आचार्य चयन परीक्षा – 2026

Syllabus (Part – A)

PRT/TGT/PGT

- सामान्य जागरूकता (General Awareness)
- तर्क क्षमता (Reasoning Ability)
- ICT का ज्ञान (Knowledge of ICT)
- शिक्षण अभिवृत्ति (Teaching Aptitude)
- क्रिया आधारित प्रकरण अध्ययन (Experiential Activity Based and Case Based Question)
- राष्ट्रीय शिक्षा नीति – 2020 (NEP 2020)
- भाषा सक्षमता परीक्षण (सामान्य हिन्दी एवं सामान्य अंग्रेजी)
  (Language Competency Test (General Hindi & General English)

Syllabus (Part – B)

COMPUTER (TGT)

- Basics of Information Technology
  Computer Systems: characteristics of a computer, components of a computer system – CPU, memory, storage devices and I/O devices
  • Memory: primary (RAM and ROM) and secondary memory
  • Storage devices: hard disk, CD ROM, DVD, pen/flash drive, memory stick
  • I/O devices: keyboard, mouse, monitor, printer, scanner, web camera
  • Types of software: system software (operating system, device drivers), application software including mobile applications
  • Computer networking: Type of networks: PAN, LAN, MAN, WAN, wired/wireless communication, Wi-Fi, Bluetooth, cloud computers (Private/public)
  • Multimedia: images, audio, video, animation
- Unit 2 : Cyber-safety Safely browsing the web and using social networks:
  identity protection, proper usage of passwords, privacy, confidentiality of information, cyber stalking, reporting cybercrimes
  • Malware: Viruses, adware
- Unit 3: Office tools
  • Introduction to a word processor: create and save a document.
  • Edit and format text: text style (B, I, U), font type, font size, text colour, alignment of text. Format paragraphs with line and/or paragraph spacing. Add headers and footers, numbering pages, grammar and spell check utilities, subscript and superscript, insert symbols, use print preview, and print a document.

• Insert pictures, change the page setting, add bullets and numbering, borders and shading, and insert tables – insert/delete rows and columns, merge and split cells.

• Use auto-format, track changes, review comments, use of drawing tools, shapes and mathematical symbols.

• Presentation tool: understand the concept of slide shows, basic elements of a slide, different types of slide layouts, create and save a presentation, and learn about the different views of a slide set – normal view, slide sorter view and handouts.

• Edit and format a slide: add titles, subtitles, text, background, and watermark, headers and footers, and slide numbers.

• Insert pictures from files, create animations, add sound effects, and rehearse timings.

• Spreadsheets: concept of a worksheet and a workbook, create and save a worksheet.

• Working with a spreadsheet: enter numbers, text, date/time, series using auto fill; edit and format a worksheet including changing the colour, size, font, alignment of text; insert and delete cells, rows and columns. Enter a formula using the operators (+,-,*, /), refer to cells, and print a worksheet.

• Use simple statistical functions: SUM (), AVERAGE (), MAX (), MIN (), IF () (without compound statements); embed charts of various types: line, pie, scatter, bar and area in a worksheet.

- Lab Exercises

• Browser settings for a secure connection

• Working with the operating system: Navigation of the file system using a mouse and keyboard.

• Word processing: create a text document; create a letter, report, and greeting card.

• Create a text document with figures in it. It should describe a concept taught in another course.

• Discuss the following in a text document about the basic organisation of a computer: CPU, memory, input/output devices, hard disk.

• Create a text document in an Indian language other than English.

• Create a presentation.

• Create a presentation with animation.

• Include existing images/ pictures in a presentation.

• Animate pictures and text with sound effects in a presentation

• Create a simple spreadsheet and perform the following operations: min, max, sum, and average.

• Create different types of charts using a spreadsheet: line, bar, area and pie.

- Networking

• Internet: World Wide Web, web servers, web clients, web sites, web pages, web browsers, blogs, news groups, HTML, web address, e-mail address, downloading and uploading files from a remote site.

• Internet protocols: TCP/IP, SMTP, POP3, HTTP, HTTPS. Remote login and file transfer protocols: SSH, SFTP, FTP, SCP, TELNET, SMTP, TCP/IP.

• Services available on the internet: information retrieval, locating sites using search engines and finding people on the net;

• Web services: chat, email, video conferencing, e-Learning, e-Banking, eShopping, e-Reservation, e-Governance, e-Groups, social networking.

• Mobile technologies: SMS, MMS, 3G, 4G, 5G

- Unit 2: HTML

  • Introduction to web page designing using HTML: create and save an HTML document, access a web page using a web browser.

  • HTML tags: html, head, title, body, (attributes: text, background, bgcolor, link, vlink, alink), br (break), hr(horizontal rule), inserting comments, h1..h6 (heading), p (paragraph), b (bold), i (italics), u (underline), ul (unordered list), ol (ordered list), and li (list item). Description lists: dl, dt and dd. Attributes of ol (start, type), ul (type).

  • Font tags (attributes: face, size, color).

  • Insert images: img (attributes: src, width, height, alt), sup (super script), sub (subscript).

  • HTML Forms: Textbox, radio buttons, checkbox, password, list, combobox.

  • Embed audio and video in a HTML page.

  • Create a table using the tags: table, tr, th, td, rowspan, colspan

  • Links: significance of linking, anchor element (attributes: href, mailto), targets. • Cascading style sheets: colour, background-colour, border-style, margin, height, width, outline, font (family, style, size), align, float.

- Unit 3: Cyber ethics

  • Netiquettes.

  • Software licenses and the open source software movement.

  • Intellectual property rights, plagiarism and digital property rights.

  • Freedom of information and the digital divide.

  • E-commerce: Privacy, fraud, secure data transmission.

- Lab Exercises

  • Create static web pages.

  • Use style sheets to enforce a format in an HTML page (CSS).

  • Embed pictures, audio and videos in an HTML page.

  • Add tables and frames in an HTML page.

  • Decorate web pages using graphical elements.

  • Create a website using several web pages. Students may use any open source or proprietary tool.

  • Work with HTML forms: text box, radio buttons, checkbox, password, list, combo box.

  • Write a blog using HTML pages discussing viruses, malware, spam and antiviruses

  • Create a web page discussing plagiarism. List some reported cases of plagiarism and the consequent punishment meted out. Explain the nature of the punishment in different countries as per their IP laws.

MUSIC (TGT)

- Definition of the following: Sangeet, Dhwani, Nada, Shruti, Swar, Saptak, Alankar, Thaat, Jati
- Definition of the following: Laya, Tala, Matra, Sam, Tali, Khali, Vibhag, Avartan
- Define the following: Raga, Aroha, Avroha, Pakad, Vadi, Samvadi, Anuvadi, Vivadi.
- Define the following: Swarmalika, Lakshan Geet, Khayal.
- Notation System of Pt. V.D Paluskar and Pt. V.N. Bhatkhande
- Description of the following Ragas: Alhaiya, Bilawal, Yaman,Kafi
- Description and ability to do Tala- Notation of the following Talas: Teentala, Ektala, Keharwa, Dadra
- Ability to write notation of compositions in prescribed ragas.
- Define the following :Aalap, Taan, Meend, Kan
- Define the following: Dhrupad, Dhamar, Tarana,
- Basic knowledge of the structure and Tuning of Tanpura.
- Detailed study of the following Ragas:Bhupali, Khamaj, Brindavani Sarang
- Description and Tala notation of the following: Talas with Thah, Dugun, Tigun and Chaugun• Tilwada, Chautala, Rupak.•
- Ability to write notation of compositions in prescribed ragas
- To identify Ragas from phrases and elaborate them in Swaras
- Brief life sketch and contribution to music of Tansen. Sadarang and Faiyaz Khan to music
- Contribution of Omkar Nath Thakur
- Saada Tatkar, Beherwala, Various Gat
- Tal/Lay Introduction
- Matra, Theka, Avartan
- Talo ka Naam and their Theka
- Basic Glossary: Tatkar, gat, Toda, Chakardar
- Prarambhik Anmad
- Thaat
- Saada Toda
- Advanced Tatkar
- Hastak Combinations
- Chakradar Toda
- Laykari
- Principle of Tihai
- Teental
- Ektaal
- Jhaptaal
- Gat-Bhav
- Paran
- Dance Sequences
- Application of Tals
- Classical Principle In Dance
- Performance Annotation/ Scoring
- Analysis of lay, Tal & Structure
- Technical terminology of Dance

- Rhythm Alliance
- Gharana History & Techniques
- Comparative Study: Jaipur vs Lucknow
- Nritta & Nritya Conceptual Framework
- Kathak Repertoire Notation & Analysis
- Hindustani Classical Music Overview
- Gharana Studies
- Lucknow & Jaipur Traditions

REAL NUMBERS

- Review of representation of natural numbers, integers, and rational numbers on the number line. Rational numbers as recurring/ terminating decimals. Operations on real numbers.
- Examples of non-recurring/non-terminating decimals. Existence of non-rational numbers (irrational numbers) such as $\sqrt{2}$, $\sqrt{3}$, and their representation on the number line. Explaining that every real number is represented by a unique point on the number line and conversely, viz. every point on the number line represents a unique real number.
- Definition of nth root of a real number.
- Rationalization , real numbers of the type $\frac{1}{a+b\sqrt{x}}$ and $\frac{1}{\sqrt{x}+\sqrt{y}}$ their combinations where x and y are natural number and a and b are integers.
- Laws of exponents with integral powers. Rational exponents with positive real bases

Fundamental Theorem of Arithmetic statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of $\sqrt{2}, \sqrt{3}\ \sqrt{5}$

- Number theory, squences and patterns, Triangular Number, Hexagonal Number, square Numbers, Cube Numbers, patterns, Shape sequences, super cells, palindromic patterns. Kaprekar Constant .clock and Calender Number,collatz conjecture Bhramagupta's method of Computation.

POLYNOMIALS

- Definition of a polynomial in one variable, with examples and counter examples.
- Coefficients of a polynomial, terms of a polynomial and zero polynomial.
- Degree of a polynomial. Constant, linear, quadratic and cubic polynomials. Monomials, binomials, trinomials. Factors and multiples.
- Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials.
- Remainder Theorem with examples, Factor Theorem.
- Factorization of $ax^2 + bx + c$, $a \neq 0$ where a, b and c are real numbers, and of cubic polynomials using the Factor Theorem.
- The algebraic expressions and identities. Verification of identities:

$$(x + y + z)^2 = x^2 + y^2 + z^2 + 2xy + 2yz + 2zx$$
$$(x \pm y)^3 = x^3 \pm y^3 \pm 3xy\,(x \pm y)$$
$$x^3 \pm y^3 = (x \pm y)\,(x^2 \mp xy + y^2$$
$$x^3 + y^3 + z^3 - 3xyz = (x + y + z)\,(x^2 + y^2 + z^2 - xy - yz - zx)$$

And their use in factorization of polynomials.

MATRICES

R,R2,R3 as vector spaces over R and concept of Rn.Standard basis for each of them. Linear Independence and examples of different bases.Subspaces of R2, R3. Translation, Dilation, Rotation, Reflection in a point, line and plane. Matrix form of basic geometric transformations. Interpretation of eigen values and eigen vectors for such transformations and eigen spaces as invariant subspaces. Matrices in diagonal form. Reduction to diagonal form upto matrices of order 3. Computation of matrix inverses using elementary row operations.Rank of matrix, Solutions of a system of linear equations using matrices

LINEAR EQUATIONS IN TWO VARIABLES

Linear equations in one variable.Introduction to the equation in two variables. Focus on linear equations of the type ax + by + c=0.Explain that a linear equation in two variables has infinitely many solutions and justify their being written as ordered pairs of real numbers, plotting them and showing that they lie on a line.

PAIR OF LINEAR EQUATIONS IN TWO VARIABLES

Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically - by substitution, by elimination.Simple situational problems.

QUADRATIC EQUATIONS

Standard form of a quadratic equation $ax2 + bx + c = 0$, $(a \neq 0)$. Solutions of quadratic equations (only real roots) by factorization, and by using quadratic formula. Relationship between discriminant and nature of roots.

ARITHMETIC PROGRESSIONS

Arithmetic Progression, nth term and sum of the first n terms of A.P. and their application in solving daily life problems.

COORDINATE GEOMETRY

The Cartesian plane, coordinates of a point, names and terms associated with the coordinate plane, notations. Graphs of linear equations. Distance formula. Section formula (internal division) Area of Triangle.

INTRODUCTION TO EUCLID'S GEOMETRY

History - Geometry in India and Euclid's geometry. Euclid's method of formalizing observed phenomenon into rigorous Mathematics with definitions, common/obvious notions, axioms/postulates and theorems. The five postulates of Euclid. Showing the relationship between axiom and theorem, for example: (Axiom) 1. Given two distinct points, there exists one and only one line through them. (Theorem) 2. (Prove) Two distinct lines cannot have more than one point in common.

LINES AND ANGLES

- If a ray stands on a line, then the sum of the two adjacent angles so formed is 180 degrees and the converse.
- If two lines intersect, vertically opposite angles are equal.
- Lines which are parallel to a given line are parallel.

TRIANGLES

- Two triangles are congruent if any two sides and the included angle of one triangle is equal to any two sides and the included angle of the other triangle (SAS Congruence).
- Two triangles are congruent if any two angles and the included side of one triangle is equal to any two angles and the included side of the other triangle (ASA Congruence).
- Two triangles are congruent if the three sides of one triangle are equal to three sides of the other triangle (SSS Congruence).
- Two right triangles are congruent if the hypotenuse and a side of one triangle are equal (respectively) to the hypotenuse and a side of the other triangle. (RHS Congruence)
- The angles opposite to equal sides of a triangle are equal.
- The sides opposite to equal angles of a triangle are equal.

- If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio.
- If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side.
- If in two triangles, the corresponding angles are equal, their corresponding sides are proportional and the triangles are similar.
- If the corresponding sides of two triangles are proportional, their corresponding angles are equal and the two triangles are similar.
- If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar.

QUADRILATERALS

- The diagonal divides a parallelogram into two congruent triangles.
- In a parallelogram opposite sides are equal, and conversely.
- In a parallelogram opposite angles are equal, and conversely.
- A quadrilateral is a parallelogram if a pair of its opposite sides is parallel and equal.
- In a parallelogram, the diagonals bisect each other and conversely.
- In a triangle, the line segment joining the mid points of any two sides is parallel to the third side and in half of it and (motivate) its converse.

CIRCLES

- Equal chords of a circle subtend equal angles at the center and (motivate) its converse.
- The perpendicular from the center of a circle to a chord bisects the chord and conversely, the line drawn through the center of a circle to bisect a chord is perpendicular to the chord.
- Equal chords of a circle (or of congruent circles) are equidistant from the center (or their respective centers) and conversely.
- The angle subtended by an arc at the center is double the angle subtended by it at any point on the remaining part of the circle.
- Angles in the same segment of a circle are equal.
- If a line segment joining two points subtends equal angle at two other points lying on the same side of the line containing the segment, the four points lie on a circle.
- The sum of either of the pair of the opposite angles of a cyclic quadrilateral is 180° and its converse.
- Tangent to a circle at, point of contact
- The tangent at any point of a circle is perpendicular to the radius through the point of contact.
- The lengths of tangents drawn from an external point to a circle are equal.

AREAS

Area of a triangle using Heron's formula, Area of sectors and segments of a circle. Problems based on areas and perimeter / circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60°, 90° and 120°.

SURFACE AREAS AND VOLUMES

Surface areas and volumes of spheres (including hemispheres) and right circular cones. Surface areas and volumes of combinations of any two of the following: cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. Area of a Triangle using Hero's formula and its application in finding the area of a quadrilateral.

STATISTICS

Bar graphs, histograms (with varying base lengths), and frequency polygons. Mean, median and mode of grouped and ungrouped data, infrographics.,presentation of data, tabular form.

PROBABILITY

Classical definition of probability. Simple problems on finding the probability of an event. elementary probability and basic law. Discrete and continuous random variable.

TRIGONOMETRY

Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined); motivate the ratios whichever are defined at 0^0 and 90^0. Values of the trigonometric ratios of 30^0, 45^0 and 60^0.Relationships between the ratios.

TRIGONOMETRIC IDENTITIES

Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given.

HEIGHTS AND DISTANCES:

Angle of elevation, Angle of Depression. Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation / depression should be only 30°, 45°, and 60°

CALCULUS.

Sets. Functions and their graphs : polynomial, sine, cosine, exponential and logarithmic functions. Step function, Limits and continuity. Differentiation, Methods of differentiation like Chain rule, Product rule and Quotient rule. Second order derivatives of above functions. Integration as reverse process of differentiation. Integrals of the functions introduced above.

INEQUALITIES

Elementary Inequalities, Absolute value, Inequality of means, Cauchy – Schwarz Inequality, Tchebychef's Inequality.

(PART-B) Syllabus – TGT (Science)

Matter-Nature and Behaviour

Gases, liquids, solids, plasma and Bose-Enstein condenstate, types of intermolecular forces. Classification of matter into mixtures and pure substances. Henry's Law. Concentration of solutions. Colloids-phases of colloids, Tyndall effect, Brownian movement. Suspension.
Properties of matter. Measurement of properties of matter-S.I. system of units, physical and chemical changes Laws of chemical combination
Gay Lussac's law, Avogadro law, atomic and molecular masses, average atomic mass, mole concept and molar masses, percentage composition.

Nature of matter:

Elements, compounds and mixtures. Heterogeneous and homogenous mixtures, colloids and suspensions. Physical and chemical changes (excluding separating the components of a mixture).

Particle nature and their basic units:

Atoms and molecules, Law of Chemical Combination, Chemical formula of common compounds, Atomic and molecular masses.

Structure of atoms:

Electrons, protons and neutrons, Valency, Atomic Number and Mass Number, Isotopes and Isobars, Discharge tube experiments.

Chemical reactions:

Chemical equation, Balanced chemical equation, implications of a balanced chemical equation, types of chemical reactions: combination, decomposition, displacement, double displacement, precipitation, endothermic exothermic reactions, oxidation and reduction.

Acids, bases and salts:

Their definitions in terms of furnishing of H+ and OH– ions, General properties examples and uses, neutralization, concept of pH scale Numericals ,
Importance of pH in everyday life; preparation and uses of Sodium Hydroxide, Bleaching powder, Baking soda, Washing soda and Plaster of Paris.

Metals and non metals:

Properties of metals and non-metals; Reactivity series; Formation and properties of ionic compounds; Basic metallurgical processes; Corrosion and its prevention.

Carbon compounds:

Covalent bonding in carbon compounds. Versatile nature of carbon. Homologous series. , difference between saturated hydro carbons and unsaturated hydrocarbons. Chemical properties of carbon compounds Alcohols: Preparation and properties. Qualitative analysis of alcohols, iodoform test, effect of alcohols on living beings.
Carboxylicacids: Preparation and properties.
, soaps and detergents. Concept of hybridization and shapes of molecules structural formula and molecular models. isomerism, IUPAC nomenclature of organic compounds.

Periodic Classification of Elements

Mendeleev's periodic law, Periodic properties of elements, trends in the periods and groups: Improtance of the periodic table, position of hydrogen in the periodic table.

Tissues, Organs, Organ System, Organism:

Structure and functions of animal and plant tissues (only four types of tissues in animals;

Meristematic and Permanent tissues in plants).

Life processes:

'Living Being'. Basic concept of nutrition, respiration, transport and excretion in plants and animals.

Control and co-ordination in animals and plants:

Tropic movements in plants; Introduction of plant hormones; Control and co-ordination in animals: Nervous system; Voluntary, involuntary and re-flexaction; Chemical co- ordination: animal hormones.

Reproduction:

Reproduction in animals and plants (asexual and sexual) reproductive health – need and methods of family planning . Safe sex vs HIV/AIDS. Child bearing and women's health.

Heredity and Evolution:

Heredity; Mendel's contribution-Laws for inheritance of traits: Sex determination: brief introduction evolution. - Acquired and inherited traits., Homologus and Analogous organs. , What are fossils?.

Cell - Basic Unit of life :

Cell as a basic unit of life; prokaryotic and eukaryotic cells, multi cellular organisms; cell membrane and cell wall, cell organelles and cell inclusions; chloroplast, mitochondria, vacuoles, endoplasmic reticulum, Golgi apparatus; nucleus, chromosomes – basic structure, number.

Motion:

Distance and displacement, velocity; uniform and non-uniform motion along a straight line; acceleration, distance-time and velocity-time graphs for uniform motion and uniformly accelerated motion, elementary idea of uniform circular motion.

Force and Newton's laws :

Force and Motion, Newton's Laws of Motion, Action and Reaction forces, Inertia of a body, Inertia and mass, Momentum, Force and Acceleration.

Gravitation:

Gravitation; Universal Law of Gravitation, Force of Gravitation of the earth (gravity), Acceleration due to Gravity; Mass and Weight; Freefall.

Floatation:

Thrust and Pressure. Archimedes' Principle; Buoyancy.

Work, Energy and Power:

Work done by a Force, Energy, power; Kinetic and Potential energy; Law of conservation of energy).

Sound:

Nature of sound and its propagation in various media, speed of sound, range of hearing in humans; ultra sound; reflection of sound; echo.

Effects of Current

Electric current, potential difference and electric current. Ohm's law; Resistance, Resistivity,

Factors on which the resistance of a conductor depends. Series combination of resistors, parallel combination of resistors and its applications in daily life. Heating effect of electric current and its applications in daily life. Electric power, Interrelation between P, V, I and R.

Magnetic effects of current

Magnetic field, field lines, field due to a current carrying conductor, field due to current carrying coil or solenoid; Force on current carrying conductor, Fleming's Left Hand Rule, Electric Motor, Electromagnetic induction. Induced potential difference, Induced current. Fleming's Right Hand Rule, Electric Generator, Direct current. Alternating current: frequency of AC. Advantage of AC over DC. Domestic electric circuits.

Food Production

Plant and animal breeding and selection for quality improvement and management; Use of fertilizers and manures; Protection from pests and diseases; Organic farming.

Natural Phenomena

Reflection of light by curved surfaces; Images formed by spherical mirrors, centre of curvature, principal axis, principal focus, focal length, mirror formula (Derivation not required), magnification. Refraction; Laws of refraction, refractive index. Refraction of light by spherical lens; Image formed by spherical lenses; Lens formula (Derivation not required); Magnification. Power of a lens. Functioning of a lens in human eye, defects of vision and their corrections, applications of spherical mirrors and lenses. Refraction of light through a prism, dispersion of light, scattering of light, applications in daily life

Our environment:

Eco-system, Environmental problems, Ozone depletion, waste production and their solutions. Biodegradable and non-biodegradable substances.
Global warming and green house effect, acid rain, particulate pollutants, smog, formation of photochemical smog.
Water pollution-oxygen demand, chemical oxygen demand, international standard of drinking water, processing of drinking water.

Diversity of living organisms

- Basis of Classification.
- Classification & Evolution.
- Hierarchy of classification–groups.
- Plantae, Animalia.
- Nomenclature

Why do we fall ill

- Health & its failure.
- Diseases and their causes
- Types of diseases- Infectious, Noninfectious.
- Prevention of diseases
- Smmunisation

(PART-B) **Syllabus – TGT (Social Science)**

Livelihoods, Economies and Societies:

I. Forest Society and Colonialism:

- Why Deforestation?
- The Rise of Commercial Forestry
- Rebellion in the Forest
- Forest Transformations in Java

II. Pastoralists in the Modern World:

- Pastoral Nomads and their Movements
- Colonial Rule and Pastoral Life
- Pastoralism in Africa

III . Indus Valley Civilisation (Ancient History)
the Cities of Harappa , Mohenjo Daro and Lothal as well as the art , town planning and agriculture of the civilizations.

IV. Muvender (Medivial History):- Cheras , Cholas nad Pandyas -Dynastics that ruled over South India during the Sangam Age ".Vijay Nagar : Founder , Dynastics , Capital and Administraion .

V. Revolution of 1857 (Modern India)

- Nawabs losing Power
- The Peasants and the Sepoys Responses to reforms
- Mutiny become as popular rebellion.

GEOGRAPHY

Motions of the Earth : Rotation , Revolution , Occurance of Day and night ; Change of seasons ; Latitudes and Longitudes ; Finding time .
Earth's Interior: Origin of Continents and Ocean basins Wegener's Continental drift Theory , Theory of plate Tectonics , Earthquakes and Volcanoes , Folding and Faulting .

1. India

- Location
- Size
- India and the World
- India's Neighbours

2. Physical Features of India:

- Major Physiographic Divisions–Himalayan Mountains, Northern Plains, Peninsular Plateau, Indian Desert, Coastal Plains, Islands

3. Drainage:

- Concept
- Drainage Systems in India
- The Himalayan Rivers-Ganga and Brahmaputra River System
- The Peninsular Rivers- Narmada Basin,Tapti Basin, Godavari Basin, Mahanadi Basin, Krishna Basin, Kaveri Basin
- Lakes
- Role of Rivers in the Economy
- River Pollution

4. Climate:

- Concept
- Climatic Controls
- Factors influencing India's climate –Latitude, Altitude, Pressure and Winds (excluding Jet Streams and Western Cyclonic Disturbances and related figures)
- The Seasons – Cold Weather Season,Hot Weather Season, Advancing Monsoon, Retreating/Post Monsoons
- Distribution of Rainfall
- Monsoon a saunifying bond

5. Natural Vegetation and Wild Life:

- Types of Vegetation–Tropical Evergreen Forests, Tropical Deciduous Forests, Thorn Forests and Shrubs, Montane Forests, Mangrove Forests
- Wild Life

6. Population:

- Population Size and Distribution–India's Population Size and Distribution by Numbers, India's Population Distribution by Density
- Population Growth and Processes of Population Change–Population Growth, Processes of Population Change/Growth

Democratic Politics – I

1. **What is Democracy? Why Democracy?**

- What is Democracy?
- Features of Democracy
- Why Democracy?
- Broader Meanings of Democracy

2. **Constitutional Design:**

- Democratic Constitution in South Africa
- Why do we need a Constitution?
- Making of the Indian Constitution
- Guiding Values of the Indian Constitution

3. **Electoral Politics:**

- Why Elections?
- What is our System of Elections?
- What makes elections in India democratic?

4. **Working of Institutions:**

- How is the major policy decision taken?
- Parliament
- Political Executive
- The Judiciary

5. **Democratic Rights:**

- Life without Rights
- Rights in a Democracy
- Rights in the Indian Constitution
- Expanding scope of rights

Economics

1. **People as Resource:**

- Overview
- Economic Activities by Men and Women
- Quality of Population
- Unemployment

2. **Poverty as a Challenge:**

- Overview
- Two typical cases of Poverty
- Poverty as seen by Social Scientists
- Poverty Estimates
- Vulnerable Groups
- Interstate Disparities
- Global Poverty Scenario
- Causes of Poverty
- Anti-Poverty measures
- The Challenges Ahead

3. **Food Security in India:**

- Overview
- What is Food Security?
- Why Food Security?
- Who are food insecure?
- Food Security in India
- What is Buffer Stock?
- What is the Public Distribution System?
- Current Status of Public Distribution System
- Role of Cooperatives in food security

India and the Contemporary World – II

Events and Processes:

1. **The Rise of Nationalism in Europe:**
   - The French Revolution and the Idea of the Nation
   - The Making of Nationalism in Europe
   - The Age of Revolutions: 1830-1848
   - The Making of Germany and Italy
   - Visualizing the Nation
   - Nationalism and Imperialism

2. **Nationalism in India:**
   - The First World War, Khilafat and Non -
   - Cooperation
   - Differing Strands within the Movement
   - Towards Civil Disobedience
   - The Sense of Collective Belonging

Livelihoods, Economies and Societies:

3. **The Making of a Global World:**
   - The Pre-modern world
   - The Nineteenth Century (1815-1914)
   - The Inter war Economy
   - Rebuilding a World Economy: The Post-War Era

4. **The Age of Industrialization**:

   - Before the Industrial Revolution
   - Hand Labour and Steam Power
   - Industrialization in the Colonies
   - Factories Come Up
   - The Peculiarities of Industrial Growth
   - Market for Goods

Everyday Life, Culture and Politics:

5. **Print Culture and the Modern World:**
   - The First Printed Books
   - Print Comes to Europe
   - The Print Revolution and its Impact
   - The Reading Mania
   - The Nineteenth Century
   - India and the World of Print
   - Religious Reform and Public Debates
   - New Forms of Publication
   - Print and Censorship

Contemporary India – II

1. **Resources and Development:**
   - Concept
   - Development of Resources
   - Resource Planning – Resource Planning in India, Conservation of Resources
   - Land Resources
   - Land Utilization
   - Land Use Pattern in India
   - Land Degradation and Conservation Measures
   - Soil as a Resource - Classification of Soils, Soil Erosion and Soil Conservation

2. **Forest and Wildlife**
   - Conservation of forest and wildlife in India
   - Types and distribution of forests and wildlife resources
   - Community and Conservation

3. **Water Resources:**
   - Water Scarcity and The Need for Water Conservation and Management
   - Multi-Purpose River Projects and Integrated Water Resources Management
   - Rainwater Harvesting

4. **Agriculture:**
   - Types of Farming – Primitive Subsistence, Intensive Subsistence,
   - Commercial
   - Cropping Pattern – Major Crops, Food Crops other than Grains, Non Food Crops, Technological and Institutional Reforms
   - Food Security (excluding impact of globalization on agriculture)

5. **Minerals and Energy Resources**
   - What is a mineral?
   - Mode of occurrence of Minerals – Where are these minerals found?, Ferrous Minerals, Non-Ferrous Minerals, Non-Metallic Minerals, Rock Minerals
   - Conservation of Minerals
   - Energy Resources – Conventional Sources of Energy, Non-Conventional Sources of Energy
   - Conservation of Energy Resources

6. **Manufacturing Industries:**
   - Importance of Manufacturing – Industrial Location (excluding Industry Market Linkage), Agro based Industry (excluding Cotton Textiles, Jute Textiles, Sugar Industry), Mineral based Industries (excluding Iron Steel Industry, Cement Industry), Industrial Pollution and Environmental Degradation, Control of Environmental Degradation

7. **Life Lines of National Economy:**
   - Roadways
   - Railways
   - Pipelines
   - Waterways
   - Major Seaports
   - Airways
   - Communication
   - International Trade
   - Tourism as a Trade

Democratic Politics – II

1. **Power Sharing:**
   - Belgium and Sri Lanka
   - Majoritarianism in Sri Lanka
   - Accommodation in Belgium
   - Why power sharing is desirable?
   - Forms of Power Sharing

2. **Federalism:**
   - What is Federalism?
   - What make India a Federal Country?
   - How is Federalism practiced?
   - Decentralization in India

3. **Gender, Religion and Caste:**
   - Gender and Politics - Public/Private division, Women's political representation
   - Religion, Communalism and Politics –Communalism, Secular State
   - Caste and Politics - Caste inequalities, Caste in politics, Politics in caste

4. **Political Parties:**
   - Why do we need Political Parties? –
   - Meaning, Functions, Necessity
   - How many parties should we have?
   - National Parties
   - State Parties
   - Challenges to Political Parties
   - How can Parties be reformed?

5. **Outcomes of Democracy:**
   - How do we assess democracy's outcomes?
   - Accountable, responsive and legitimate government
   - Economic growth and development
   - Reduction of inequality and poverty
   - Accommodation of social diversity
   - Dignity and freedom of the citizens

Understanding Economic Development

1. **Development:**
   - What Development Promises – Different People, Different Goals
   - Income and Other Goals
   - National Development
   - How to compare different countries or states?
   - Income and other criteria
   - Public Facilities
   - Sustainability of Development

2. **Sectors of the Indian Economy:**
   - Sectors of Economic Activities
   - Comparing the three sectors
   - Primary, Secondary and Tertiary Sectors in India
   - Division of sectors as organized and unorganized
   - Sectors in terms of ownership: Public and Private Sectors

3. **Money and Credit:**
   - Money as a medium of exchange
   - Modern forms of Money
   - Loan activities of Banks
   - Two different Credit situations
   - Terms of Credit
   - Formal Sector Credit in India

- Self Help Groups for the Poor

4. **Globalization and the Indian Economy:**
   - Production across countries
   - Inter linking production across countries
   - Foreign Trade and integration of markets
   - What is Globalization?
   - Factors that have enabled Globalization
   - World Trade Organization
   - Impact of Globalization in India
   - The Struggle for a fair Globalization

5. **Consumer Rights**
   - Consumer in market place
   - Consumer movement
   - Consumer Rights

(PART-B) SYLLABUS FOR TGT (ENGLISH)

Section A: Reading

Comprehension

Three or four unseen passages from different genres (prose, poetry, drama, articles, editorials, scientific, and literary extracts).
Questions will test comprehension, inference, vocabulary, tone, rhetorical devices, and logical sequencing.

Section B: Writing Ability

B1. Functional Writing:

Formal and Informal Letters: Business letters, job applications, letters to editors, complaints, and personal letters.
Report Writing: Factual description of events, newspaper reports, and analytical reports. Notices, Circulars, and Press Releases.

B2. Creative and Analytical Writing:

Essay Writing: Argumentative, analytical, reflective, and descriptive essays. Article/Debate/Speech: Expressing opinions on socio-political, economic, and educational issues.

Section C: Grammar and Usage

Parts of Speech: Nouns, Pronouns, Verbs, Adverbs, Adjectives, Prepositions, Conjunctions. Sentence Structure : Types of sentences, subject-verb agreement, parallelism, and sentence connectors.
Tenses and Their Usage: Active-passive voice, sequence of tenses, and reported speech. Clauses: Noun, adjective, and adverb clauses.
Common Errors: Articles, prepositions, modifiers, redundancy, and word order. Editing and Proofreading: Error detection, sentence correction, and transformation.

Section D: Literature

D1. British Literature:

Elizabethan and Jacobean Drama: William Shakespeare, Christopher Marlowe, Ben Jonson. Poetry: John Donne, Alexander Pope, William Wordsworth, Samuel Taylor Coleridge, John Keats.
Victorian and Modern Writers: Charles Dickens, Thomas Hardy, Virginia Woolf, T.S. Eliot, George Orwell.

D2. Indian Writing in English:

R.K. Narayan, Mulk Raj Anand, Anita Desai, Vikram Seth, Arundhati Roy, Amitav Ghosh.

D3. World Literature:

Gabriel García Márquez, Chinua Achebe, Pablo Neruda, Khaled Hosseini.

(PART-B) प्रशिक्षित स्नातक शिक्षक (हिन्दी)

स्नातक स्तर पर पढ़े पाठ्यक्रम के अवधारणाओं, अनुप्रयोगों की गहन समझ का आकलन किया जाएगा ।

गद्य-खंड :

हिंदी साहित्य का इतिहास
हिंदी साहित्य उद्भव और विकास
गद्य साहित्य की विधाएं
कहानी, उपन्यास, नाटक/एकांकी, निबंध, रेखाचित्र, संस्मरण, जीवनी, आत्मकथा,
यात्रा वृत्तांत, रिपोर्ताज, कथेतर गद्य

काव्य-खंड:

आदिकालीन कविता
भक्तिकाल (सगुण, निर्गुण, सूफी काव्य)
रीतिकाल की कविता
आधुनिक काल की कविता (भारतेंदु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविता)

हिंदी भाषा का विकास एवं व्यवहारिक व्याकरण :-
हिंदी की उप- भाषाएं एवं बोलियां
वर्ण विचार (उच्चारण, वर्तनी)
शब्द विचार और शब्द रचना (विलोम शब्द पर्यायवाची, अनेकार्थक, श्रुतिसम भिन्नार्थक शब्द इत्यादि)
संधि, समास
विकारी शब्द, अविकारी शब्द
वाक्य रचना: (अर्थ एवं रचना के आधार पर)
पद - परिचय
अलंकार शब्दालंकर, अर्थालंकार (अनुप्रास, यमक, श्लेष, उपमा, रूपक, उत्प्रेक्षा, मानवीकरण, अतिश्योक्ति अलंकार)

शब्द-शक्तियां
मुहावरे एवं लोकोक्तियां
अपठित गद्यांश, पदयांश
संविधान में हिंदी की स्थिति संबंधी धाराएं, उप धाराएं
हिंदी राजभाषा, संपर्क भाषा, प्रयोजन मूलक हिंदी, कार्यालयी हिंदी, मानक हिंदी
ई मेल लेखन, लघु कथा लेखन, विज्ञापन लेखन इत्यादि लेखन ।

(PART-B) टीजीटी संस्कृत निर्धारित पाठ्यक्रम

भाग - क - व्याकरण
भाग- ख - वाक्यरचना
भाग- ग - काव्यांश
भाग- घ - गद्यांश

भाग- क - व्याकरण

शब्दरूप - राम, मति, नदी, हरि, गुरु, वधू, मधु, पितृ, मातृ, वारि, गो, भगवत्, जगत् आत्मन्, पथिन्, विद्वस्, सर्व, किम्,

तत्, एतत्, इदम्, अस्मद्, युष्मद्

धातुरूप - पठ्, पच्, भू, कृ, अस्, अद्, हन्, दिव्, तन्, तुद्, रुध्, क्री, चुर्, सेव्, लभ्,

(लट्, लङ्, लृट्, लोट् और विधिलिङ् लकारों में)

कारक - परिचय - षड् कारकाणि, सभी विभक्तियाँ

प्रमुख प्रत्यय: - क्त्वा, तुमुन्, ल्यप्, शतृ, शानच् क्त, क्तवतु, अनीयर्, तव्यत्, तव्य, त्व, तल, ठक्, मतुप्, टाप्, ङीप्

अव्यय - उच्चैः, च, श्वः, ह्यः, अध, अत्र, तत्र, यत्र, कुत्र, इदानीम्, अधुना, सम्प्रति, साम्प्रतम्, यदा, तदा,

कदा, सहसा, वृथा, शनैः, अपि, कुतः, इतस्ततः, यदि, तर्हि, यावत्-तावत् ।

सन्धि - स्वर - दीर्घ, गुण, वृद्धि, यण, अयादि

व्यञ्जन - जशत्व, अनुस्वार, परसवर्ण

विसर्ग - उत्व, रत्व, सत्व, विसर्ग लोप, विसर्ग के स्थान पर स्, ष्, श्

समास - अव्ययीभाव, तत्पुरुष, कर्मधारय, द्विगु, नञ्-तत्पुरुष, बहुव्रीहि, द्वन्द्व ।

उपसर्ग: - द्वाविंशतिः (22)

संख्या - शतम् यावत् _(सौ तक)

भाग- ख - वाक्यरचना

भाग - क में निर्धारित व्याकरण बिन्दूओं के प्रयोग पर आधारित शुद्ध-अशुद्ध-निर्णय ।

अपठित-अवबोधन

अपठित अनुच्छेदों का अवबोधन - अनुवाद एवं प्रश्नोत्तर

लघु संस्कृत निबन्ध - संस्कृत भाषा, साहित्य और संस्कृति से सम्बन्धित

भाग- ग - काव्यांश

रघुवंशमहाकाव्यम् - प्रथम सर्ग - 1-25 श्लोक

अभिज्ञान शाकुन्तलम् - चतुर्थ अंक:

प्रतिमा नाटकम् - तृतीय अंक:

नीतिशतकम् - सम्पूर्ण

भगवद्गीता - द्वितीय-अध्यायः

भाग- घ - गद्यांश

1

शुकनासोपदेश: - प्रारम्भ से लक्ष्मीवर्णन के प्रसंग 'स्वल्पसत्त्वमुन्मतीकरोति' (बाणभट्टकृत कादम्बरी के अन्तर्गत)

शिवराजविजय: - प्रथम - नि:श्वास

कवि परिचय - कालिदास, भास, भवभूति, माघ, शूद्रक, भारवि, श्रीहर्ष, भर्तृहरि

संस्कृत सुभाषित - सूक्तियों का ज्ञान, प्रसिद्ध कथन

छन्द - अनुष्टुप, उपजाति, वंशस्थ, वसन्ततिलका, मालिनी, स्रग्धरा एवं शार्दूलविक्रीडित

अलंकार - अनुप्रास, उपमा, रूपक, उत्प्रेक्षा, यमक, श्लेष एवं अर्थान्तरन्यास

वैदिक साहित्य - चारों वेदो का सामान्य परिचयः, ईशावाश्योपनिषद, तैतेरीय उपनिषद

(PART-B) Syllabus

HOME SCIENCE (PGT)

- Introduction to Home Science
- Understanding oneself: Adolescence

Ch. - Understanding the Self a. "Who am I"? b. Development and Characteristics of the Self (Development characteristics and needs of adolescents) c. Influences on Identity

Ch. - Food, Nutrition, Health and Fitness

Ch. - Management of Resources

Ch. - Fabric Around us

Ch. - Media and Communication Technology

- Understating family, community and society

Ch. - Concerns and needs in diverse contexts: a. Nutrition, Health and Hygiene b. Resources Availability and Management

- Childhood

Ch.-Survival, Growth and Development

Ch. - Nutrition, Health and Wellbeing

Ch. - Our Apparel

- Adulthood

Ch. - Health and Wellness

Ch. - Financial Management and planning

Ch. - Care and Maintenance of fabrics

UNIT I: Work, livelihood and Career

Ch. Work, livelihood and Career

UNIT II: Nutrition, Food Science and Technology

Ch. Clinical Nutrition and Dietetics

Ch. Public Nutrition and Health

Ch. Food Processing and Technology

Ch. Food Quality and Food Safety

UNIT III: Human Development and Family Studies

Ch. Early Childhood Care and Education

Ch. Management of Support Services, Institutions and Programmes for Children, Youth and Elderly

UNIT IV: Fabric and Apparel

Ch. Design for Fabric and Apparel

Ch. Fashion Design and Merchandising

Ch. Care and Maintenance of Fabrics in Institutions

UNIT V: Resource management

Ch. Hospitality Management

Ch. Consumer Education and Protection

UNIT VI: Communication and Extension

Ch. Development Communication and Journalism

(PART-B) Syllabus

Physical Education (PGT)

- Changing Trends and Careers in Physical Education
  1. Concept, Aims & Objectives of Physical Education
  2. Developmen t of Physical Education in India – Post Independenc e
  3. Changing Trends in Sports playing surface, wearable gear and sports equipment, technological advancements
  4. Career options in Physical Education
  5. Khelo-India Program and Fit – India Program
- Olympism Value Education
  1. Olympism – Concept and Olympics Values (Excellence, Friendship & Respect)
  2. Olympic Value Education – Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, Balance Among Body, Will & Mind
  3. Ancient and Modern Olympics
  4. Olympics - Symbols, Motto, Flag, Oath, and Anthem
  5. Olympic Movement Structure - IOC, NOC, IFS, Other members
- Yoga
  1. Meaning and importance of Yoga
  2. Introduction to Astanga Yoga
  3. Yogic Kriyas (Shat Karma)
  4. Pranayama and its types.
  5. Active Lifestyle and stress management through Yoga
- Physical Education and Sports for Children with Special Needs
  1. Concept of Disability and Disorder
  2. Types of Disability, its causes & nature (Intellectual disability, Physical disability).
  3. Disability Etiquette
  4. Aim and objectives of Adaptive physical Education
  5. Role of various professionals for children with special needs (Counselor, Occupational Therapist, Physiotherapi st, Physical Education Teacher, Speech Therapist, and Special Educator)
- Physical Fitness, Wellness, and Lifestyle
  1. Meaning & importance of Wellness, Health, and Physical Fitness.
  2. Components/ Dimensions of Wellness, Health, and Physical Fitness
  3. Traditional Sports & Regional Games for promoting wellness
  4. Leadership through Physical Activity and Sports
  5. Introduction to First Aid – PRICE
- Test, Measurement & Evaluation
  1. Define Test, Measureme nts and Evaluation.
  2. Importance of Test, Measurem ents and Evaluation in Sports.
  3. Calculation of BMI, Waist – Hip Ratio, Skin fold measuremen t (3-site)
  4. Somato Types (Endomorphy Mesomorphy & Ectomorphy
  5.Measuremen ts of healthrelated fitness
- Fundamentals of Anatomy, Physiology in Sports
  1. Definition and importance of Anatomy and Physiology in Exercise and Sports.
  2. Functions of Skeletal System, Classification of Bones, and Types of Joints.
  3. Properties and Functions of Muscles.
  4. Structure and Functions of Circulatory System and Heart.
  5. Structure and Functions of Respiratory System.
- Fundamentals Of Kinesiology And Biomechanics in Sports

1. Definition and Importance of Kinesiology and Biomechanic s in Sports.
2. Principles of Biomechanic s
3. Kinetics and Kinematics in Sports
4. Types of Body Movements - Flexion, Extension, Abduction, Adduction, Rotation, Circumductio n, Supination & Pronation
5. Axis and Planes – Concept and its application in body movements

- Psychology and Sports
  1. Definition & Importance of Psychology in Physical Education & Sports;
  2. Develop- mental Characteristics at Different Stages of Development.
  3. Adolescent Problems & their Manageme nt;
  4. Team Cohesion and Sports;
  5. Introduction to Psychological Attributes: Attention, Resilience, Mental Toughness
- Training & Doping in Sports
  1. Concept and Principles of Sports Training
  2. Training Load: Over Load, Adaptation, and Recovery
  3. Warming-up & Limbering Down – Types, Method & Importance.
  4. Concept of Skill, Technique, Tactics & Strategies
  5. Concept of Doping and its disadvantages
- Management of Sporting Events
  1. Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)
  2. Various Committees & their Responsibiliti es (pre; during & post)
  3. Fixtures and their Procedures – Knock- Out (Bye & Seeding) & League (Staircase, Cyclic, Tabular method) and Combination tournaments
  4. Intramural & Extramural tournaments – Meaning, Objectives & Its Significance
  5. Community sports program (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity)
- Children & Women in Sports
  1. Exercise guidelines of WHO for different age groups.
  2. Common postural deformitiesknock knees, flat foot, round shoulders, Lordosis, Kyphosis, Scoliosis, and bow legs and their respective corrective measures.
  3. Women's participation in SportsPhysical, Psychological , and social benefits.
  4. Special consideration (menarche and menstrual dysfunction)
  5. Female athlete triad (osteoporosis, amenorrhea, eating disorders
- Yoga as Preventive measure for Lifestyle Disease
  1. Obesity: Procedure, Benefits & Contraindicati ons for Tadasana, Katichakrasan a, Pavanmuktas ana, Matsayasana, Halasana, Pachimottans ana, Ardha – Matsyendrasa na, Dhanurasana, Ushtrasana, Suryabedhan pranayama
  2. Diabetes:. Procedure, Benefits & Contraindicati ons for Katichakrasan a, Pavanmuktas ana,Bh ujangasana, Shalabhasana ,Dhanurasana Suptavajarasana, Paschimottan asan-a, ArdhaMastendrasan a, Mandukasana Gomukasana, Yogmudra, Ushtrasana, Kapalabhati
  3. Asthma: Procedure, Benefits & Contraindicat ions for Tadasana, Urdhwahasto ttansan a, UttanManduk asana, Bhujangasana , Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, AnulomaViloma
  4. Hypertension : Procedure, Benefits & Contraindicati ons for Tadasana, Katichakransa n, Uttanpadasan a, Ardha Halasana, Sarala Matyasana, Gomukhasana , UttanManduka san-a, Vakrasana, Bhujangasana , Makarasana, Shavasana, Nadishodhanapran ayam, Sitlipranayam

5. Back Pain and Arthritis: Procedure, Benefits & Contraindica tions of Tadasan, Urdhawahast ootansana, ArdhChakrasana, Ushtrasana, Vakrasana, Sarala Maysyendrsa na, Bhujangasan a, Gomukhasan a, Bhadrasana, Makarasana, NadiShodhana pranayama.

- Physical Education and Sports for CWSN (Children with Special Needs - Divyang)
  1. Organization s promoting Disability Sports (Special Olympics; Paralympis; Deaflympics)
  2. Concept of Classificatio n and Divisioning in Sports.
  3. Concept of Inclusion in sports, its need, and Implementat ion;
  4. Advantages of Physical Activities for children with special needs.
  5. Strategies to make Physical Activities assessable for children with special needs.
- Sports & Nutrition
  1. Concept of balanced diet and nutrition
  2. Macro and Micro Nutrients: Food sources & functions
  3. Nutritive & NonNutritive Componen ts of Diet
  4. Eating for Weight control – A Healthy Weight, The Pitfalls of Dieting, Food Intolerance, and Food Myths
  5. Importance of Diet in SportsPre, During and Post competition Requirements
- Test & Measurement in Sports
  1. Fitness Test – SAI Khelo India Fitness Test in school: Age group 5-8 years/ class 1-3: BMI, Flamingo Balance Test, Plate Tapping Test Age group 9- 18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Partial Abdominal Curl Up, Push-Ups for boys, Modified Push-Ups for girls).
  2. Measurement of CardioVascular Fitness – Harvard Step Test – Duration of the Exercise in Seconds x100/5.5 X Pulse count of 1-1.5 Min after Exercise
  3. Computing Basal Metabolic Rate (BMR)
  4. Rikli & Jones - Senior Citizen Fitness Test o Chair Stand Test for lower body strength o Arm Curl Test for upper body strength Chair Sit & Reach Test for lower body flexibility o Back Scratch Test for upper body flexibility o Eight Foot Up & Go Test for agility o Six-Minute Walk Test for Aerobic Endurance
  5. Johnsen – Methney Test of Motor Educability (Front Roll, Roll, Jumping Half-Turn, Jumping fullturn
- Physiology & Injuries in Sport
  1. Physiological factors determining components of physical fitness
  2. Effect of exercise on the Muscular System
  3. Effect of exercise on the CardioRespiratory System
  4. Physiological changes due to aging
  5. Sports injuries: Classification (Soft Tissue Injuries - Abrasion, Contusion, Laceration, Incision, Sprain & Strain Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse Oblique & Impacted)
- Biomecha nics and Sports
  1. Newton's Law of Motion & its application in sports
  2. Types of Levers and their application in Sports.
  3. Equilibrium – Dynamic & Static and Centre of Gravity and its application in sports
  4. Friction & Sports
  5. Projectile in Sports
- Psychology and Sports
  1. Personality; its definition & types (Jung Classification & Big Five Theory)
  2. Motivation, its type & techniques.
  3. Exercise Adherence: Reasons, Benefits & Strategies for Enhancing it
  4. Meaning, Concept & Types of Aggression s in Sports

5. Psychological Attributes in Sports – SelfEsteem, Mental Imagery, SelfTalk, Goal Setting

- Training in Sports
  1. Concept of Talent Identification and Talent Development in Sports
  2. Introduction to Sports Training Cycle – Micro, Meso, Macro Cycle.
  3. Types & Methods to Develop – Strength, Endurance, and Speed.
  4. Types & Methods to Develop – Flexibility and Coordinative Ability.
  5. Circuit Training - Introduction & its importance

(PART-B) Syllabus - PGT (Mathematics)

Sets:

Sets and their representations, Empty set, Finite and Infinite sets, Equal sets, Subsets. Subsets of a set of real numbers especially intervals (with notations). Universal set. Venn diagrams. Union and Intersection of sets. Difference of sets. Complement of a set. Properties of Complement.

Relations & Functions:

Ordered pairs. Cartesian product of sets. Number of elements in the Cartesian product of two finite sets. Cartesian product of the set of reals with itself (upto R x R x R). Definition of relation, pictorial diagrams, domain, co-domain and range of a relation. Function as a special type of relation. Pictorial representation of a function, domain, co-domain and range of a function. Real valued functions, domain and range of these functions, constant, identity, polynomial, rational, modulus, signum, exponential, logarithmic and greatest integer functions, with their graphs. Sum, difference, product and quotients of functions.

Trigonometric Functions

Positive and negative angles. Measuring angles in radians and in degrees and conversion from one measure to another. Definition of trigonometric functions with the help of unit circle. Truth of the identity $\sin 2x + \cos 2x = 1$, for all x. Signs of trigonometric functions. Domain and range of trigonometric functions and their graphs. Expressing $\sin(x \pm y)$ and $\cos(x \pm y)$ in terms of sinx, siny, cosx & cosy and their simple applications. Identities related to sin2x, cos2x, $\tan 2x$, sin3x, cos3x and tan3x.

Complex Numbers and Quadratic Equations

Need for complex numbers, especially $\sqrt{-1}$, to be motivated by inability to solve some of the quardratic equations. Algebraic properties of complex numbers. Argand plane

Linear Inequalities

Linear inequalities. Algebraic solutions of linear inequalities in one variable and their representation on the number line.

Permutations and Combinations

Fundamental principle of counting. Factorial n. (n!) Permutations and combinations, derivation of Formulae for nPr and nCr and their connections, simple applications.

Binomial Theorem

Historical perspective, statement and proof of the binomial theorem for positive integral indices.
Pascal's triangle, simple applications.

Sequence and Series

Sequence and Series. Arithmetic Progression (A. P.). Arithmetic Mean (A.M.) Geometric Progression (G.P.), general term of a G.P., sum of n terms of a G.P., infinite G.P. and its sum, geometric mean (G.M.), relation between A.M. and G.M.

Straight Lines

Slope of a line and angle between two lines. Various forms of equations of a line: parallel to axis, point -slope form, slope-intercept form. Distance of a point from a line.

Conic Sections

Sections of a cone: circles, ellipse, parabola, hyperbola, a point, a straight line and a pair of intersecting lines as a degenerated case of a conic section. Standard equations and simple properties of parabola, ellipse and hyperbola. Standard equation of a circle.

Introduction to Three-dimensional Geometry

Coordinate axes and coordinate planes in three dimensions. Coordinates of a point. Distance between two points.

Limits and Derivatives

Derivative introduced as rate of change both as that of distance function and geometrically. Intuitive idea of limit. Limits of polynomials and rational functions trigonometric, exponential and logarithmic functions. Definition of derivative relate it to scope of tangent of the curve, derivative of sum, difference, product and quotient of functions. Derivatives of polynomial and trigonometric functions.

Statistics

Measures of Dispersion: Range, Mean deviation, variance and standard deviation of ungrouped/grouped data.

Probability

Random experiments; outcomes, sample spaces (set representation). Events; occurrence of events, 'not', 'and' and 'or' events, exhaustive events, mutually exclusive events, Axiomatic (set theoretic) probability, connections with other theories of earlier classes. Probability of an event, probability of 'not', 'and' and 'or' events.

Relations and Functions

Types of relations: reflexive, symmetric, transitive and equivalence relations. One to one and onto functions.

Inverse Trigonometric Functions

Definition, range, domain, principal value branch. Graphs of inverse trigonometric functions.

Matrices

Concept, notation, order, equality, types of matrices, zero and identity matrix, transpose of a

matrix, symmetric and skew symmetric matrices. Operation on matrices: Addition and multiplication and multiplication with a scalar. Simple properties of addition, multiplication and scalar multiplication. On commutativity of multiplication of matrices and existence of non-zero matrices whose product is the zero matrix (restrict to square matrices of order 2). Invertible matrices and proof of the uniqueness of inverse, if it exists; (Here all matrices will have real entries).

Determinants

Determinant of a square matrix (up to 3 x 3 matrices), minors, co-factors 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.

Continuity and Differentiability

Continuity and differentiability, derivative of composite functions, chain rule, derivative of inverse trigonometric functions, derivative of implicit functions. Concept of exponential and logarithmic functions. Derivatives of logarithmic and exponential functions. Logarithmic differentiation, derivative of functions expressed in parametric forms. Second order derivatives.

Applications of Derivatives

Applications of derivatives: rate of change of bodies, increasing/decreasing functions, 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).

Integrals

Integration as inverse process of differentiation. Integration of a variety of functions by substitution, by partial fractions and by parts, Evaluation of simple integrals of the following types and problems based on them.

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

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

$$\int \sqrt{ax^2 + bx + c}\, dx,$$

Fundamental Theorem of Calculus. Basic Properties of definite integrals and evaluation of definite integrals;

Applications of the Integrals

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

Differential Equations

Definition, order and degree, general and particular solutions of a differential equation. Solution of differential equations by method of separation of variables, solutions of homogeneous differential equations of first order and first degree. Solutions of linear differential equation of the type: dy /dx + py = q, where p and q are functions of x or constants. dx/ dy + px = q, where p and q are functions of y or constants.

Vectors

Vectors and scalars, magnitude and direction of a vector. Direction cosines and direction ratios

of a vector. 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. Definition, Geometrical Interpretation, properties and application of scalar (dot) product of vectors, vector (cross) product of vectors.

Three - dimensional Geometry

Direction cosines and direction ratios of a line joining two points. Cartesian equation and vector equation of a line, skew lines, shortest distance between two lines. Angle between two lines.

Linear Programming

Introduction, related terminology such as constraints, objective function, optimization, graphical method of solution for problems in two variables, feasible and infeasible regions (bounded or unbounded), feasible and infeasible solutions, optimal feasible solutions (up to three non-trivial constraints).

Probability

Conditional probability, multiplication theorem on probability, independent events, total probability,
Bayes' theorem, Random variable and its probability distribution, mean of random variable.

Units and Measurements

Need for measurement: Units of measurement; systems of units; SI units, fundamental and derived units, significant figures. Dimensions of physical quantities, dimensional analysis and its applications.

Motion in a Straight Line

Frame of reference, Motion in a straight line, Elementary concepts of differentiation and integration for describing motion, uniform and non- uniform motion, and instantaneous velocity, uniformly accelerated motion, velocity - time and position-time graphs, Relations for uniformly accelerated motion .

Motion in a Plane

Scalar and vector quantities; position and displacement vectors, general vectors and their notations; equality of vectors, multiplication of vectors by a real number; addition and subtraction of vectors, Unit vector; resolution of a vector in a plane, rectangular components, Scalar and Vector product of vectors. Motion in a plane, cases of uniform velocity and uniform acceleration, projectile motion, uniform circular motion.

Laws of Motion:

Intuitive concept of force, Inertia, Newton's first law of motion; momentum and Newton's second law of motion; impulse; Newton's third law of motion. Law of conservation of linear momentum and its applications. Equilibrium of concurrent forces, Static and kinetic friction, laws of friction, rolling friction, lubrication. Dynamics of uniform circular motion: Centripetal force, examples of circular motion- vehicle on a level circular road, vehicle on a banked road.

Work, Energy and Power:

Work done by a constant force and a variable force; kinetic energy, work-energy theorem, power, Notion of potential energy, potential energy of a spring, conservative forces: non-conservative forces, motion in a vertical circle; elastic and inelastic collisions in one and two dimensions.

Motion of System of Particles and Rigid Body & System of Particles and Rotational Motion

Centre of mass of a two-particle system, momentum conservation and Centre of mass motion, Centre of mass of a rigid body; centre of mass of a uniform rod, Moment of a force, torque, angular momentum, law of conservation of angular momentum and its applications, Equilibrium of rigid bodies, rigid body rotation and equations of rotational motion, comparison of linear and rotational motions. Moment of inertia, radius of gyration, values of moments of inertia for simple geometrical objects.

Gravitation:

Kepler's laws of planetary motion, universal law of gravitation, Acceleration due to gravity and its variation with altitude and depth. Gravitational potential energy and gravitational potential, escape velocity, orbital velocity of a satellite.

Mechanical Properties of Solids

Elasticity, Stress-strain relationship, Hooke's law, Young's modulus, bulk modulus, shear modulus of rigidity, Poisson's ratio; elastic energy.

Mechanical Properties of Fluids

Pressure due to a fluid column; Pascal's law and its applications -hydraulic lift and hydraulic brakes, effect of gravity on fluid pressure, Viscosity, Stokes' law, terminal velocity, streamline and turbulent flow, critical velocity, Bernoulli's theorem and its simple applications, Surface energy and surface tension, angle of contact, excess of pressure across a curved surface, application of surface tension ideas to drops, bubbles and capillary rise.

Thermal Properties of Matter

Heat, temperature, thermal expansion; thermal expansion of solids, liquids and gases, anomalous expansion of water; specific heat capacity; Cp, Cv - calorimetry; change of state - latent heat capacity. Heat transfer-conduction, convection and radiation, thermal conductivity, qualitative ideas of Blackbody radiation, Wein's displacement Law, Stefan's law.

Thermodynamics

Thermal equilibrium and definition of temperature, zeroth law of thermodynamics, heat, work and internal energy, First law of thermodynamics, Second law of thermodynamics: gaseous state of matter, change of condition of gaseous state -isothermal, adiabatic, reversible, irreversible, and cyclic processes.

Behavior of Perfect Gases and Kinetic Theory of Gases :

Equation of state of a perfect gas, work done in compressing a gas, Kinetic theory of gases - assumptions, concept of pressure. Kinetic interpretation of temperature; rms speed of gas molecules; degrees of freedom, law of equi-partition of energy and application to specific heat capacities of gases; concept of mean free path, Avogadro's number.

Oscillations and Waves:

Periodic motion - time period, frequency, displacement as a function of time, periodic functions and their application, Simple harmonic motion (S.H.M) and its equations of motion; phase; oscillations of a loaded spring- restoring force and force constant; energy in S.H.M. Kinetic and potential energies; simple pendulum -its time period. Transverse and longitudinal waves, speed of travelling wave, displacement relation for a progressive wave, principle of superposition of waves, reflection of waves, standing waves in strings and organ pipes, fundamental mode and harmonics, Beats.

Electric Charges and Fields:

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 a dipole, torque on a 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.

Magnetism and Matter

Bar magnet, bar magnet as an equivalent solenoid (qualitative treatment only), magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis (qualitative treatment only), torque on a magnetic dipole (bar magnet) in a uniform magnetic field (qualitative treatment only), magnetic field lines. Magnetic properties of materials- Para-, dia- and ferro - magnetic substances with examples, Magnetization of materials, effect of temperature on magnetic properties.

Electromagnetic Induction and Alternating Currents

Electromagnetic induction; Faraday's laws, induced EMF and current; Lenz's Law, Self and mutual induction, Alternating Current Alternating currents, peak and RMS value of alternating current/voltage; reactance and impedance; LCR series circuit, resonance, power in AC circuits, power factor, wattless current, AC generator, Transformer.

Electromagnetic Waves

Basic idea of displacement current, Electromagnetic waves, their characteristics, their transverse nature (qualitative idea only). Electromagnetic spectrum (radio waves, microwaves, infrared, visible, ultraviolet, X-rays, gamma rays) including elementary facts about their uses.

Ray Optics and Optical Instruments Ray Optics:

Reflection of light, spherical mirrors, mirror formula, refraction of light, total internal reflection and optical fibers, refraction at spherical surfaces, lenses, thin lens formula, lens maker's formula, magnification, power of a lens, combination of thin lenses in contact, refraction of light through a prism. Optical instruments: 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 wave fronts, Proof 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 maxima.

Dual Nature of Radiation and Matter:

Dual nature of radiation, Photoelectric effect, Hertz and Lenard's observations; Einstein's photoelectric equation-particle nature of light, Experimental study of photoelectric effect Matter waves-wave nature of particles, de-Broglie relation.

Atoms & Nuclei:

Alpha-particle scattering experiment; Rutherford's model of atom; Bohr model of hydrogen atom, Expression for radius of nth possible orbit, velocity and energy of electron in its orbit, hydrogen line spectra, Composition and size of nucleus, nuclear force Mass-energy relation, mass defect; binding energy per nucleon and its variation with mass number; nuclear fission, nuclear fusion.

Semiconductor Electronics:

Energy bands in conductors, semiconductors and insulators, Intrinsic and extrinsic semiconductors- p and n type, p-n junction Semiconductor diode - I-V characteristics in forward and reverse bias, application of junction diode -diode as a rectifier.

Basic Concepts of Chemistry

General Introduction: Importance and scope of Chemistry. Nature of matter, laws of chemical combination, Dalton's atomic theory: concept of elements, atoms and molecules. Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry.

Structure of Atom

Discovery of Electron, Proton and Neutron, atomic number, isotopes and isobars. Thomson's model and its limitations. Rutherford's model and its limitations, Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.

Classification of Elements and Periodicity in Properties

Significance of classification, brief history of the development of periodic table, modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.

Chemical Bonding and Molecular Structure

Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), Hydrogen bond.

Chemical Thermodynamics

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU & ΔH, Hess's law of constant heat summation, enthalpy of bond of dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics, Introduction of entropy as a state function, Gibb's energy change for spontaneous and nonspontaneous processes, criteria for equilibrium. Third law of thermodynamics.

Equilibrium

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium - Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, hydrolysis of salts (elementary idea), buffer solution, Henderson Equation, solubility product, common ion effect (with illustrative examples).

Redox Reactions

Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions.

Organic Chemistry -Some Basic Principles and Techniques

General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a

covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation.

Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions.

Classification of Hydrocarbons

Aliphatic Hydrocarbons:

Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markovnikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water.

Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity.

Solutions

Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, Raoult's law, colligative properties - relative lowering of vapour pressure, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.

Electrochemistry

Redox reactions, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, fuel cells, corrosion.

Chemical Kinetics

Rate of a reaction (Average and instantaneous), factors affecting rate 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 reactions), concept of collision theory (elementary idea, no mathematical treatment), activation energy, Arrhenius equation.

d and f Block Elements

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, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of $K_2Cr_2O_7$ and $KMnO_4$. **Lanthanoids** – Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. **Actinoids -** Electronic configuration, oxidation states and comparison with lanthanoids.

Coordination Compounds

Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative analysis, extraction of metals and biological system).

Haloalkanes and Haloarenes.

Haloalkanes: Nomenclature, nature of C–X bond, physical and chemical properties, optical rotation

mechanism of substitution reactions. **Haloarenes:** Nature of C–X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.

Alcohols, Phenols and Ethers

Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol. **Phenols:** Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophillic substitution reactions, uses of phenols. **Ethers:** Nomenclature, methods of preparation, physical and chemical properties, uses.

Aldehydes, Ketones and Carboxylic Acids

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

Amines

Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.

Biomolecules

Carbohydrates - Classification (aldoses and ketoses), monosaccahrides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. **Proteins -**Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. **Vitamins -** Classification and functions. Nucleic Acids: DNA and RNA.

The Living World

Biodiversity; Need for classification; three domains of life; taxonomy and systematics; concept of species and taxonomical hierarchy; binomial nomenclature

Biological Classification

Five kingdom classification; Salient features and classification of Monera, Protista and Fungi into major groups; Lichens, Viruses and Viroids.

Plant Kingdom

Classification of plants into major groups; Salient and distinguishing features and a few examples of Algae, Bryophyta, Pteridophyta, Gymnospermae (Topics excluded – Angiosperms, Plant Life Cycle and Alternation of Generations)

Animal Kingdom

Salient features and classification of animals, non-chordates up to phyla level and chordates up to class level (salient features and at a few examples of each category).

Morphology of Flowering Plants

Morphology of different parts of flowering plants: root, stem, leaf, inflorescence, flower, fruit and seed. Description of families: Solanaceae

Anatomy of Flowering Plants

Anatomy and functions of tissue systems in dicots and monocots.

Structural Organisation in Animals

Morphology, Anatomy and functions of different systems (digestive, circulatory, respiratory, nervous and reproductive) of frog.

Cell-The Unit of Life

Cell theory and cell as the basic unit of life, structure of prokaryotic and eukaryotic cells; Plant cell and animal cell; cell envelope; cell membrane, cell wall; cell organelles - structure and function; endomembrane system- endoplasmic reticulum, ribosomes, golgi bodies, lysosomes, vacuoles; mitochondria, plastids, microbodies; cytoskeleton, cilia, flagella, centrioles (ultrastructure and function); nucleus.

Biomolecules

Chemical constituents of living cells: biomolecules, structure and function of proteins, carbohydrates, lipids, nucleic acids; Enzymes - properties, enzyme action.

Cell Cycle and Cell Division

Cell cycle, mitosis, meiosis and their significance

Photosynthesis in Higher Plants

Photosynthesis as a means of autotrophic nutrition; site of photosynthesis, pigments involved in photosynthesis (elementary idea); photochemical and biosynthetic phases of photosynthesis; cyclic and non-cyclic photophosphorylation; chemiosmotic hypothesis; photorespiration; C3 and C4 pathways; factors affecting photosynthesis.

Respiration in Plants

Exchange of gases; cellular respiration - glycolysis, fermentation (anaerobic), TCA cycle and electron transport system (aerobic); energy relations - number of ATP molecules generated; amphibolic pathways; respiratory quotient.

Plant - Growth and Development

Seed germination; phases of plant growth and plant growth rate; conditions for growth;

differentiation, dedifferentiation and redifferentiation; sequence of developmental processes in a plant cell; growth regulators - auxin, gibberellin, cytokinin, ethylene, ABA.

Breathing and Exchange of Gases

Introduction to respiratory organs in animals; Respiratory system in humans; mechanism of breathing and its regulation in humans - exchange of gases, transport of gases and regulation of respiration, respiratory volumes; disorders related to respiration - asthma, emphysema, occupational respiratory disorders.

Body Fluids and Circulation

Composition of blood, blood groups, coagulation of blood; composition of lymph and its function; human circulatory system - Structure of human heart and blood vessels; cardiac cycle, cardiac output, ECG; double circulation; regulation of cardiac activity; disorders of circulatory system - hypertension, coronary artery disease, angina pectoris, heart failure.

Excretory Products and their Elimination

Modes of excretion - ammonotelism, ureotelism, uricotelism; human excretory system – structure and function; urine formation, osmoregulation; regulation of kidney function - renin - angiotensin, atrial natriuretic factor, ADH, diabetes insipidus; micturition; role of other organs in excretion; disorders - uremia, renal failure, renal calculi, nephritis; dialysis and artificial kidney, kidney transplant.

Locomotion and Movement

Types of movement – amoeboid, ciliary, flagellar, muscular; skeletal muscle, contractile proteins and muscle contraction; skeletal system and its functions; joints; disorders of muscular and skeletal systems - myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout.

Neuron and nerves; Nervous system in humans - central nervous system and peripheral nervous system; generation and conduction of nerve impulse; visceral nervous system.

Chemical Coordination and Integration

Endocrine glands and hormones; human endocrine system - hypothalamus, pituitary, pineal, thyroid, parathyroid, thymus, adrenal, pancreas, gonads; hormones of heart, kidney and gastrointestinal tract; mechanism of hormone action (elementary idea); role of hormones as messengers and regulators, hypo - and hyperactivity and related disorders; dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease.

Neural Control and Coordination

Sexual Reproduction in Flowering Plants

Flower structure; development of male and female gametophytes; pollination - types, agencies and examples; outbreeding devices; pollen-pistil interaction; double fertilization; post fertilization events - development of endosperm and embryo, development of seed and formation of fruit; special modes- apomixis, parthenocarpy, polyembryony; Significance of seed dispersal and fruit formation.

Human Reproduction

Male and female reproductive systems; microscopic anatomy of testis and ovary; gametogenesis - spermatogenesis and oogenesis; menstrual cycle; fertilisation, embryo development upto blastocyst formation, implantation; pregnancy and placenta formation ; parturition ; lactation .

Reproductive Health

Need for reproductive health and prevention of Sexually Transmitted Diseases (STDs); birth control - need and methods; medical termination of pregnancy (MTP); amniocentesis; infertility and assisted reproductive technologies - IVF, ZIFT, GIFT

Principles of Inheritance and Variation

Heredity and variation, Mendelian inheritance; deviations from Mendelism – incomplete dominance, co-dominance, multiple alleles and inheritance of blood groups, pleiotropy; elementary idea of polygenic inheritance; chromosome theory of inheritance; chromosomes and

genes; linkage and crossing over; Sex determination - in human being, birds and honey bee; sex linked inheritance - haemophilia, colour blindness; Mendelian disorders in humans –thalassemia; chromosomal disorders in humans; Down's syndrome, Turner's and Klinefelter's syndromes.

Molecular Basis of Inheritance

Structure of DNA and RNA; DNA packaging; Search for genetic material and DNA as genetic 8 material; DNA replication; Central Dogma; transcription, genetic code, translation; gene expression and regulation - lac operon; Human genome project; DNA fingerprinting.

Evolution

Origin of life; biological evolution and evidences for biological evolution (paleontology, comparative anatomy, embryology and molecular evidences); adaptive radiation; Darwin's theory of evolution; mechanism of evolution - variation (mutation and recombination) and natural selection with examples, types of natural selection; Gene flow and genetic drift; Hardy - Weinberg's principle; human evolution

Human Health and Diseases

Pathogens; parasites causing human diseases (malaria, dengue, chikungunya, filariasis, ascariasis, typhoid, pneumonia, common cold, amoebiasis, ring worm) and their control; Basic concepts of immunology - vaccines; cancer, HIV and AIDS; Adolescence - drug and alcohol abuse.

Biotechnology - Principles and Processes

Genetic Engineering (Recombinant DNA Technology).

Biotechnology and its Application

Application of biotechnology in health and agriculture: genetically modified organisms - Bt crops; Human insulin, gene therapy; molecular diagnosis; transgenic animals; biosafety issues, biopiracy and patents.

Organisms and Populations

Population interactions - mutualism, competition, predation, parasitism, commensalism; population attributes - growth, birth rate and death rate, age distribution.

Ecosystem

Ecosystem, productivity and decomposition; energy flow; pyramids of number, biomass, energy.

Biodiversity and Conservation

Biodiversity - Concept, levels, patterns, importance; loss of biodiversity; biodiversity conservation; hotspots, endangered organisms, extinction, Red Data Book, Sacred Groves, biosphere reserves, national parks, wildlife, sanctuaries and Ramsar sites.

Computer Systems and Organisation

- Basic Computer Organisation : Introduction to computer system, hardware, software, input device, output device, CPU, memory (primary, cache and secondary), units of memory (Bit, Byte, KB, MB, GB, TB, PB)
- Types of software: system software (operating systems, system utilities, device drivers), programming tools and language translators (assembler, compiler & interpreter), application software
- Operating system (OS): functions of operating system, OS user interface
- Boolean logic: NOT, AND, OR, NAND, NOR, XOR, truth table, De Morgan's laws and logic circuits
- Number system: Binary, Octal, Decimal and Hexadecimal number system; conversion between number systems.
- Encoding schemes: ASCII, ISCII and UNICODE (UTF8, UTF32)

Computational Thinking and Programming

- Introduction to problem solving: Steps for problem solving (analysing the problem, developing an algorithm, coding, testing and debugging). representation of algorithms using flow chart and pseudo code, decomposition
- Familiarization with the basics of Python programming: Introduction to Python, features of Python, executing a simple "hello world" program, execution modes: interactive mode and script mode, Python character set, Python tokens (keyword, identifier, literal, operator, punctuator), variables, concept of l-value and r-value, use of comments
- Knowledge of data types: number (integer, floating point, complex), boolean, sequence (string, list, tuple), none, mapping (dictionary), mutable and immutable data types
- Operators: arithmetic operators, relational operators, logical operators, assignment operator, augmented assignment operators, identity operators (is, is not), membership operators (in, not in)
- Expressions, statement, type conversion & input/output: precedence of operators, expression, evaluation of expression, python statement, type conversion (explicit & implicit conversion), accepting data as input from the console and displaying output
- Errors: syntax errors, logical errors, runtime errors
- Flow of control: introduction, use of indentation, sequential flow, conditional and iterative flow control
- Conditional statements: if, if-else, if-elif-else, flowcharts, simple programs: e.g.: absolute value, sort 3 numbers and divisibility of a number
- Iterative statements: for loop, range function, while loop, flowcharts, break and continue statements, nested loops, suggested programs: generating pattern, summation of series, finding the factorial of a positive number etc
- Strings: introduction, indexing, string operations (concatenation, repetition, membership & slicing), traversing a string using loops, built-in functions: len(), capitalize(), title(), lower(), upper(), count(), find(), index(), endswith(), startswith(), isalnum(), isalpha(), isdigit(), islower(), isupper(), isspace(), lstrip(), rstrip(), strip(), replace(), join(), partition(), split()
- Lists: introduction, indexing, list operations (concatenation, repetition, membership & slicing), traversing a list using loops, built-in functions: len(), list(), append(), extend(), insert(), count(), index(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum(); nested lists, suggested programs: finding the maximum, minimum, mean of numeric values stored in a list; linear search on list of numbers and counting the frequency of elements in a list
- Tuples: introduction, indexing, tuple operations (concatenation, repetition, membership & slicing), built-in functions: len(), tuple(), count(), index(), sorted(), min(), max(), sum(); tuple assignment, nested tuple, suggested programs: finding the minimum, maximum, mean of values stored in a tuple; linear search on a tuple of numbers, counting the frequency of

elements in a tuple

- Dictionary: introduction, accessing items in a dictionary using keys, mutability of dictionary (adding a new item, modifying an existing item), traversing a dictionary, built-in functions: len(), dict(), keys(), values(), items(), get(), update(), del(), clear(), fromkeys(), copy(), pop(), popitem(), setdefault(), max(), min(), count(), sorted(), copy(); suggested programs : count the number of times a character appears in a given string using a dictionary, create a dictionary with names of employees, their salary and access them
- Introduction to Python modules: Importing module using 'import ' and using from statement, Importing math module (pi, e, sqrt, ceil, floor, pow, fabs, sin, cos, tan); random module (random, randint, randrange), statistics module (mean, median,mode)

Society, Law and Ethics

- Digital Footprints
- Digital society and Netizen: net etiquettes, communication etiquettes, social media etiquettes
- Data protection: Intellectual Property Right (copyright, patent, trademark), violation of IPR (plagiarism, copyright infringement, trademark infringement), open source softwares and licensing (Creative Commons, GPL and Apache)
- Cyber-crime: definition, hacking, eavesdropping, phishing and fraud emails, ransomware, preventing cyber crime
- Cyber safety: safely browsing the web, identity protection, confidentiality, cyber trolls and bullying.
- Safely accessing web sites: malware, viruses, trojans, adware
- E-waste management: proper disposal of used electronic gadgets
- Indian Information Technology Act (IT Act)
- Technology & Society: Gender and disability issues while teaching and using computers

Computational Thinking and Programming – 2

- Functions: types of function (built-in functions, functions defined in module, user defined functions), creating user defined function, arguments and parameters, default parameters, positional parameters, function returning value(s), flow of execution, scope of a variable (global scope, local scope)
- Introduction to files, types of files (Text file, Binary file, CSV file), relative and absolute paths
- Text file: opening a text file, text file open modes (r, r+, w, w+, a, a+), closing a text file, opening a file using with clause, writing/appending data to a text file using write() and writelines(), reading from a text file using read(), readline() and readlines(), seek and tell methods, manipulation of data in a text file
- Binary file: basic operations on a binary file: open using file open modes (rb, rb+, wb, wb+, ab, ab+), close a binary file, import pickle module, dump() and load() method, read, write/create, search, append and update operations in a binary file
- CSV file: import csv module, open / close csv file, write into a csv file using csv.writerow() and read from a csv file using csv.reader( )

Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)
- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves)
- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN),

networking topologies (Bus, Star, Tree)

- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP, wireless/mobile communication protocol such as GSM, GPRS and WLL
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting

Database Management

- Database concepts: introduction to database concepts and its need
- Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command, aggregate functions (max, min, avg, sum, count), group by, having clause, joins: cartesian product on two tables, equi-join and natural join
- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(), rowcount, creating database connectivity applications

Introduction to Computer System

- Introduction to computers and computing: evolution of computing devices, components of a computer system and their interconnections, Input/Output devices.
    - Computer Memory: Units of memory, types of memory – primary and secondary, data deletion, its recovery and related security concerns. Software: purpose and types – system and application software, generic and specific purpose software.

Introduction to Python

- Basics of Python programming, Python interpreter - interactive and script mode, the structure of a program, indentation, identifiers, keywords, constants, variables, types of operators, precedence of operators, data types, mutable and immutable data types, statements, expressions, evaluation of expressions, comments, input and output statements, data type conversion, debugging, control statements: if-else, for loop Lists: list operations - creating, initializing, traversing and manipulating lists, list methods and built-in functions.: len(), list(), append(), extend(), insert(), count(), find(), remove(), pop(), reverse(), sort(), sorted(), min(), max(), sum()
- Dictionary: concept of key-value pair, creating, initializing, traversing, updating and deleting elements, dictionary methods and built-in functions: len(), dict(), keys(), values(), items(), get(), update(), clear(), del()

Database concepts and the Structured Query Language

- Database Concepts: Introduction to database concepts and its need, Database Management System. Relational data model: concept of attribute, domain, tuple, relation, candidate key, primary key, alternate key, foreign key.
- Advantages of using Structured Query Language, Data Definition Language, Data Query Language and Data Manipulation Language, Introduction to MySQL, creating a database using MySQL, Data Types
- Definition Commands: CREATE TABLE
- Data Query Commands: SELECT-FROM- WHERE
- Data Manipulation Commands: INSERT

(PART-B) SYLLABUS FOR PGT (ENGLISH)

Section A: Reading

Comprehension

Three or four unseen passages from different genres (prose, poetry, drama, articles, editorials, scientific, and literary extracts).
Questions will test comprehension, inference, vocabulary, tone, rhetorical devices, and logical sequencing.

Section B: Writing Ability

B1. Functional Writing:

Formal and Informal Letters: Business letters, job applications, letters to editors, complaints, and personal letters.
Report Writing: Factual description of events, newspaper reports, and analytical reports. Notices, Circulars, and Press Releases.

B2. Creative and Analytical Writing:

Essay Writing: Argumentative, analytical, reflective, and descriptive essays.
Article/Debate/Speech: Expressing opinions on socio-political, economic, and educational issues.

Section C: Grammar and Usage

Parts of Speech: Nouns, Pronouns, Verbs, Adverbs, Adjectives, Prepositions, Conjunctions. Sentence Structure : Types of sentences, subject-verb agreement, parallelism, and sentence connectors.
Tenses and Their Usage: Active-passive voice, sequence of tenses, and reported speech. Clauses: Noun, adjective, and adverb clauses.
Common Errors: Articles, prepositions, modifiers, redundancy, and word order.
Editing and Proofreading: Error detection, sentence correction, and transformation.

Section D: Literature

D1. British Literature:

Elizabethan and Jacobean Drama: William Shakespeare, Christopher Marlowe, Ben Jonson. Poetry: John Donne, Alexander Pope, William Wordsworth, Samuel Taylor Coleridge, John Keats.
Victorian and Modern Writers: Charles Dickens, Thomas Hardy, Virginia Woolf, T.S. Eliot, George Orwell.

D2. American Literature:

Poets: Robert Frost, Emily Dickinson, Langston Hughes.
Prose and Drama: Arthur Miller, Ernest Hemingway, Mark Twain, Harper Lee.

D3. Indian Writing in English:
R.K. Narayan, Mulk Raj Anand, Anita Desai, Vikram Seth, Arundhati Roy, Amitav Ghosh.

D4. World Literature:

Gabriel García Márquez, Chinua Achebe, Pablo Neruda, Khaled Hosseini.

D5. Literary Criticism and Movements:

Classicism, Romanticism, Modernism, Postmodernism, Feminism, Post colonialism, Structuralism.

(PART-B) पाठ्यक्रम स्नातकोत्तर शिक्षक (हिन्दी)

साहित्यिक अभिरुचि परीक्षण

(i) आदिकाल से रीतिकाल

इसके अन्तर्गत कालगत परिस्थितियाँ एवं साहित्य पर उसका प्रभाव, प्रत्येक युग के साहित्य की प्रमुख प्रवृत्तियाँ, प्रमुख रचनाकार एवं उनकी रचनाएँ, साहित्यिक विशेषताएँ, भाषा शैली

(क) आदिकाल - चंदबरदाई, अमीर खुसरो, विद्यापति

(ख) भक्तिकाल - - -

(1) **निर्गुण भक्तिधारा** - ज्ञानमार्गी शाखा, प्रेममार्गी शाखा, कबीर, दादू, रैदास, नानक, जायसी, कुतुबन

(2) सगुण भक्तिधारा - राम भक्तिशाखा, कृष्ण-भक्ति शाखा, तुलसीदास, केशव, सूरदास, मीराबाई, अष्टछाप के कवि, रसखान

(ग) रीतिकाल - रीतिबद्ध, रीतिसिद्ध, रीतिमुक्त काव्य - देव, घनानंद, बिहारी, मतिराम, सेनापति, भूषण, पद्माकर

(ii) आधुनिक काल

इसके अन्तर्गत युगीन परिस्थितियाँ, साहित्यिक पृष्ठभूमि, मुख्य विचारधारा, मुख्य साहित्यकार, साहित्यिक रचनाएँ, विशेषताएँ, भाषा-शैली

(क) भारतेन्दु युग- भारतेन्दु हरिश्चंद्र, बालमुकुन्दगुप्त, बदरीनारायण चौधरी 'प्रेमधन,

(ख) द्विवेदीयुग- महावीर प्रसाद द्विवेदी, श्रीधर पाठक, अयोध्यासिंह उपाध्याय 'हरिऔध', मैथिलीशरणगुप्त

(ग) छायावाद - जयशंकर प्रसाद, महादेवी वर्मा, सुमित्रानन्दन पंत, सूर्यकान्त त्रिपाठी निराला,

(घ) छायावादोत्तर युग- हरिवंश राय बच्चन, माखनलाल चतुर्वेदी, बालकृष्ण शर्मा 'नवीन', नरेन्द्र शर्मा, केदारनाथ अग्रवाल, नागार्जुन, मुक्तिबोध, नेमिचंद्र जैन, प्रभाकर माचवे, गिरिजा कुमार माथुर, रामविलास शर्मा, 'अज्ञेय' भवानी प्रसाद मिश्र, नरेन्द्र शर्मा, धूमिल, धर्मवीर भारती, शंभुनाथ सिंह, रघुवीर सहाय

(iii) गद्य साहित्य

(□) अधोलिखित लेखकों का व्यक्तित्व और कृतित्व-

भारतेन्दु, रामचंद्र शुक्ल, प्रेमचंद, जैनेन्द्र कुमार, हजारीप्रसाद द्विवेदी, धर्मवीर भारती, रामविलास शर्मा, निर्मल वर्मा, फणीश्वरनाथ रेणु', कृष्णा सोबती, भीष्म साहनी, शेखर जोशी, विष्णु खरे, ममता कालिया

(ख) गद्य एवं अन्य विधाओं का प्रारम्भ, विकास, प्रमुख प्रवृत्तियाँ, प्रमुख साहित्यकार, रचनाएँ, साहित्यिक विशेषताएँ, भाषाशैली

(ग) निबंध, कथासाहित्य, उपन्यास और कहानी, नाटक, एकांकी, रेखाचित्र, संस्मरण, यात्रा-वृतांत, आत्मकथा, जीवनी, पत्र, डायरी, आलोचना, रिपोतार्ज आदि इन सभी विधाओं का विस्तृत परिचय

(iv) साहित्य शास्त्र :-

काव्य स्वरूप, काव्य-आत्मा, काव्य गुण-दोष, शब्द-शक्ति, रस, अलंकार (शब्दालंकार, अर्थालंकार, उभयालंकार एवं नए अलंकार) बिंब, छंद, प्रतीक, भाषा, भाषा-शैली एवं पाश्चात्य काव्यशास्त्र

(v) हिंदी भाषा का क्रमिक विकास, हिंदी भाषा की बोलियाँ एवं उपबोलियों एवं उसकी विशेषताएँ एवं भाषा परिवार

(vi) अपठित बोध- अपठित गद्यांश / काव्यांश पर आधारित अर्थग्रहण, भाव-सौंदर्य, शिल्प-सौंदर्य सम्बंधी प्रश्न

व्याकरणिक प्रयोग परीक्षण

(i) **वर्ण विचार** -

- ध्वनियों का वर्गीकरण, वर्ण-वर्गीकरण, उच्चारण-स्थान
- वर्णमाला, वर्तनी, सन्धि/ सन्धिविच्छेद

(ii) **शब्द - विचार एवं शब्द भंडार**

- शब्द भेद - उत्पत्ति, रचना, रूप और अर्थ की दृष्टि से शब्द
- शब्द भंडार-पर्यायवाची, विपरीतार्थक, एकार्थी, अनेकार्थी, श्रुतिसम भिन्नार्थक शब्द
- शब्द-युग्म शब्द निर्माण - उपसर्ग, प्रत्यय, समास

(iii) पद-विचार, पदबंध, पद-परिचय

- संज्ञा, सर्वनाम, विशेषण, विशेष्य (परिभाषा, भेद, लिंग, वचन, कारक)
- क्रिया (परिभाषा, भेद, अकर्मक, सकर्मक, काल, संरचना की दृष्टि से क्रिया भेद, वाच्य, वाच्य भेद, वाच्य परिवर्तन),
- अव्यय (परिभाषा, भेद- क्रिया विशेषण, संबंधबोधक, समुच्चयबोधक, विस्मयादिबोधक - निपात)
- पदबंध - भेद एवं प्रयोग
- पद-परिचय

(iv) वाक्य- विचार

- वाक्य संरचना, वाक्य भेद - अर्थ एवं रचना की दृष्टि से
- वाक्य - परिवर्तन, वाक्य-संश्लेषण, वाक्य विश्लेषण

- विराम चिह्न, लोकोक्ति एवं मुहावरे

प्रयोजनमूलक हिंदी कौशल परीक्षण

- पत्रकारिता एवं उसके विविध आयाम
- प्रिंटमाध्यम - समाचार, संपादकीय, रिपोर्ट, आलेख, फीचर, साक्षात्कार आदि के लिए लेखन,
- रेडियो व दूरदर्शन के लिए लेखन,
- विज्ञापन लेखन, उद् घोषणा, स्वागत भाषण, संगोष्ठी संचालन आदि
- कहानी का कविता में रूपान्तरण, कविता, कहानी, लघुकथा, डायरी लेखन आदि
- कार्यालयी हिन्दी, कार्यसूची, कार्यवृत्त, प्रतिवेदन, सरकारी पत्र, सूचनाएं, निविदाएं आदि

व्यावहारिक लेखन

- व्यावहारिक हिन्दी का स्वरूप
- प्रयोजनमूलक हिन्दी और उसके विविध आयाम

सर्जनात्मक लेखन एवं मौलिक अभिव्यक्ति

- दिए गए विषय पर कविता, लघुकथा एवं रचनात्मक लेख संबंधी मौलिक रचना
- कहानी का कविता में रूपान्तरण,
- अनुभवों के आधार पर लेखन
- वार्तालाप की दक्षता के विकास हेतु संवाद लेखन ।
- किसी भी समसामयिक विषय पर कहानी / कविता लेखन