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English
Examination Specifications
English Communicative
Code No. 01

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
Reading	20
Writing	30
Grammar	20
Literature	30

SECTION - A

60 Periods

1. Advanced Reading Skills

Two unseen passage (including poems) with a variety of questions including 04 marks for vocabulary such as word formation and inferring meaning. The total range of the 2 passages including a poem or a stanza, should be around 650-1000 words.

1. 350-500 words in length (for note-making and summarising) 08
2. 300-500 words in length (4 marks for word attack skills) 12

The passages or poems could be of any one fo the following types

Factual passages e.g. illustrations, description, reports

Discursive passages involving opinion e.g. argumentative, persuasive

Literary passage e.g. poems, extracts from fiction, biography, autobiography, travelogue etc.

In the case of a poem, the text may be shorter than the prescribed word limit.

SECTION - B

60 Periods

2. Effective Writing Skills

3. **One** out of two short writing tasks such as notices, advertisements, factual description of people arguing for or against topics, places and objects, drafting posters, accepting and declining invitations. (50-80 words)

4. Writing One out of two letters of any of the following types based on given verbal/visual input
 - a) Official letters for making inquiries, suggesting changes-registering complaints asking for and giving information, placing orders and sending replies (80-100 words)
 - b) Letters to the editor on various social, national and international issues (125-150 words)
 - c) Application for a job including CV (Curriculum Vitae)/Resume
5. **One** out of two long and sustained writing task such as writing a speech, a report or writing an article based on verbal/visual input (200 words)

Section-C

30 Periods

Applied Grammar

Variety of questions, as listed below may be asked, involving the application of grammar items in context (i.e. not in isolated sentences). The grammar syllabus will be sampled each year. Grammar items such as modals, determiners, voice and tense forms have been dealt with class XII. However, other items such as prepositions, verb forms, connectors which have been learnt earlier would also be included.

6. Reordering of words and sentences, Filling the blanks
7. Composing a dialogue based on the given input
8. Error correction in sentences
9. Drafting question/questionnaires based on given input

Section - D

30 Periods

Literature

In the *Literature Reader*, questions will be asked to test comprehension at different levels and of different kinds local, global, interpretative, inferential, evaluative and extrapolatory.

10. **One** out of two extracts from different poem from the *Literature Reader*, each followed by two or three questions to test local and global comprehension of ideas and language used in the text.

11. **Two** out of the three short answer question based on different poem to test theme, setting and literary devices. It may or may not be based on an extract. (80-100 words)
12. **One** out two questions based on the play from the Literature Reader to test comprehension and drawing/evaluating inferences. An extract may or may not be used (80-100 words)
13. **Two** out of three short questions based on different prose texts from the Literature Reader to test global comprehension of usage & lexis and meaning (80-100 words)
14. **One** out of two extended questions based on one of the prose texts in the Literature Reader to test global comprehension and for extrapolation beyond the text (100-125 words)

Prescribed Books :

1. ***Language Skills book - Functional English*** published by Central Board of Secondary Education, Delhi.
2. ***Literature Reader - Functional English*** published by Central Board of Secondary Education, Delhi.

HINDI
Examination Specifications
Code No. 12

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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भाग	अंक
क	20
ख	30
ग	20
घ	30

भाग क – हिन्दी पुस्तक

(i) कविता भाग

(i) प्राचीन कवियों का जीवन परिचय

सप्रसंग व्याख्या एवं प्रश्नोत्तर

1. सूरदास 2. मीराबाई 3. बिहारी 4. गुरु गोबिन्द सिंह

(ii) प्राचीन कवियों का जीवन परिचय

5. मैथिलीशरण गुप्त 6. जयशंकर प्रसाद
7. सुमित्रानंदन पंत 8. हरिवंश राय 'बच्चन'
9. सच्चिदानन्द हीरानन्द वात्स्यायन 'अज्ञेय' 10. डॉ. शिवमंगल सिंह 'सुमन'
11. गिरिजा कुमार माथुर 12. धर्मवीर भारती
13. डॉ. चन्द्र त्रिखा 14. गीता डोगरा

(ii) निबन्ध भाग

(iii) निबन्धकारों का जीवन परिचय

15. सच्ची वीरता 16. क्यों निराश हुआ जाए ?
17. अगर ये बोल पाते : जलियांवाला बाग 18. समय नहीं मिला
19. शार्टकट सब ओर 20. गुरु गोबिन्द सिंह

(iii) कहानी भाग

(iv) कथाकारों का जीवन परिचय

- | | |
|----------|---------------|
| 21. मधुआ | 22. तत्सत् |
| 23. ठेस | 24. उपेक्षिता |

(iv) एकांकी भाग

(v) एकांकीकारों का जीवन परिचय

- | | |
|-----------|-------------------|
| 25. वापसी | 26. रीढ़ की हड्डी |
|-----------|-------------------|

हिन्दी साहित्य का इतिहास
(रीतिकाल और आधुनिक काल)

भाग – ख : रचनात्मक लेखन

1. निबन्ध लेखन

भाग – ग : व्यवहारिक व्याकरण

- | | |
|----------------------|-------------|
| 1. समास/ समास विग्रह | 2. पद परिचय |
| 3. छंद अलंकार परिचय | |

भाग – घ : सम्प्रेषण कौशल

- | | |
|----------------------------|-----------------------|
| 1. पंजाबी से हिन्दी अनुवाद | 2. पारिभाषिक शब्दावली |
| 3. विज्ञापन लेखन | 4. सूचना लेखन |

बोर्ड पेपर्स

PUNJABI
Examination Specifications
Code No. 13

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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ਭਾਗ	ਅੰਕ
(ੳ)	20
(ਅ)	30
(ੲ)	20
(ਸ)	30

1. ਕਾਵਿ ਕੀਰਤੀ

1. ਭਾਈ ਵੀਰ ਸਿੰਘ
2. ਪ੍ਰ: ਪੂਰਨ ਸਿੰਘ
3. ਧਨੀ ਰਾਮ ਚਾੜ੍ਹਕ
4. ਦੀਵਾਨ ਸਿੰਘ ਕਾਲੇਪਾਣੀ
5. ਪ੍ਰ: ਮੋਹਨ ਸਿੰਘ
6. ਅਮ੍ਰਿਤਾ ਪ੍ਰੀਤਮ
7. ਪ੍ਰੀਤਮ ਸਿੰਘ ਸਫੀਰ
8. ਬਾਵਾ ਬਲਵੰਤ
9. ਹਰਿਭਜਨ ਸਿੰਘ
10. ਭਾਗ ਸਿੰਘ
11. ਸ਼ਿਵ ਕੁਮਾਰ
12. ਸ. ਸ. ਮੀਸ਼ਾ

2. ਸੋਭਾ ਸਕਤੀ

ਕਥਾ ਕਹਾਣੀ

1. ਬਾਗਾਂ ਦਾ ਰਾਖਾ
2. ਮੰਗੋ

3. ਸ਼ੇਰਨੀਆ
4. ਗੋਈ
5. ਅੰਨ੍ਹੀ ਮਾਂ ਦਾ ਪੁੱਤਰ
6. ਨੰਦੂ
7. ਗਰਜਾ ਮਾਰੇ
8. ਇੰਤ ਤਰਵਾਸੇ
9. ਤਿੜਕਿਆ ਹੋਇਆ ਸ਼ੀਸ਼ਾ
10. ਕਾਰ ਖਿਡੋਣਾ
11. ਖੰਭ
12. ਦੁੱਧ ਦੀਆਂ ਨਹਿਰਾਂ

ਲੇਖ ਰਚਨਾ

1. ਗੁਰੂ ਨਾਨਕ ਦੇਵ ਜੀ
2. ਗੁਰੂ ਤੇਗ ਬਹਾਦਰ ਜੀ
3. ਗੁਰੂ ਗੋਬਿੰਦ ਸਿੰਘ ਜੀ
4. ਮਹਾਨ ਸ਼ਹੀਦ ਸ: ਭਗਤ ਸਿੰਘ
5. ਮੇਰਾ ਮਨ ਭਾਉਂਦਾ ਕਵਿ
6. ਮੇਰਾ ਮਨ ਭਾਉਂਦਾ ਲੇਖਕ
7. ਪੰਜਾਬੀ ਦੇ ਲੋਕ ਗੀਤ
8. ਪੰਜਾਬ ਦੇ ਮੇਲੇ
9. ਬਸੰਤ ਰੁੱਤ
10. ਅੱਖੀ ਡਿੱਠਾ ਮੇਲਾ

ਛੰਦ ਤੇ ਅਲੰਕਾਰ

1. ਛੰਦ
2. ਅਲੰਕਾਰ

ਵਿਆਕਰਨ

1. ਵਾਕ ਵੰਡ
2. ਵਾਕਾਂ ਦੀ ਸੋਧ

Physics

Examination Specifications

Code No. 61

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	70 Marks										
	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="width: 50%;">Section</th> <th style="width: 50%;">Marks</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">20</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">20</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">15</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">15</td> </tr> </tbody> </table>	Section	Marks	A	20	B	20	C	15	D	15		
Section	Marks												
A	20												
B	20												
C	15												
D	15												

Unit I

25 Periods

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 a point charge, electric field lines; electric dipole, electric field due to dipole; torque on dipole in uniform electric field.

Electric flux, statement of Gauss's theorem and its applications 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 a point charge, a dipole and system of charges; equipotential surfaces electrical potential energy of a system of two point charge and of electric dipole in an electrostatic field.

Conductors and insulators, free charges and bound charges inside a conductor, Dielectrics and electric polarisation, capacitors and capacitance, combination of capacitors in series and in parallel, capacitance of a parallel plate capacitor with dielectric medium between the plates, energy stored in a capacitor. Van de Graaff generator.

Unit II

Periods 22

Electric current, flow of electric charges in a metallic conductor, drift velocity, mobility and their relation with electric current; Ohm's law, electrical resistance, V-I characteristics (linear and non-linear), electrical energy and power, electrical resistivity and conductivity. Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors; temperature dependence of resistance. emf and potential difference of a cell, internal resistance of cell, combination of cell in series and in parallel. Kirchhoff's laws and simple applications. Wheatstone bridge, metre bridge. Potentiometer-principle and its applications to measure potential difference and for comparing emf of two cells; measurement of small resistances and internal resistance of a cell.

Unit III: Magnetic Effects of Current and Magnetism**Periods 25**

Concept of magnetic field, Oersted's experiment.

Biot - Savart law and its application to current carry circular loop.

Ampere's law and its applications to infinitely long straight wire, Force between two parallel current-carrying conductors-definition of ampere, straight and toroidal solenoids.

Force on a current-carrying conductor in uniform magnetic field. Torque experienced by a current loop in uniform magnetic field; moving coil galvanometer-its current sensitivity and conversion to ammeter and voltmeter.

Force on a moving charge in uniform magnetic and electric fields. Cyclotron. Current loop as a magnetic dipole and its magnetic dipole moment of a revolving electron. Magnetic field intensity due to 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 strengths. Permanent magnets.

Unit IV: Electromagnetic Induction and Alternating Currents**Periods 20**

Electromagnetic induction; Faraday's law, induced emf and current; Lenz's Law, Eddy currents. Self and mutual inductance, displacement current.

Alternating currents, peak and rms value of alternating current/voltage; reactance and impedance; LC oscillations (qualitative treatment only), LCR series circuit, resonance; power in AC circuits wattless current.

AC generator and transformer.

Unit V: Electromagnetic waves**Periods 4**

Displacement current, Electromagnetic waves and their characteristics (qualitative ideas only) Transverse nature of electromagnetic waves.

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

Unit VI: Optics**Periods 30**

Reflection of light, spherical mirrors, mirror formula. Refraction of light, total internal reflection and its applications, optical fibres, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula. Magnification, power of a lens, combination of thin lenses in contact. 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.

Wave optics: wave front and Huygens principle, reflection and refraction of plane wave at a plan surface using wave fronts. Proof of laws of reflection and refraction using Huygens' 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. Polarisation plane polarised lighth; Brewster's uses of plane polarised light and Polaroids.

Optical instrument; Human eye, image formation and accommodation, correction of eye defece (myopia, hypermetropia, presbyopia and astigmatism) using lenses. Microscopes and astronomic telescopes (reflecting and refracting) and their magnifying powers. Resolving power of microscope and astronomical telescopes.

Unit VII: Dual Nature of Matter and Radiation

Periods 8

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

Matter waves-wave nature of particle, de Broglie relation. Davisson-Germer experiment.

Unit VIII: Atoms & Nuclei

Periods 18

Alpha- particle scattering experiment; Rutherford's model of atom; Bohr model, energy levels, hydrogen spectrum.

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 per nucleon and its variation with mass number; nuclear fission, nuclear reactor, nuclear fusion.

Unit IX: Electronic Devices

Periods 18

Semiconductors: semiconductor diode - I-V characteristics in forward and reverse bias, diode as a rectifier; I-V characteristics of LED, photodiode, solar cell, and Zener diode, Zener diode as a voltage regulator. Junction transistor, transistor action, characteristics of a transistor; transistor as an amplifier (common emitter configuration) and oscillator. Logic gates (OR, AND, NOT, NAND and NOR). Transistor as a switch.

Unit X: Communication Systems**Periods 10**

Elements of a communication system (block diagram only); bandwidth of signals (speech, TV and digital data); bandwidth of transmission medium. Propagation of electromagnetic wave in the atmosphere, sky and space wave propagation. Need for modulation. Production and detection of an amplitude-modulated wave.

Practicals

Every Student will perform 10 experiments (5 from each section) & 8 activities (4 from each section) during the academic year. Two demonstration experiments must be performed by the teacher with participation of students. The students will maintain a record of these demonstration experiments.

Experiments

1. To determine resistance per cm of a given wire by plotting a graph of potential difference versus current.
2. To find resistance of a given wire using metre bridge and hence determine the specific resistance material.
3. To verify the laws of combination (series/parallel) of resistances using metre bridge.
4. To compare the emf of two given primary cells using potentiometer.

Chemistry

Examination Specifications

Code No. 62

One Paper Unitwise Allocation

Unit	Areas of	3 Hours	70 Marks										
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Section	Marks												
A	20												
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Unit I : Solid State :

12 Periods

Classification of solids based on different binding forces molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea), unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

Unit II: Solutions

Periods 12

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties-relative lowering of vapour pressure, elevation of B.P., depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass

Unit III: Electrochemistry

Periods 14

Redox reactions, conductance in electrolytic solutions, specific and molar conductivity variations of conductivity with concentration, Kohlrausch's Law, electrolysis and laws for 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, fuel cells; corrosion)

Unit IV : Chemical Kinetics

Periods 12

Rate of a reaction (average and instantaneous), factors affecting rates of reaction, concentration, temperature, catalyst; order and molecularity of a reaction; rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reaction); concept of collision theory (elementary idea, no mathematical treatment)

Unit V: Surface Chemistry

Periods 8

Adsorption - physisorption and chemisorption; factors affecting adsorption of gases on solids; catalysis; homogeneous and heterogeneous, activity and selectivity; enzyme catalysis; colloidal state; distinction between true solutions, colloids and suspensions; lyophilic, lyophobic, multimolecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation; emulsion - type of emulsions.

Unit VI : General Principles and Processes of Isolation of Elements**Period 18**

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

Unit VII : p-Block Elements**Period 4**

Group 15 elements : General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; nitrogen- preparation, properties and uses; compounds of nitrogen; preparation and properties of ammonia and nitric acid, oxides of nitrogen (structure only); Phosphorous- allotropic forms; compounds of phosphorous; preparation and properties of phosphine, halides (PCl_3 , PCl_5) and oxyacid (elementary ea only)

Group 16 elements; General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; dioxygen; preparation, properties and uses; simple oxides; Ozone. Sulphur - allotropic forms; compounds of sulphur; properties and uses of sulphur dioxide; sulphuric acid; industrial process of manufacture, properties and uses, oxoacids of sulphur (structures only).

Group 17 elements : General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compound of halogens; preparation, properties and uses of chlorine and hydrochloric and interhalogen compounds, oxoacids of halogens (structures only).

Group 18 elements : General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.

Unit VIII : d and f Block Elements**Periods 14**

General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, atomic radii, colour catalytic property, magnetic properties, interstitial compounds, alloy formation. Preparation and properties of $\text{K}_2\text{Cr}_2\text{O}_7$ and KMnO_4 .

Lanthanoids - electronic configuration, oxidation states, chemical reactivity. and lanthanoid contraction.

Unit IX: Coordination Compounds**Periods 12**

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds, bonding; Isomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological systems).

Unit X: Haloalkanes and Haloarenes**Periods 12****Haloalkanes :**

Nomenclature, nature of C-X bond, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions.

Haloarenes : Nature of C-X bond, substitution reactions (directive influence of halogen for monosubstituted compounds only).

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

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

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

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

Unit XII : Aldehydes, Ketones and Carboxylic Acids**Periods 12**

Aldehydes and Ketones : Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, and mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes; uses.

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

Unit XIII : Organic compounds containing Nitrogen**Periods 10**

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

Unit XIV : Biomolecules**Periods 12**

Carbohydrates — Classification (aldoses and ketoses), monosaccharides (glucose and fructose), oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); importance.

Proteins — Elementary idea of α -amino acids, peptide bond, polypeptides proteins, primary structure, secondary structure, tertiary structure and quaternary structure (qualitative idea only), denaturation of proteins; enzymes.

Unit XV : Polymers**Periods 8**

Classification — natural and synthetic, methods of polymerization (addition and condensation), copolymerization. Some important polymers; natural and synthetic like polythene, nylon, polysters, bakelite, rubber.

Unit XVI : Chemistry in everyday life**Periods 8**

1. **Chemicals in medicines** – analgesics, tranquilizers, antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines.
2. **Chemicals in food** – preservatives, artificial sweetening agents.
3. **Cleansing agents** – soaps and detergents, cleansing action.

Biology

Examination Specifications

Code No. 63

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	70 Marks										
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Section	Marks												
A	20												
B	20												
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D	15												

Unit I : Physiology of Plants

30 Periods

Cell as a physiological unit; Water relations- absorption and movement (diffusion, osmosis, plasmolysis, permeability, water potential, imbibition); Theories of water translocation- root pressure, transpiration pull; Transpiration-significance, factors affecting rate of transpiration; mechanism of stomatal opening and closing (Potassium ion theory).

Mineral nutrition- functions of minerals, essential major elements and trace elements; deficiency symptoms of elements; translocation of solutes, nitrogen and nitrogen metabolism with emphasis on biological nitrogen fixation.

Photochemical-significance, site of photosynthesis (functional aspect of chlorophyll structure); photochemical and biosynthetic phases; electron transport system; photophosphorylation (cyclic and non-cyclic); C_3 and C_4 pathway; photorespiration; factors affecting photosynthesis; mode of nutrition (autotrophic, heterotrophic-saprophytic, parasitic and insectivorous plants), chemo-synthesis.

Mechanism of respiration-glycolysis, Krebs cycle, pentose phosphate pathway, anaerobic respiration; respiratory quotient; compensation point; fermentation.

Unit II: Physiology of Animals

Periods 40

Nutrition and its types; Nutrients-food and vitamins; intracellular and extracellular digestion; digestive system of invertebrate (cockroach); digestive system and process in humans (digestion, ingestion, absorption, assimilation, egestion); role of enzymes and hormones in digestion; malnutrition and undernutrition; disorders related to nutrition.

Gaseous exchange in animals (earthworm cockroach); respiration in humans-respiratory organs, mechanism; breathing and its regulation; transport of gases through blood; Common respiratory disorders-prevention and cure.

Circulation of body fluids-open system in cockroach; closed system in humans, blood and its composition, structure and pumping action of human heart; pulmonary and systemic circulation; heart beat and pulse, rhythmicity of heart-beat, Blood related disorders-hypertension, atheroma and atheroma and arteriosclerosis, ECG, pacemaker; lymphatic system; immunity and immune system.

Nitrogenous waste elimination-ammonotelism, ureotelism, uricotelism; excretory system of cockroach and humans; composition and formation of urine; role of kidney in osmoregulation, kidney failure, dialysis, kidney transplantation; role of ADH; role of liver in excretion.

Locomotion and movements; Human skeleton-axial and appendicular including cranium and rib cage bones; joints and their types; bone, cartilage and their disorders (arthritis, osteoporosis); mechanism of muscle contraction; red and white muscles in movements.

Nervous coordination in cockroach and humans; Human nervous system-structure and functions of brain and spinal cord, transmission of nerve impulse; reflex action; sensory receptors; Structure and function of sense organs-eye, ear, nose and tongue.

Human endocrine system; hormones and their functions; hormonal imbalance and diseases; role of hormones as messengers and regulators; hypophysial axis; feedback controls.

Unit III : Reproduction, Development and Growth

Periods 20

Mode of reproduction in flowering plants-vegetative propagation (natural and artificial), significance of vegetative propagation; micropropagation; Sexual reproduction-development of male and female gametophytes; pollination (types and factors); double fertilisation; incompatibility; embryo development; parthenogenesis and parthenocarpy.

Characteristics of plant growth; Growth regulators (phytohormones)-auxins, gibberellins, cytokinins, ethylene, ABA; Seed germination-mechanism and factors affecting germination, role of growth regulators in seed dormancy; senescence; abscission; stress factors (salt and water) and growth; Plant movement-geotropism, phototropism, turgor growth movements (tropic, nastic and natation); Process of flowering-photoperiodism, vernalisation.

Types of reproduction-a general account (asexual and sexual); human male and female reproductive systems; reproductive cycle in human female, gametogenesis; Fertilization-physical and chemical events; development of zygote upto 3 germinal layers and their derivatives; extra-embryonic membranes; general aspects of placenta.

Cellular growth-growth rate and growth curve; hormonal control of growth; mechanism and types of regeneration; Ageing-cellular and extracellular changes; theories of ageing.

Unit IV : Ecology and Environment**Periods 40**

Organisms and their environment; Factors-air, water, soil, biota, temperature and light; range of tolerance; ecological adaptations.

Levels of organisation- population, species, community, ecosystem and biosphere; Ecological interactions-symbiosis, mutualism, commensalism, parasitism, predation and competition.

Ecosystem-structure and functions; productivity; energy flow; ecological efficiencies; decomposition and nutrient cycling; Major biomes-forests, grasslands and deserts.

Ecological Succession-types and mechanism.

Natural resources-types, use and misuse of natural resources.

Environmental pollution-kinds, sources and abatement of air, water, soil and noise pollution.

Global environmental changes; greenhouse, global warming, sea level rise and ozone layer depletion.

Biotic resources-terrestrial and aquatic including marine resources; bio-diversity benefits and assessment; threats, endangered species, extinctions; conservation of bio-diversity (biosphere reserves and other protected areas); National and international efforts-both government and non-governmental; environmental ethics and legislation.

Unit V : Biology in Human Welfare**Periods 50**

Population, environment and development; Population growth and factors-(natality, mortality, immigration, emigration, age and sex ratio); impact of population growth; reproductive health; common problems of adolescence (drugs, alcohol and tobacco); social and moral implications; population as a resource.

Food production, breeding, improved varieties, biofertilizers, plant tissue culture and its applications; brief account of some common crop and animal diseases; biopesticides; genetically modified food; bio-war, biopatent; biotechnology and sustainable agriculture.

Recent advances in vaccines; organ transplantation; immune disorders; modern techniques in disease diagnosis; elementary knowledge of haemoglobin estimation, sugar and urea in blood, TLC, DLC, ESR, lipid profile, ELISA and VIDAL tests; AIDS, STD, cancer (types, causes, diagnosis, treatment); Biotechnology in therapeutics-hormones, interferon and immuno modulations.

Basic concepts of ECG, normal ECG, EEG, CT Scan, MRI and ultrasound.

Maths

Examination Specifications

Code No. 60

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

Unit I : Relations and Functions

1. Relations and Functions: 30 Periods

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: 12 Periods

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

Unit-II : Algebra

1. Matrices: 18 Periods

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: 20 Periods

Determinant of a square matrix (up to 3×3 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.

Unit-III : Vectors and three-dimensional geometry**1. Vectors: 12 Periods**

Vectors and scalars, magnitude and direction of a vector. Direction cosines/ratios vectors. Types of vectors (equal, unit, zero, parallel and collinear vectors), positive vector of a point, negative of a vector, components of a vector, addition of vector multiplication of a vector by a scalar, product of vectors, projection of a vector line. Vector (cross) product of vectors.

2. Three - Dimensional Geometry: 12 Period

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) line and a plane. Distance of a point from a plane.

Unit-IV : Linear programming**1. Linear Programming: 12 Period**

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 variables, feasible and infeasible region, feasible and infeasible solutions, optimal feasible solution (up to three non-trivial constraints).

Unit-V : Probability**1. Probability: 18 Period**

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.

Recommended Textbooks.

- 1) Mathematics Part I - Textbook for Class XII, NCERT Publication
- 2) Mathematics Part II - Textbook for Class XII, NCERT Publication

Unit-VI : Calculus 18 Period**1. Continuity and Differentiability:**

Continuity and differentiability, derivative of composite functions, chain rule, derivatives of inverse trigonometric functions, derivative of implicit function. Concept of exponential

and logarithmic functions and their derivative. 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.

2. Applications of Derivatives: 10 Periods

Applications of derivatives: rate of change, increasing/decreasing function, 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 : 20 Periods

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

$$f \frac{dx}{\sqrt{x^2 \pm a^2}}, f \frac{dx}{\sqrt{x^2 \pm a^2}}, f \frac{dx}{\sqrt{a^2 - x^2}}, f \frac{dx}{ax^2+bx^2+c}, f \frac{dx}{\sqrt{ax^2+bx+c}}$$

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

to be evaluated.

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: 10 Period

Applications in finding the area under simple curves, especially lines areas of circles/parabolas/ellipses (in standard form only), 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 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:

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

Business Study

Examination Specifications

Code No. 59

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

Part A : Principles and Functions of Management

- Unit I : Nature and significance of Management** **14 Periods**
Management - concept, objectives, importance
Management as Science, Art, Profession.
Levels of management
Management functions - planning, organizing, staffing, direction and controlling
Coordination - characteristics and importance
- Unit 2 : Principles of Management** **14 Periods**
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** **10 Periods**
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** **14 Periods**
 Concept, features, importance, limitations
 Planning process
 Types of Plans - Objectives, Strategy, Policy, Procedure, Method, Rule, Budget, Programme.
- Unit 5 : Organising** **16 Periods**
 Concept and importance.
 Steps in the process of organising.
 Structure of organizations - functional and divisional
 Formal and informal organization.
 Delegation : concept, elements and importance
 Decentralization : concept and importance
- Unit 6 : Staffing** **(Periods 16)**
 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** **(Periods 22)**
 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** **(Periods 14)**
 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 : Financial Management

(Periods 22)

Concept, importance, objectives of financial management
 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

Unit 10 : Financial Markets

(Periods 20)

Concept of Financial Market : Money Market and its instruments.
 Capital market and types - primary and secondary market.
 Stock Exchange - functions, Trading Procedure, NSE1, OCTEI.
 Securities and Exchange Board of India (SEBI) - Objectives and Functions

Unit 11 : Marketing Management

(Periods 30)

Marketing - meaning, functions and role, marketing and selling
 Marketing management philosophies.
 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, limitation, objections against advertising. Personal selling - concept, importance; Sales promotion - merits, limitations, methods; Publicity - concept and role.

Unit 12: Consumer Protection

Periods 16

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.

Examination Specifications

Code No. 56

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

Part A : Introductory Microeconomics

Unit I : Introduction

10 Periods

What is an economy? Central problems of an economy : what, how and for whom to produce; concepts of production possibility frontier and opportunity cost.

Distinctions between (a) planned and market (b) Positive and normative perspectives in economics, and (c) micro-economics and macroeconomics.

(**Non-evaluative topics** : Some basic tools in the study of economics - equation of a line, slope of a line, slope of a curve.)

Unit 2 : Consumer Equilibrium and Demand

32 Periods

Consumer's equilibrium - meaning of utility, marginal utility, law of diminishing marginal utility, conditions of consumer's equilibrium using marginal utility analysis.

Indifference curve analysis of consumer's equilibrium-the consumer's budget (budget set and budget line), preferences of the consumer (indifference curve, indifference map) and conditions of consumer's equilibrium.

Demand, market demand, determinants of demand, demand schedule, demand curve, movement along and shifts in the demand curve; price elasticity of demand - factors affecting price elasticity of demand; measurement of price elasticity of demand-(a) percentage-change method and (b) geometric method (linear demand curve); relationship between price elasticity of demand and total expenditure.

Unit 3 : Producer Behaviour and Supply**32 Periods**

Production function : Total Product, Average Product and Marginal Product.

Returns to a Factor.

Cost and Revenue : Short run costs - total cost, total fixed cost, total variable cost; Average fixed cost, average variable cost and marginal cost-meaning and their relationship.

Revenue - total, average and marginal revenue.

Producer's equilibrium - meaning and its conditions - under (a) total revenue - total cost approach and (b) marginal revenue - marginal cost approach.

Supply, market supply, determinants of supply, supply schedule, supply curve, movements along and shifts in supply curve, price elasticity of supply; measurement of price elasticity of supply - (a) percentage- change method and (b) geometric methods.

Unit 4 : Forms of Market and Price Determination**22 Periods**

Perfect competition - meaning and features.

Market Equilibrium under perfect competition - Determination of equilibrium price, Effects of shifts in demand and supply.

Non-Competitive Markets - monopoly, monopolistic competition, oligopoly - their meanings and features.

Unit 5 : Simple applications of Tools of demand and supply**8 Periods**

(not to be examined)

Part B : Introductory Macroeconomics

Unit 6 : National Income and related aggregates**30 Periods**

Macroeconomics: Its meaning.

Some basic concepts of macroeconomics: consumption goods, capital goods, final goods, intermediate goods: stocks and flows; gross investment and depreciation.

Circular flow of income; Methods of calculating National Income - Value Added or Product method Expenditure methods, Income Method.

Concepts and aggregates related to National Income :

Gross National Product (GNP), Net National Product (NNP), Gross and Net Domestic Product (GDP and NDP) - at market price, at factor cost; National Disposable Income (gross and net Private Income, Personal Income and Personal Disposable Income; Real and Nominal GDP.

GDP and Welfare

Unit 7 : Money and Banking**18 Periods**

Money - its meaning and function.

Supply of money - Currency held by the public and net demand deposits held by commercial bank Money creation by the commercial banking system.

Central banking and its functions (example of the Reserve Bank of India)

Unit 8 : Determination of Income and Employment**25 Periods**

Aggregate demand and its components.

Propensity to consume and propensity to save (average and marginal)

Short-run fixed price in product market, equilibrium output; investment or output multiplier and the multiplier mechanism.

Meaning of full employment and involuntary unemployment.

Problems of excess demand and deficient demand; measures to correct them - change in government spending, availability of credit.

Unit 9 : Government Budget and the Economy**17 Periods**

Government budget - meaning, objectives and components.

Classification of receipts - revenue receipt and capital receipt; classification of expenditure - revenue expenditure and capital expenditure.

Various measures of government deficit - revenue deficit, fiscal deficit, primary deficit: their meaning and implications.

Fiscal policy and its role (non-evaluative topic).

Unit 10 : Balance of Payments**14 Periods**

Balance of payments accounts - meaning and components; balance of payments deficit-meaning

Foreign exchange rate - meaning of fixed and flexible rates and managed floating.

Determination of exchange rate in a free market.

Accounts

Examination Specifications

Code No. 58

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks										
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Section</th> <th style="width: 60%;">Marks</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">A</td> <td style="text-align: center;">20</td> </tr> <tr> <td style="text-align: center;">B</td> <td style="text-align: center;">30</td> </tr> <tr> <td style="text-align: center;">C</td> <td style="text-align: center;">20</td> </tr> <tr> <td style="text-align: center;">D</td> <td style="text-align: center;">30</td> </tr> </tbody> </table>				Section	Marks	A	20	B	30	C	20	D	30
Section	Marks												
A	20												
B	30												
C	20												
D	30												

Part A : Accounting for Not-for-Profit Organisations, Partnership Firms and Companies

Periods 124

Unit 1 : Accounting for Not-for-Profit Organisations **22 Periods**

- ❖ Meaning and features of Not-for-profit organisations.
- ❖ Meaning and features of Fund based accounting.
- ❖ Receipts and Payments Account.
- ❖ Preparation of Income and Expenditure Account and Balance Sheet from Receipt and Payment Account with additional information.

Unit 2 : Accounting for Partnership firms **14 Periods**

- ❖ Nature of Partnership firm : Partnership Deed - Meaning, importance.
- ❖ Partner's Capital Accounts : Fixed vs Fluctuating Capital, Division of Profit among partners, Profit and Loss Appropriation Account including past adjustments.

Unit 3 : Reconstitution of Partnership **34 Periods**

- ❖ Changes in Profit Sharing Ratio among the existing partners - Sacrificing Ratio and Gaining Ratio.
- ❖ Accounting for Revaluation of Assets and Liabilities and distribution of reserves and Accumulated Profits.

- ❖ **Goodwill** : Nature, factors affecting and methods of valuation : Average profit, Super profit and Capitalisation methods.
- ❖ **Admission of a Partners** : Effect of Admission of Partner, Change in Profit Sharing Ratio, Accounting Treatment of Goodwill (as per AS-10), Revaluation of Assets and Liabilities, Adjustment of Capitals.
- ❖ **Retirement/ Death of a Partner** : Change in Profit Sharing ratio, accounting treatment of Goodwill, Revaluation of Assets and Liabilities, Adjustment of capitals.
- ❖ **Dissolution of partnership firm, (Excluding Garner Vs Murray and Piecemeal System)**

Unit 4 : Accounting for Share Capital and Debenture (54 Periods)

- ❖ **Share Capital** : Meaning and Types
- ❖ **Accounting for share capital** : Issue and Allotment of Equity and Preference Shares; Public subscription of shares; over subscription and under subscription; issue at par, premium and at discount; calls in advance, calls in arrears, issue of shares for consideration other than cash. Meaning of private placement of shares and employee stock option plan.
- ❖ **Forfeiture of shares** : accounting treatment, re-ssue of forfeited shares.
- ❖ Presentation of Share Capital in company's Balance Sheet.
- ❖ Issue of debentures at par; at premium; Writing off loss on issue of debentures; Issue of debentures as collateral security; issue of debentures for consideration other than cash.
- ❖ **Redemption of debentures; sources** : Out of profits - debenture redemption reserve; Out of Capital - method : Lump sum payment, draw of lots, purchase in the open market and conversion (excluding cum-interest and ex-interest).

Sociology

Examination Specifications

Code No. 54

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

Unit 1 : Traditional basis of Social Organisation : Varna, Ashrama, Purushartha

Unit 2 : Caste System : Definition, Features, Structure, Functions, Changes.

Unit 3 : Marriage : Meaning, Forms of Traditional Hindu Marriage, Classification - Monogamy. Polygamy - Polygyny and Polyandry.

Unit 4 : Family : Meaning, Features, Function, Types - Nuclear and Joint, Changes in Family and Social Functions.

Unit 5 : Religion : Features and Social Functions.

Note : Kindly tally the syllabus with the syllabus published by Punjab School Education Board, Mohali. We undertake no responsibility with regard to this.

History

Examination Specifications

Code No. 51

Separate question paper and answer sheet format replaces combined booklet format from March, 2012 examination

One Paper	3 Hours	100 Marks
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Units	Marks
Unit 1 : India and the contemporary World-II	20
Unit 2 : India-Resources and their Development	20
Unit 3 : Democratic Politics - II	20
Unit 4 : Understanding Economic Development - II	20
Unit 5 : Disaster Management-only project work and assignment	-
Internal Assessment	
1. Tests (Formative and summative)	10
2. Assignments (School & Home Assignment)	04
3. Project Work	06

Instructions :

- i) This question paper contains 3 sections A, B, and C.
- ii) All questions are compulsory **Section A** is of 50 marks
- iii) **Section B** is of 22 marks, **Section C** is of 8 marks.

Part - I

45 Periods

Themes

1. The Story of the First Cities : Harappan Archaeology 11

Broad overview : Early urban centres.

Story of discovery : Harappan civilization

Excerpt : Archaeological report on a major site.

Discussion : how it has been utilized by archaeologists/historians.

Objectives

- Familiarize the learner with early urban centres as economic and social institutions.
- Introduce the ways in which new data can lead to a revision of existing notions of history.
- Illustrate how archaeological reports are analyzed and interpreted by scholars.

2. **Political and Economic History : How Inscription tell a story :** 11
Broad overview : Political and economic history from the Mauryan to the Gupta period.
Story of discovery : Inscription 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 inscriptions by historians.
3. **Social Histories : Using the Mahabharata** 12
Broad overview : Issues in social history, including caste, class, kinship and gender.
Story of discovery : Transmission and publications of the Mahabharat.
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** 11
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.
- Familiarize the learner with major trends in the political and economic history of the subcontinent.
 - Introduce inscriptional analysis and the ways in which these have shaped the understanding of political and economic processes.
 - Familiarize the learner with issues in social history.
 - Introduce strategies of textual analysis and their use in reconstructing social history.
 - Discuss the major religious developments in early India.
 - Introduce strategies of visual analysis and their use in reconstructing histories of religion.

Part - II

5. **Agrarian Relations: *The Ain-i-Akbari*** (11)
Broad overview: (a) Structure of agrarian relations 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*.
- Discuss developments in agrarian relations.
 - Discuss how to supplement official documents with other sources.

Excerpt: from the *Ain-i-Akbari*.

Discussion: Ways in which historians have used the text to reconstruct history.

6. **The Mughal Court: Reconstructing 11**

Histories through chronicles

Broad Overview: (a) Outline of political history 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 11**

Broad Overview: (a) Outline of new buildings during Vijayanagar period- temples, forts, irrigation facilities.

(b) Relationship between architecture and the political system..

Story of Discovery: Account of how Hampi was found.

Excerpt: Visuals of buildings at Hampi

Discussion: Ways in which historians have analyzed and interpreted these structures.

8. **Religious Histories: The Bhakti-Sufi tradition (11) 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.

Excerpt: Extracts from selected Bhakti Sufi works.

Discussion: Ways in which these have been interpreted by historians.

9. **Medieval Society Through Travellers' (11)Accounts**

Broad Overview: Outline of social and cultural life as they appear in travellers'

- Familiarize the learner with the major landmarks in political history
- Show how chronicles and other sources are used to reconstruct the histories of political institutions.

- Familiarize the learner with the new building that were built during the time.
- Discuss the ways in which architecture can be analyzed to reconstruct history.

- Familiarize the learner with religious developments.
- Discuss ways of analyzing devotional literature as sources of history.

- Familiarize the learner with the salient

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, Bernier.

Discussion: What these travel accounts can tell us and how they have been interpreted by historians.

features of social histories described by the travellers.

- Discuss how travellers' accounts can be used as sources of social history.

Part - III

10. Colonialism and -Rural Society: Evidence from official Reports 11

Broad overview: (a). Life of zamindars, peasants and artisans in the late 18 century (b) East India Company, revenue settlements and surveys. (c) Changes over the nineteenth century.

Story of official records: An account of why official investigations into rural societies were under taken and the types of records and reports produced.

Excerpts: From Firminger's Fifth Report, Accounts of Frances Buchanan-Hamilton, and Deccan Riots Report,

Discussion: What the official records tell and do not tell, and how they have been used by historians.

- Discuss how colonialism affected Zamindars, peasants and artisans.
- Understand the problems and limits of using official sources for understanding the lives of people.

11. Representations of 1857 11

Broad overview: (a) the events of 1857-58. (b) How these events were recorded and narrated.

Focus: Lucknow.

Excerpts: Pictures of 1857. Extracts form contemporary accounts.

Discussion: How the pictures of 1857 shaped British opinion of what had happened.

- Discuss how the events of 1857 are being reinterpreted.
- Discuss how visual material can be used by bistorinas

12. Colonialism and Indian Towns: Town Plans and Municipal Reports 11

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 from town plan reports.

- Familiarize the learner with the history of modern urban centres.

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 **13**

Broad Overview: (a) The nationalist movement 1918-48, (b) The nature of Gandhian politics and leadership.

Focus: Mahatma Gandhi in 1931.

Excerpts: Reports from English and Indian language newspapers and other contemporary writings.

Discussion: How newspapers can be a source of history.

14. Partition through Oral Sources **12**

Broad overview: (a) The history of the 1940s; (b) Nationalism. Communalism and Partition.

Focus: Punjab and Bengal.

Excerpts: Oral testimonies of those who experienced partition.

Discussion: Ways in which these have been analyzed to reconstruct the history of the event.

15. The Making of the Constitution **12**

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.

16. Map Work on Units 1-15 **10**

- Discuss how urban histories can be written by drawing on different types of sources.
- Discuss how urban histories can be written by drawing on different types of sources.
- Familiarize the learner with significant elements of the nationalist movement and the nature of Gandhian leadership.
- Discuss how Gandhi was perceived by different groups.
- Discuss how historians need to read and interpret newspapers, diaries and letters as historical source.
- Discuss the last decade of the national movement, the growth of communalism and the story of Partition.
- Understand the events through the experience of those who lived through these years of communal violence.
- Show the possibilities and limits of oral sources.
-
- Familiarize students with the history of the early years after independence.
- Discuss how the founding ideals of the new nation state were debated and formulated.
- Understand how such debates and discussions can be read by historians.

Recommended text books:

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

Geography

Examination Specifications

Code No. 53

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

A. Fundamentals of Human Geography

70 Periods

Unit 1: Human Geography : Nature and Scope **Periods 3**

Unit 2: People **Periods 15**

- ★ Population — distribution, density and growth
- ★ Population changes - spatial patterns and structure; determinants of population change;
- ★ Age-sex ratio; rural-urban composition;
- ★ Human development - concept; selected indicators, international comparisons

Unit 3: Human Activities **Periods 25**

- ★ Primary activities - concept and changing trends; gathering, pastoral, mining, subsistence agriculture, modern agriculture; people engaged in agricultural and allied activities - some examples from selected countries.
- ★ Secondary activities - concept; manufacturing : types - household, small scale, large scale; agro based and mineral based industries; 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 4 : Transport, Communication and Trade** **Periods 19**
- ★ Land transport — roads, railways; 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 — Bases and changing patterns; ports as gateways of international trade, role of WTO in International trade.
- Unit 5 : Human Settlements** **Periods 8**
- ★ Settlement types — rural and urban; morphology of cities (case study); distribution of mega cities; problems of human settlements in developing countries.
- Unit 6 : Map Work on identification of features based on above units on the outline Political map of World.**

Part B. India : People and Economy

70 Periods

- Unit 7 : People** **Periods 12**
- ★ Population : distribution, density and growth; composition of population - linguistic, religious; sex, rural-urban and occupational - population change through time and regional variations;
 - ★ Migration : International, national - causes and consequences;
 - ★ Human development : selected indicators and regional patterns;
 - ★ Population, environment and development.
- Unit 8 : Human Settlements** **Periods 8**
- ★ Rural Settlements — types and distribution;
 - ★ Urban Settlements — types, distribution and functional classification.
- Unit 9 : Resources and Development** **Periods 28**
- ★ Land resources : general land use; agricultural land use, Geographical conditions and distribution of major crops (Wheat, Rice, Tea, Coffee, Jute, Sugarcane and Rubber), agricultural development and problems.
 - ★ 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 - distribution of metallic (Ironore, Copper, Bauxite, Manganese); non-metallic (Mica, Salt) minerals; conventional (Coal, Petroleum, Natural gas and Hydro electricity) and non-conventional energy sources (solar, wind, biogas) and conservation.
- ★ Industries - types, factors of industrial location; distribution and changing pattern of selected industries - iron and steel, cotton textiles, sugar, petrochemicals and knowledge based industries; impact of liberalization, privatisation and globalisation on industrial location; industrial clusters.
- ★ Planning in India - target area planning (case study); idea of sustainable development (case study).

Unit 10 : Transport, Communication and International Trade Periods 12

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

Unit 11 : Geographical Perspective on Selected Issues and Problems (One case study to be introduced for each topic) Periods 10

- ★ Environmental pollution ; urban-waste disposal.
- ★ Urbanisation, rural-urban migration; problems of slums.
- ★ Land Degradation.

Unit 12 : Map work on locating and labelling of features based on above units on outline political map of India

Part C. Practical Work

Unit 1 : Processing of Data and Thematic Mapping Periods 20

- ★ 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 2 : Field Study or Spatial Information Technology

Periods 10

- ★ 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 analysed with diagrams and maps).

OR

Spatial Information Technology

- ★ Introduction to GIS; hardware requirements and software modules; data formats; raster and vector data, data input, editing & topology building; data analysis; overlay & buffer.

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Political Science
Examination Specifications
Code No. 52

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

COURSE CONTENTS

Periods 14

Part - A. Contemporary World Politics

1. Cold War Era in World Politics :

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 :

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

3. US Dominance in World Politics :

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 :

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 :

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 :

Restructuring and the future of the UN. India's position in the restructured UN. Rise of new international actors: new international economic organisations, NGOs. How democratic and accountable are the new institutions of global governance ?

7. Security in Contemporary World :

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. Environment and Natural Resources in Global Politics :

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.

9. Globalisation and Its Critics :

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

Part B : Politics of India Since Independence

10. Nation - Building and Its Problems :

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

11. Era of One-Party Dominance :

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 :

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 :

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 :

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 :

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 organisations.

16. Regional Aspirations and Conflicts :

Rise of regional parties. Punjab crisis and the anti-Sikh riots of 1984. The Kashmir situation. Challenges and responses in the North East.

17. Rise of New Social Movements :

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 :

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

Recommended text books :

1. Contemporary World Politics, Published by NCERT
2. Politics of India Since Independence, Published by NCERT

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Physical Education
Examination Specifications
Code No. 75

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	70 Marks
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Section	Marks
A	20
B	20
C	15
D	15

COURSE CONTENTS

Periods

PART A : PHYSICAL EDUCATION

1. शारीरिक योग्यता
(Physical Fitness)
2. गर्माना और ठण्डा करना
(Warming Up and Cooling Down)
3. शारीरिक शिक्षा के सामाजिक पक्ष
(Sociological Aspects of Physical Education)

PART B : HEALTH EDUCATION

4. असमर्थता की रोकथाम तथा पुनर्वास
(Prevention of Disability and Rehabilitation)
5. प्राथमिक सहायता और खेल चोटों से बचाव
(Prevention and First Aid Care for Common Sports Injuries)
6. पारिवारिक जीवन सम्बन्धी शिक्षा
(Family Life Education)

PRACTICAL

PART C : Track and Field Events

1. ऐथलैटिक्स
(Athletics)

PART D : Team Games (Group - A)

1. हॉकी
(Hockey)
2. हैंडबाल
(Hand Ball)
3. कबड्डी
(Kabaddi)
- 3-A. पंजाब स्टाइल कबड्डी और वृत्त कबड्डी
(Punjab Style Kabaddi or Circle Kabaddi)
4. खो-खो
(Kho-Kho)
5. फुटबाल
(Foot Ball)
6. क्रिकेट
(Cricket)
7. वालीबाल
(Volley Ball)
8. बास्केटबाल
(Basket Ball)

PART D : Team Games (Group - B)

9. टेबल टेनिस
(Table Tennis)
10. बैड मिन्टन
(Badminton)
11. लॉन टेनिस
(Lawn Tennis)
- 12-A. तैराकी
(Swimming)
- 12-B. डुबकी लगाना
(Diving)
13. यौगिक व्यायाम या आसन
(Yogic Exercises or Asanas)

14. जिमनास्टिकस
(Gymnastics)
15. कुशितयां—फ्री स्टाइल एवं ग्रीको रोमन
(Wrestling-Free Style and Greeco Roman)
16. तालमयी क्रियाएं
(Rhythmic Activities)

प्रैक्टिकल PRACTICAL

- | | |
|------------------------------|----------------------------------|
| 1. हॉकी
(Hockey) | 2. फुटबाल
(Foot Ball) |
| 3. वालीबाल
(Volley Ball) | 4. खो-खो
(Kho-Kho) |
| 5. कबड्डी
(Kabaddi) | 6. बैड मिन्टन
(Badminton) |
| 7. कुशितयां
(Wrestling) | 8. जिमनास्टिकस
(Gymnastics) |
| 9. तैराकी
(Swimming) | 10. बास्केटबाल
(Basket Ball) |
| 11. ऐथलैटिक्स
(Athletics) | 12. टेबल टेनिस
(Table Tennis) |
| 13. क्रिकेट
(Cricket) | 14. जूडो
(Judo) |
| 15. हैंडबाल
(Hand Ball) | |

RELIGION

Examination Specifications

Code No. 83

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Section	Marks
A	20
B	30
C	20
D	30

COURSE CONTENTS

Periods

PART A : सिक्ख धर्म की उत्पत्ति एवं विकास
(RISE AND DEVELOPMENT OF SIKHISM)

- (i) सिक्ख धर्म का आरम्भ / निकास
(Origin and Evolution of Sikhism)
- (ii) समकालीन धार्मिक परिस्थितियां
(Contemporary Religious Circumstances)
- (iii) गुरु नानक देव जी : जीवन
(Guru Nanak Dev Ji – Life)
- (iv) शिक्षाएं
(Teachings)
- (v) गुरु अंगद देव जी : जीवन
(Guru Angad Dev Ji – Life)
- (vi) सिक्ख धर्म के प्रसार में योगदान
(Contribution in Expansion of Sikhism)
- (vii) गुरु अमरदास जी : जीवन
(Guru Amar Dass Ji – Life)

- (viii) सिक्ख धर्म के विकास में योगदान
(Contribution in the Development of Sikhism)
- (ix) गुरु रामदास जी : जीवन
(Guru Ram Dass Ji – Life)
- (x) सिक्ख धर्म के विकास में योगदान
(Contribution in the Development of Sikhism)
- (xi) गुरु अर्जन देव जी : जीवन
(Guru Arjan Dev Ji – Life)
- (xii) सिक्ख धर्म के विकास में योगदान
(Contribution in the Development of Sikhism)
- (xiii) गुरु अर्जन देव जी का बलिदान
(Martyrdom of Guru Arjan Dev Ji)
- (xiv) गुरु अर्जन देव जी तक सिक्ख धर्म का विकास
(Development of Sikhism upto Guru Arjan Dev Ji)
- (xv) गुरु हरगोबिन्द जी : जीवन
(Guru Hargobind Ji – Life)
- (xvi) नवीन नीति : मीरी एवं पीरी
(New Policy : Miri and Piri)
- (xvii) गुरु हरराय जी : जीवन एवं उपलब्धियाँ
(Guru Har Rai Ji – Life and Achievements)
- (xviii) गुरु हर कृष्ण जी : जीवन
(Guru Harkrishan Ji – Life)
- (xix) गुरु तेग बहादुर जी : जीवन
(Guru Teg Bahadur Ji – Life)
- (xx) सिक्ख धर्म के विकास में योगदान
(Contribution in the Development of Sikhism)
- (xxi) गुरु जी की शहीदी
(Martyrdom of Guru Ji)
- (xxii) गुरु गोबिन्द सिंह जी : जीवन
(Guru Gobind Singh Ji – Life)

- (xxiii) सिक्ख धर्म के विकास में योगदान
(Contribution in the Development of Sikhism)
- (xxiv) खालसा पंथ की सृजना
(Creation of Khalsa)

PART B : सिन्धु घाटी के लोगों का धार्मिक जीवन (RELIGIOUS LIFE OF INDUS VALLEY PEOPLE)

- (i) ऐतिहासिक पृष्ठभूमि
(Historical Background)
- (ii) सिन्धु घाटी की सभ्यता से पूर्व का धार्मिक जीवन
(Religious Life before Indus Valley Civilization)
- (iii) सिन्धु घाटी के लोगों का धार्मिक जीवन
(Religious Life of Indus Valley People)
- (iv) धार्मिक विधियां एवं प्रथाएं
(Religious Modes and Conventions)
- (v) पीपल पूजा
(Peepal Worship)
- (vi) स्वस्तिक
(Swastik)
- (vii) सप्त ऋषि
(Sapt Rishi)
- (viii) मातृ देवी
(Mother Goddess)
- (ix) मृतक संस्कार
(Death Ceremonies)

COMPUTER SCIENCE
Examination Specifications
Code No. 68

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	70 Marks
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Section	Marks
A	20
B	20
C	15
D	15

SECTION - A

1. Fundamental Principles of Computer

Introduction to Computer – Its comparison with human beings
Computer is a System
How does a computer work ?

2. Computer System for General Purpose

Hardware and Software : Classification of Software, Input / Output Memory
Processor, Processor Structure
Software System : Language Interpreter, Linkers, Loaders, Operating System

3. Starting Up Your Computer

Installing of Computer Sub-systems
Starting up the Computer
Shut down the Computer

4. Information and Communication Technology

Allowing the printer to share with a number of computers in network
Internet Explorer
Word Processor : Clip Art gallery, Hyperlink, Inserting voice comments in word documents,
Sign or Symbol Equation, Table, Tallying Mail, To have a glance on the information through
word data.

5. Playing with Data and Graphics

Data and Graphics
Applications and Uses of Graphics

6. Database Management

Introduction to Database Management System
Data Model

7. Solving Problem

Algorithms
Flowchart and its symbols
Structures of the flowchart

8. LOGO

Introduction
Beginning of the LOGO
LOGO Primitives

SECTION - B**1. Evolution of Computers**

Origination of the machines owing to Counting, Calculation and Computing
Generations of Computers
Classification of Computers

2. Hardware and Software

Information flow in a Computer
CPU Cabinet
Computer Languages
Language Translator
Sequence order in machine
Introduction to the Binary State Logic

3. Operating System (O/S)

Introduction
Role of Operating System
Source Manager
Buffers
Spooling
Operating System for Information Aptitude

4. Information and Communication Technology

Introduction
Data Communication
Communication Channel
Required Sources for Networking Computers
Network Topology

Techniques of Communication and Contact
Contact
Communication Devices
E-mail
Notiquets
News group
Conferencing
Internet chatting
Downloading of Software

5. Presentation Packages

Introduction
Power Point Screen Element
Net Presentation
Propagation of Other Slides
Design Templates
Naming the Power Point File
Opening of the Current Application
Saving the Application
Different Views in Power Point
Printing the Application
Animation
Slide Transitions
Tables
Using Charts in Personal Slides
Entering Documents in Slides
Readymade Applications
Multimedia
Propagation of Music and Sound Effects
Save the Application as a web-page

6. Database Management

Database Management System
Database Maintenance and Management
Working through Foxpro database
Making of Database
Opening and Closing the database files
Changing of database table structure
Collection of records in database table
Exit from Foxpro
Looking into the record from database table

Searching of the record from database table
Posting of record in the currently opened database file from a different file
Reshuffling of the records of the database table
Sorting of database table
Quitting the record from database table
Reinstatement of the records quitted

7. Spreadsheet

Introduction
Electronic Spreadsheet
MS-Excel

8. Programming Determination

Management Determination
Management Development

Management Development Lifecycle
Tool and Planning of Document
Arrays and Following Arrays

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SANSKRIT
Examination Specifications
Code No. 82

One Paper

Unitwise Allocation

Unit	Areas of	3 Hours	100 Marks
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Part	Marks
1	20
2	30
3	20
4	30

1. ऋतिका (द्वितीयः भाग) – पाठ्यपुस्तकम्

1. उत्तिष्ठत जाग्रत
2. सूर्यः एव प्रकृतेः आधारः
3. राष्ट्रचिन्ता गरीयसी
4. दूरदृष्टिः फलप्रदा
5. अहो राजते कीदृशीयं हिमानी
6. सुधामुचः वाचः
7. दारिद्र्ये दुर्लभं सत्त्वम्
8. आश्चर्यमयं विज्ञानजगत्

2. अपठितांश-अवबोधनम्

3. संस्कृतेन रचनात्मक कार्यम्

1. अनौचपारिकपत्रम् / प्रार्थनापत्रम्
2. लघुकथा
3. अनुच्छेदलेखनम् (पञ्चवाक्यमितः अनुच्छेदः)

4. अनुप्रयुक्त व्याकरणम्

1. सन्धि
2. समास
3. प्रत्यय
4. कर्ता-क्रिया-अन्विति
5. विशेषण-विशेष्य-अन्विति
6. कारकों तथा उपपद विभक्तियाँ

5. सामान्यः संस्कृत साहित्य परिचयः