

TIER II : Syllabus- TGT (Mathematics)

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, sequences 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, R^2, R^3 as vector spaces over R and concept of R^n . Standard basis for each of them. Linear Independence and examples of different bases. Subspaces of R^2, R^3 . 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 $ax^2 + bx + c = 0$, ($a \neq 0$). 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, n th 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, infographics, 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° and 90° . Values of the trigonometric ratios of 30° , 45° and 60° . 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.

TIER II : Syllabus – TGT (Science)

Matter-Nature and Behaviour

Gases, liquids, solids, plasma and Bose-Einstein condensate, 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 homogeneous 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 hydrocarbons and unsaturated hydrocarbons. Chemical properties of carbon compounds. Alcohols: Preparation and properties. Qualitative analysis of alcohols, iodoform test, effect of alcohols on living beings. Carboxylic acids: 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: Importance 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., Homologous 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

TIER II : 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 unifying 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



TIER II : 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.

TIER II : 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, रिपोर्टाज, कथेतर गद्य

काव्य-खंड :

आदिकालीन कविता

भक्तिकाल (सगुण, निर्गुण, सूफी काव्य)

रीतिकाल की कविता

आधुनिक काल की कविता (भारतेन्दु युग, द्विवेदी युग, छायावाद, प्रगतिवाद, प्रयोगवाद, नई कविता, समकालीन कविता)

हिंदी भाषा का विकास एवं व्यावहारिक 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 शब्दालंकार, अर्थालंकार (अनुप्रास, यमक, श्लेष, उपमा, रूपक, उत्प्रेक्षा, मानवीकरण, अतिशयोक्ति अलंकार)

शब्द-शक्तियां

मुहावरे एवं लोकोक्तियां

अपठित गद्यांश, पद्यांश

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 ।

TIER II : 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 प्रत्ययः - क्त्वा, तुमुन्, ल्यप्, शत्, शानच् क्त, क्तवतु, अनीयर्, तव्यत्, तव्य, त्व, तल, ठक्, मतुप्, टाप्, डीप्

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

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

उपसर्गः - द्वाविंशतिः (22)

संख्या - शतम् यावत् (सौ तक)

भाग- ख - वाक्यरचना

भाग - क में निर्धारित व्याकरण बिन्दुओं 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 अंकः

प्रतिमा नाटकम् - तृतीय अंकः

नीतिशतकम् - सम्पूर्ण

भगवद्गीता - द्वितीय-अध्यायः

भाग- घ - गद्यांश

1

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

शिवराजविजयः - प्रथम - निःश्वास

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 वेदों का सामान्य परिचय: ईशावास्योपनिषद्, तैत्तिरीय उपनिषद्



TIER II : SPECIAL EDUCATOR (TGT)**I Human Growth & Development**

1. Approaches to Human Development
2. Theoretical Approaches to Development
3. The Early Years (Birth to Eight Years)
4. Early Adolescence (From nine years to eighteen years)
5. Transitions into Adulthood

II Learning, Teaching and Assessment

1. Human Learning and Intelligence
2. Learning Process and Motivation
3. Teaching Learning Process
4. Overview of Assessment and School System
5. Strategies and practices

III Pedagogy of Teaching (Select any Two)**(a) Pedagogy of Teaching Science**

1. Nature and Significance of Science
2. Planning for Instruction
3. Approaches and Methods of Teaching Sciences
4. Learning Resources with reference to Children with Disabilities for Teaching Science

(b) Pedagogy of Teaching Mathematics

1. Nature of Mathematics
2. Objectives and Instructional Planning in Mathematics
3. Strategies for Learning and Teaching Mathematics
4. Teaching-Learning Resources in Mathematics for Students with Disabilities
5. Assessment and Evaluation for Mathematics Learning

(c) Pedagogy of Teaching Social Science

1. Nature of Social Sciences: - Concept, scope and nature of social science
2. Curriculum and Instructional Planning
3. Approaches to teaching of Social Science
4. Social Science Teacher as a Reflective Practitioner
5. Teaching-Learning Resources in Social Sciences for Students with Disabilities

(d) Pedagogy of Teaching Hindi

1. भाषा, हिंदी भाषा के प्रकृति, प्रयोज्यता
2. पाठ्यवस्तुसंबंधन
3. पाठनियोजन
4. हिंदी की विविधविधाओं का परिचय
5. भाषा अधिगम के मूल्यांकन की प्राविधि

(e) Pedagogy of Teaching English

1. Nature of English Language & Literature: Principles of Language Teaching
2. English language in the school context: An Evolutionary Perspective, Current
3. Trends in Modern English Literature in India context
4. Instructional Planning
5. Approaches and Methods of Teaching English
6. Instructional Materials

IV DISABILITY SPECIALIZATION (Select any ONE)

Important Note: Select any one disability specialization area as per the RCI Registration: Autism Spectrum Disorder/ Hearing impairment/ Intellectual Disability/ Multiple Disability/ Specific Learning Disability/ Visual Impairment. As per selected disability specialization, questions shall be changed.

Based on selected disability specialization area, questions will be based on followings:

a. Identification of Disability and Assessment of Needs

- Concept, definition, causes, types and associated conditions.
- Characteristics, learning needs
- Screening, screening tools and procedure for identification
- Assessment of disability, areas of assessment, assessment tools, interpretation of assessment data for planning
- Differentiated diagnosis and certification of disability

b. Curriculum Development, Adaptation and Evaluation

- Concept, principles and approaches to curricular development, types, curricular transactions.
- Curricular adaptation, designing based on individual needs, adaptations to meet needs in different settings, role of technology in curriculum development, curriculum development and teaching, development of suitable teaching learning resources.
- Development of literacy academic skills (Reading, writing, computation), development of communication, language, social, recreational, self-care, independent living and life skills.

c. Intervention and Teaching Strategies

- Learning characteristics, teaching strategies, strategies for early intervention and its impact on school outcomes.
- Disability specific intervention and training strategies, types, approaches, techniques, use of technology peer mediated and cooperative learning.
- Inclusive teaching strategies, UDL, DI, Classroom management, home-based training, assistive technology.

d. Psychosocial and Family Issues

- Psycho-social aspects and disability, role of family and school in psycho-social development.
- Family needs and issues related to families of children with disabilities, empowering parents and families, social attitude- neighborhood, parents of other children, friendship, support, advocacy and legal rights.
- Family and community intervention, addressing mental health concerns, counselling and guidance.

TIER II : Syllabus -TGT (Art Education)**DRAWING AND PAINTING****HISTORY OF INDIAN ART****UNIT 1: Art of Indus Valley****(Harappan and Mohenjo-daro) (2500 B.C. to 1500 B.C.)****(1) Introduction**

- (i) Period and Location.
- (ii) Extension: In about 1500 miles
 - (a) Harappa & Mohenjo-daro
 - (b) Ropar, Lothal, Rangpur, Alamgirpur, Kali Bangan, Banawali and Dhaula Veera (in India)

(2) Study of following Sculptures and Terracottas:

- (i) Dancing girl (Mohenjo-daro)
Bronze, 10.5 x 5 x 2.5 cm.
Circa 2500 B.C.
(Collection : National Museum, New Delhi).
- (ii) Male Torso (Harappa)
Stone, 9.2 x 5.8 x 3 cms. Circa
2500 B. C.
(Collection : National Museum, New Delhi).
- (iii) Mother Goddess (Mohenjo-daro) terracotta, 22 x 8 x 5
cm. Circa 2500 B.C.
(Collection : National Museum, New Delhi).

(3) Study of Following Seal:

- (i) Bull (Mohenjo-daro)
Stone, 2.5 x 2.5 x 1.4 cm.
Circa 2500 B.C.
(Collection : National Museum, New Delhi).

(4) Study of following Decoration on earthen wares:

- (i) Painted earthen-ware(Jar)Mohenjo-daro
(Collection : National Museum, New Delhi).

UNIT 2 : Buddhist, Jain and Hindu Art.**(3rd century B.C. to 8th century A.D.)**

- (1) General Introduction to Art, during Mauryan, Shunga, Kushana & Gupta Period:
- (2) Study of following

Sculptures:

- (i) Lion Capital from Sarnath (Mauryan period)
Polished sand stone,
Circa 3rd Century B.C.
(Collection: Sarnath Musseum, U.P.)
- (ii) Chauri Bearer from Didar Ganj (Mauryan period)
Polished sand – stone
Circa 3rd Century B.C.

- (Collection: Patna Museum, Bihar)
- (iii) Bodhisattva head from Taxila (Gandhara Period)
Stone, 27.5 x 20 x 15 c.m.
Circa 2nd Century A.D.
- (Collection: National Museum, New Delhi)
- (iv) Seated Buddha from Katra Tila
Mathura – (Kushan Period)
(Collection: Mathura Museum)
- (v) Seated Buddha from Sarnath (Gupta Period)
Stone
Circa 5th Century AD
(Collection: Sarnath Musseum, U.P.)
- (vi) Jain Tirathankara (Gupta period)
Stone
Circa 5th Century AD
(Collection at State Museum, Lucknow U.P.)

(3) Introduction to Ajanta

Location, period, No. of caves, Chaitya and Vihara, Paintings and Sculptures subject matters and techniques etc.

(4) Study of following

Painting & Sculpture:

- (i) Padmapani Bodhisattva (Ajanta Cave No. I)
Mural Painting
Circa 5th Century A.D.
- (ii) Mara Vijay (Ajanta Cave No. 26)
Sculpture in stone
Circa 5th Century A.D.

Unit 3: Temples Sculpture, Bronzes and Indo-Islamic

Architecture Artistic aspects of Indian Temples

(6th Century A.D. to 13th Century A.D.)

(1) Introduction to Temple Sculpture

(6th Century A.D. to 13th Century A.D.)

(2) Study of following Temple-Sculptures;

- (i) Descent of Ganga (Pallava period, Mahabalipuram Tamilnadu), Stone Circa 7th Century A.D.
- (ii) Ravana Shaking Mount Kailash (Rashtrakuta period, Ellora,
- (iii) Trimurti (Elephanta, Maharashtra)
Stone
Circa 9th Century A.D.
- (iv) Lakshmi Narayana (Kandariya Mahadev Temple) (Chandela;
Period, Khajuraho, M.P.)
Circa 10th Century A.D.

- (V) Cymbal Player Sun Temple (Ganga Dynesty, Konark, Orissa)Circa 13th Century A.D.
- (vi) Mother & Child (Vim la-Shah Temple, Solanki Dynesty, Dilwara, MountAbu, rajastahn) White marble.Circa 13th Century A.D.
- (3) Bronzes
 - (i) Introduction to Indian Bronzes
 - (ii) Method of casting (solid and hollow)
- (4) Study of following south Indian Bronzes:
 - (i) Nataraj (Thanjavur Distt., Tamilnadu)
Chola period (12th Centry a.D.) (Collection: National Museum, New Delhi)
 - (ii) Devi (Uma)

Chola Period(12th Centry a.D.) (Collection: National Museum, New Delhi)
- (5) Artistic Aspects of the Indo-Islamic Architecture
 - (i)Introduction
- (6) Study of following architectures:
 - (i) Qutab Minar, Delhi
 - (ii) Taj Mahal, Agra
 - (iii) Gol Gumbaj of Bijapur

Unit 4: The Rajasthani and Pahari Schools of Miniature painting (16th Century A.D to 19thCentury A.D.)

Introduction to Indian Miniature Schools: Western-Indian, Pala, Rajasthani,Mughal, Central India, Deccan and Pahari.

- (A) The Rajasthan; Schools
 - (1) Origin and Development
 - (2) Schools-Mewar, Bundi, Jodhpur, Bikaner, Kishangarh andJaipur
 - (3) Main features of the Rajasthani & Pahari Schools.
 - (4) Study of the following Rajasthani Paintings:

Title	Painter	School
Maru-Ragini	Sahibdin	Mewar
Raja Ajniruddha Singh Heera	Utkal Ram	Bundi
Chaugan Players	Dana	Jodhpur
Krishna on swing	Nuruddin	Bikaner
Radha (Bani – Thani)	Nihal Chand	Kishangarh
Bharat meets Rama at Chitrakut	Guman	Jaipur

- (B) The Pahari Schools:
 - (1) Origin and development
 - (2) Schools-Basohli and Kangra
 - (3) Main features of the Pahari School
 - (4) Study of the following pahari Paintings

Title	Painter	School
Krishna with Gopies		Basohli
Raga Megha		Kangra

(A) The Mughal School

- (1) Origin and development
- (2) Main features of the Mughal School
- (3) Study of the following Mughal paintings

Title	Painter	School
Krishna lifting mount	Goverdhan	Miskin Akbar
Babur crossing the river sone	Jaganath	Akbar
Jahangir holding the picture of Madona	Abul Hassan	Jahangir
Falcon on a bird nest	Ustad Mansoor	Jahangir
Kabir and Raidas	Ustad Faquirullah Khan	Shahjahan
Marriage procession of Dara Shikoh	Haji Madni	Provincial Mughal(Oudh)

- (1) Origin and development
- (2) Main features of the Deccan School
- (3) Study of the following Deccan paintings

Title	Painter	School
Raga Hindola		Ahmednagar
Chand Bibi Playing Polo(Chaugan)		Gol Konda

(A) (1) A. New Era in Indian Art- an introduction
B. Study of the following painting
(i) Rama Vanquishing the pride of the ocean-Raja
Ravi Verma

(2) Evolution of the Indian national Flag (First – 1906, Middle – 1921 and Final 1947 stages): Study of the form and the colour scheme

(B) (1) Introduction to the Bengal School of painting
(i) Origin and development of the Bengal School
(ii) Main Features of the Bengal school

(2) Contribution of Indian artists in the struggle for National Freedom Movement

(3) Study of the following paintings of the Bengal School
(i) Journey's End – Rabindranath Tagore
(ii) Parthasarathi – Nandlal Bose
(iii) Radhika – M.A.R. Chughtai

(C) The Modern Trends in Indian Art

Introduction

- (1) Study of the following Paintings:
 - (i) Magician-Gaganendranath Tagore
 - (ii) Mother and child-Jamini Roy
 - (iii) Woman face-Rabindranath Tagore
 - (iv) Tree Girls-Amrita Sher gill
- (2) Study of the following pieces of Sculpture:
 - (i) Triumph of labour- D.P. Roychowdhury
 - (ii) Santhal Family-Ramkinker Vajj
- (3) Study of the following work of contemporary Indian Art'
- A Paintings
 - (i) Mother Teresa-M.F. Hussain.
 - (ii) Birth of Poetry- K.K. Hebbar
 - (iii) Gossip- N.S. Bendre
 - (iv) Diagonal- Tyeb Mehta
- (4) Graphic Prints
 - (i) Whirl Pool-Krishna Reddy
 - (ii) Children-Somnath Hore
 - (iii) Devi-Jyoti Bhatt
 - (iv) Of Walls-Anupam Sud
 - (v) Man, Woman and Tree K. Laxman Goud
- (5) Sculptures
 - (i) Standing Woman-Dhanraj Bhagat
 - (ii) Cries Un-heard-Amar nath Sehgal
 - (iii) Ganesha-P.V. Jankiram
 - (iv) Figure- sankho Chaudhuri
 - (v) Chatturmukhi – Aekka Yada Giri Rao

Note:
exhaustive.

The names of artists and their art work as listed above are only suggestive and in no way

TIER II : Syllabus -TGT (Physical & Health Education)

Physical Education Theory

1. Concept of Physical Education

Meaning and definition of physical education its aim and objectives, modern concept and scope of physical education need and importance of physical education , place of physical education in the total education process.

2. Physiological aspects of physical education

Effect of exercise on :

Muscular system, circulatory system , respiratory system , Digestive system

3. Psychological Aspects of Physical Education

Definition of Psychology and sports psychology , achievement and motivation and motivation in sports, sportsmanship and sports ethics

4. Physical Fitness and Wellness

Meaning and importance of physical fitness and wellness, components of physical fitness and wellness , factors affecting physical fitness and wellness , principles of physical fitness development , mean of fitness development , aerobic activities – jogging , cycling calisthenics and Rhythmic exercises, participation in Games and sports , circuit Training.

5. Training Methods

Meaning and concept of training warming up limbering down and their importance methods of training strength Development –Isometric, and Isokinetic Exercises, methods of Endurance Development-Continuous method, Interval Training and Fartlek, Methods of speed Development –Acceleration Runs and pace races.

6. Sociological Aspects of Physical Education

Meaning of sociological and its Importance in physical education and sports. Games and sports as man IS cultural Heritage. Development of leadership qualities and group dynamics.

7. History of the game/sport (anyone game/sport of students choice), latest general rules of the game/sport (anyone game/sport of students choice), measurement of play field and specification of sport equipment, Fundamental skills of the game/port, Related sports terminologies , Important tournaments and venues, sports personalities, sports awards.

8. Health Education

Concepts and objectives of Health Education, Importance of Health Education, Principles of Health Education, Importance of Community participation for health promotion and welfare of individual, family and community.

9. Communicable Diseases

Meaning of communicable Diseases, Essential conditions for communicable Diseases to occur and disease process, common alert signals indicating on set of communicable Diseases , Mode of transmission, common symptoms and prevention of spread (transmission) of AIDS, Hepatitis B and Hepatitis C

10 Contemporary Health Problems

Abuse of alcohol, tobacco and drugs and the effects of abuse on individual, family and community. Effect of alcohol, tobacco and drugs on sportsperson, eating habits that cause obesity and its effect on health of individual

11 Health living

Concept of environment , scope of environment – living environment , work place environment and environment for leisure activities, Essential element of healthful environment - safe water, low level of noise , clean air, sanitary surrounding, low levels of radioactive radiations and absence of hazards responsible for accidents in (i) home and neighborhood in rural and urban areas (ii) school and work place (iii) during leisure time activities recreation and prevention of accidents related to transportation swimming and water sports, Disaster preparedness and health care during disasters.

12 Family Health Education

Meaning and functions of family and its importance as a social institution, needs and problems of adolescents and their management , Human reproduction – menstruation, conceptional and prenatal care, problems associated with pre-marital sex and teenage pregnancies , Preparation of marriage, Role of Parents in child care.

13 Prevention and first aid for common sports injuries

Soft Tissue injuries – sprain and strain , Bone Injuries, Joint Injuries.