



Secheme of Assessment for Public Administration

(Class HSP -II)

Total weightage = 100 marks

Time : 3.00 hrs

- | | |
|---|----------------|
| 1) 3 very long type questions (250-300 words) of 10 marks each with internal choice | 3x10= 30 marks |
| 2) 3 long type questions (200-250 words) of 8 marks each with internal choice | 3x8 =24 marks |
| 3) 6 short answer type questions with internal choice of 4 marks each : | 6x4=24 marks |
| 4) 4 very short answer type questions with internal choice of 3 marks each : | 4x3=12 marks |
| 5) 10 MCQ's of 01 marks each | 10x1= 10 marks |

Suggested Readings

Aravind, S., Indian Administration, Himalaya Publishing House, New Delhi, 1992.

Avasti and Avasti, Indian Administration, Lakshmi Narain Agarwal, Agra, 1998.

Basu, D.D., An Introduction to the Constitution a India, Prentice Hall, New Delhi, 2006.

Fadia, B.L. & Fadia, Kuldeep-Indian Administration-Sahitya Bhawan Publications, 2005, Agra

General Studies Manual, Tata McGraw Hills, New Delhi, 2008

Gupta, M.C. and Kamal N. Kabra, Public Administration in India, Gyan Publishing House, New Delhi, 1999.

Jain R.B., Public Administration in India: 21st Century Challenges for Good Governance, Deep and Deep Publications, New Delhi, 2002.

Kashyap Subash, C. Our Constitution, NBT, New Delhi, 1994.

Krishna K. Tummala, Public Administration in India, Allied Publishers Limited, New Delhi, 1996.

Laxmikanth, Indian Polity, Tata McGraw Hills, New Delhi, 2008

Maheshwari, S.R., (2000) Indian Administration, Orient Longman, New Delhi,

Ramesh K. Arora and Rajni Goyal. Indian Public Administration-Institution and Issues, Wishwa Prakashan, New Delhi, 2004.

Sriram Maheshwari, Indian Administration, Orient Longman, New Delhi, 2000.

Vishnu Bhagawan and Vidya Bhushan, Indian Administration, S.Chand & Company. 1994.



FUNCTIONAL ENGLISH

Max. Marks: 100

Time: 3 hrs.

A) Literature Reader II

Prose:

- The Turning Point
- Polar Meltdown
- Forests – Desperate Measures Needed Taking up Challenge

A

One question based on the reading comprehension of prose passage of 10 marks, followed by questions such as multiple choice questions; fill in the blanks, true / false, vocabulary etc. (seen Vs unseen) **(1 × 10 = 10 marks)**

One questions based on the summary / precise of the given prose of 10 marks with internal choice (seen Vs unseen) **(10 × 1 = 10 marks)**

One question of 05 marks on the textual understanding of prose lesson with internal choice. **(5 × 1 = 5 marks)**

Short Stories

- Some Hill Stations Ghosts
- The Rightful Inheritor the Earth
- Ha' Penny
- The Devil Outwitted

One question based on the reading comprehension of short story followed by question based on vocabulary, fill in the blanks, true / false or a question based on the development of a story from a given outline and theme. **(10 × 1 = 10 marks)**

One question of 05 marks based on the moral / theme / style etc. with internal choice **(5 × 1 = 5 marks)**

Poetry

- Abraham Lincoln's Letter to His Son's Teacher
- The Secret Machines

Two question based on the stanzas of the poem followed by questions with internal choice. This shall carry 03 marks. **(03 × 2 = 6 marks)**

Three very short answer type questions based on literary devices, of two marks with internal choice, also by asking about broader terms in general such as metaphor, simile, imagery etc. **(03 × 2 = 6 marks)**



Drama

- Don't Call Out or You'll Be Shot
- The Count's Revenge

One question based on the description of event / situation / character / theme / conversation etc. of 08 marks with internal choice. **(8 × 1 = 8 marks)**

One question on note making or note taking of a given passage with internal choice. **(5 marks)**

One question on writing of an advertisement on the given caption with internal choice. (classified vs commercial) **(5 marks)**

One question based on the writing of memorandum on any given topic with internal choice. **(5 marks)**

One question on writing of a circular on a given topic with internal choice **(5 marks)**

One question on writing of report on any of the given topics with internal choice. **(5 marks)**

One question based on the formation of tables, bar charts, histograms etc. and their interpretation on the given topics with internal choice **(5 marks)**

One question on the editing / proof reading of the given prose passage. **(5 marks)**

One question on writing the notes on any one of the following topics:

- a) Dialect b) Accent c) Register d) Style **(5 marks)**

Books Suggested

- Textbook of Functional English Published by Goyal Brothers in Collaboration with J&K State Board of School Education.
- Literature Reader II
- Language Skills Book



FOOD TECHNOLOGY

Maximum Marks: 100

Theory: 70

Practical: 30

Unit-1: Fruits and Vegetable Processing Technology: (20 Marks)

- Composition & Nutritional importance of fruits and vegetables in human diet.
- Common operations in post harvest management & processing- pre cooling cleaning, sorting, grading, peeling, coring and Slicing.
- Storage of fresh fruits and vegetables-Cold Storage, CAS.
- Ingredients and process for manufacture of Jams, Jellies, Marmalades, Preserves, candies, Pickles and Chutneys.
- Tomato Processing- Ingredients and process for manufacture of tomato ketchup, sauce, puree and paste.
- Juices-Raw material and processing for preparation of different fruit juices- Squash, Nectar, Cordial and Concentrate.
- Common operations of drying and dehydration of fruits and vegetables. Pretreatments (blanching, Sulfuring and fumigation), and storage of dried products.

Unit 2: Cereal and Pulse Processing Technology (15 marks)

- Wheat: Structure, types and milling of wheat.
- Rice: Structure, Parboiling and milling.
- Maize: Structure and milling.
- Pulses: Nutritional importance and anti-nutritional factors in pulses. Pulse milling.

Unit 3: Milk and Milk Products Processing Technology: (15 marks)

- Milk: Sources, composition and nutritive value.
- Factors effecting composition of milk.
- Milk processing- Collection, chilling, standardization, homogenization and pasteurization.
- Milk products-preparation and storage of curd, ice cream and paneer, butter and gee.
- CIP System in dairy industry.

Unit 4: Meat, Fish and Poultry Processing Technology: (10 marks)

- Composition and nutritive value of meat, fish and poultry.
- Ante- mortem inspection of meat, animals and methods of slaughtering.



- Preservation of Meat, Fish and Poultry-Pickling, Smoking, Curing, Freezing, Canning, Drying and Salting.
- Introduction to traditional meat products of J&K.
- Egg: Structure, composition, nutritive value and spoilage.

Unit 5: Bakery and Confectionary Technology:

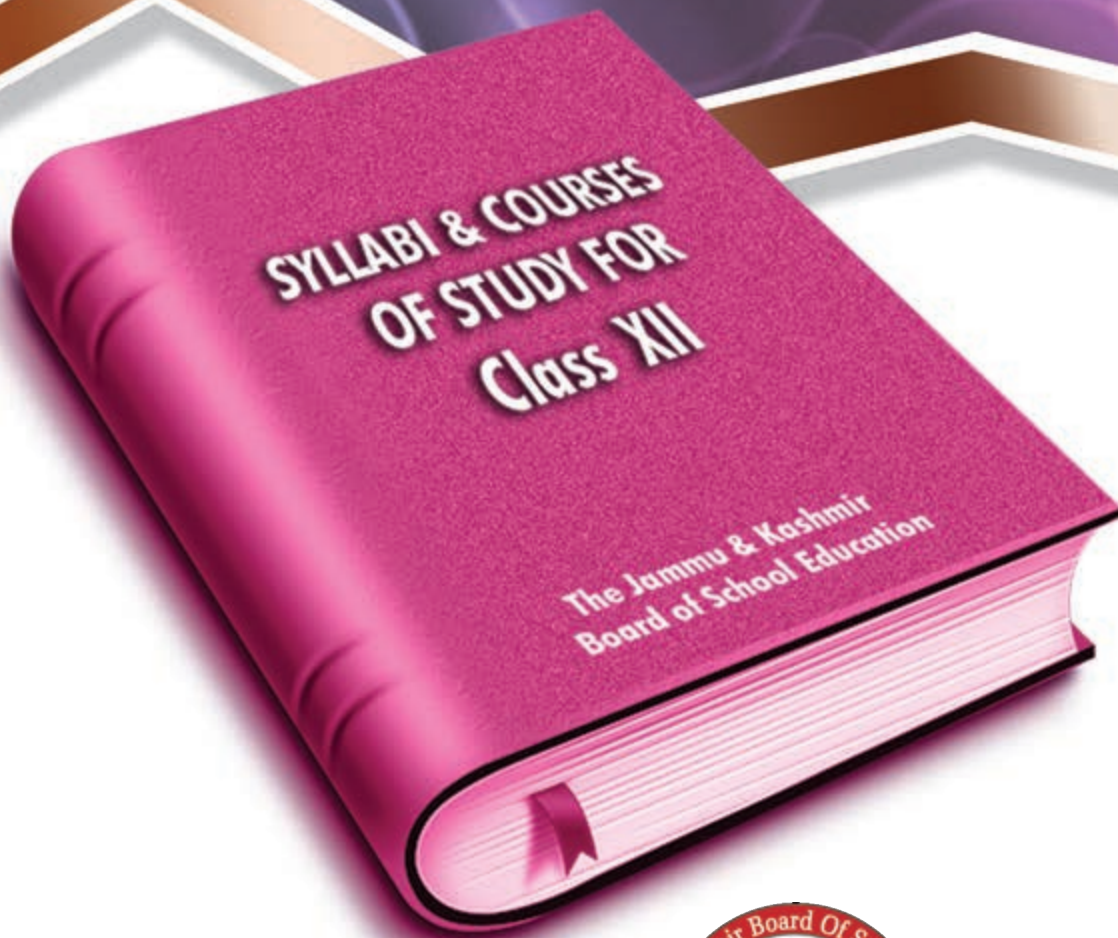
(10 marks)

- Raw materials and their role in bakery products.
- Types, preparation and quality evaluation of bread, biscuits and cakes. Staling of bread.
- Confectionery Products: Different ingredients and processes for making of candy, chocolates and HFCS (High Fructose Corn Syrup).
- Mallard reaction and caramelization in bakery products.

Practical;s:

(30 marks)

1. Preparation of Jams and pickles.
2. Preparation of tomato ketchup and puree.
3. Preparation and preservation of fruit juices.
4. Drying of locally available fruits and vegetables.
5. Determination of physical characteristics of wheat, rice and maize (1000 kernel weight and bulk density).
6. Estimation of wheat flour quality- Moisture content and gluten content.
7. Determination of Fat, SNF (Solid not fat), Specific Gravity and COB in milk.
8. Preparation of dahi, paneer and icecream.
9. Candling and grading of egg.
10. Preparation of fish/meat pickle.
11. Preparation and evaluation of confectionary products- Candy, toffee.
12. Visit to different food processing industries.



Jammu and Kashmir Board of School Education
Srinagar Kashmir