TELANGANA STATE PUBIC SERVICE COMMISSION :: HYDERABAD

SCHEME OF EXAMINATION AND SYLLABUS TO THE POST OF SCHOOL ASSISTANT (NON-LANGUAGES i.e. MATHEMATICS, PHYSICAL SCIENCE, BIOLOGICAL SCIENCE & SOCIAL STUDIES) OF TRT

Duration: 2 Hours & 30 Minutes

Sl. No.	Subject	Syllabus	No. of Questions	No. of Marks
1.	General Knowledge & Current Affairs	-	20	10
2.	Perspectives in Education	Syllabus as notified	20	10
3.	Content	Telangana State syllabus from classes VI to X in School subject concerned with difficulty standard as well as linkages upto Intermediate level	88	44
4.	Teaching Methodology	B.Ed- Methodology of School subject concerned based on syllabus of T.S Universities	32	16
	Total		160	80

SCHOOL ASSISTANT - MATHEMATICS
SYLLABUS

Part – I
GENERAL KNOWLEDGE AND CURRENT AFFAIRS (Marks: 10)

Part - II
PERSPECTIVES IN EDUCATION (Marks: 10)

1. History of Education : Pre-Vedic and Post-Vedic period, Medieval Education, Recommendations of various committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various committees during post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission(1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

2. Teacher Empowerment: Meaning, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

3. Educational Concerns in Contemporary India: Environmental Education, Meaning and scope of Environmental Education, Concept of sustainable development, Role of Teacher, School and NGOs in development and protection of environment, Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities, Economics of Education, Meaning and scope, Education as Human Capital, Education and Human Resource Development, Literacy – Saakshar Bharat Mission, Population Education, Significance of Population Education, Population situation, policies and programmes in India, Approaches to Population Education and role of school and teacher, Themes of population Education, Family life Education, Sustainable development, Adolescence Education, Health Education, Gender – Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills, Inclusive Education, Conceptual Clarification and Definition, Prevalence, Myths & Facts, Characteristics, Classification & Types, Importance of Early Identification and assessment, Planning Inclusive Education, Classroom Management in Inclusive Education, Evaluation, Documentation and Record Maintenance, Psycho-Social management, Awareness & Sensitization Strategies, Liberalization, Privatization and Globalization, Value Education, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-meals, Rashtriya Madhyamika Siksha Abhiyan(RMSA), KGBVs and SUCCESS Schools.

4. Acts / Rights: Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act, 2005, Child Rights, Human Rights

5. National Curriculum Framework, 2005: Perspective, Learning and Knowledge, Curricular Areas, School Stages and Assessment, School and Classroom Environment, Systemic Reforms

Part - III

CONTENT (Marks: 44)

1. NUMBER OF SYSTEM: Number system (N,W,Z,Q,R,)and their properties, diff. types of surds, Rationalization of mono, Binomial surds, extraction of square roots of real numbers. Complex number as an order pair of real numbers and their fundamental operations, representation in the form of a+ib –conjugate complex numbers, Modules and amplitude of complex numbers-illustrations, geometrical representations of complex numbers in Argand plane- Argand diagram. Prime and composite numbers, types of primes (co, twin, relative etc.) prime factors, multiple factors, GCF, LCM, relation bet. GCD & LCM. Modulus of a real number, Absolute value

2. SETS AND RELATIONS: Statements: Consecutiveness, Negation, Disjunction, Conjunction, Conditional, Bi-conditions (Bi-Implications), algebra of statements, Quantifies ,Converse, Inverse and contra positive of a conditional, proofs Direct and indirect proofs – methods of disproof, an application of truths tables to switching networks, sets – proofs of some laws of set operations, principle of duality, a comparison between the algebra of sets and statements, Tautologies and contradictions, Concept of a set: Definition ,Null set, equality of set, cardinal number, subset, super set, Universal set, union, intersection, venn diagrams, compliment,

   Relations: Ordered pairs, image, pre-image, range, injection, surjection, Bijection, finite set Cartesian products, Domain and range of a relations, Inverse relation, Types of relations, Relations and functions.   Functions: Types of functions-definitions, Theorems on function, Domain, Range, inverse and real valued functions. Identity function, Constant function, Equal function, even and odd function, polynomial functions, Rational functions, Algebraic functions, Exponential functions, Logarithmic functions, Exponential and Logarithmic Series, Greatest Integer functions. Composite function, and its property, graphs of functions, Compound functions. Equations of functions

   Limits: Concept, and limits of a function. Continuity, Neighbourhoods.

3. COMMERCIAL MATHEMATICS: Ratio and proportion, Rate, Unitary method, Percentages, Trade Discount, Average, Simple interest, Compound interest, Partnership, Time and distance, Time and work, clocks and calendar problems.

   ALGEBRA: Laws of exponents: Laws of rational indices, Multiplication and division of polynomials, some special products, Factorization of Quadratic Expressions.

Logarithms: Definition, simple laws of logarithms, some additional laws, characteristic, Mantissa Exponents.

Algebra of expressions: Square roots, Homogeneous, Symmetric cyclic expression and Factorization, symmetric expressions, cyclic expressions, quadratic equations, reciprocal equation, relation between roots and coefficients, nature of roots, to find the quadratic equation whose roots are given. Remainder theorem, Horner's method, trial and error method, finding multiple roots, graphical solutions.

Binomial Theorem: Standard binomial expansion, theorem, integral part, fractional part, numerically greater terms, largest problems, approximation using Binomial theorem.

Mathematical induction: principles of mathematical induction and theorems and its applications, problems on divisibility.

4. LINEAR EQUATIONS: Linear equations in two variables: System of linear equations, Simultaneous equation in two variables, Dependant equations, Linear equations and their graphs, Linear functions , System of equations, linear programming-problems (LPP). The fundamental theorem, graphical method of solving an LPP, a closed converse polygon, general graphical methods – application of LPP.

In-equations: Linear in-equations and their graphs, System of in-equations. Linear equations in two variables, System of linear equations, simultaneous equation in two variables Dependant equations, linear equations and their graphs, linear functions, system of equations, System of two points, which is not parallel to X-axis, Midpoint of the segment following $A(x_1,y_1)$, $B(x_2,y_2)$ equation of a line passing through the origin having slope m, The slope intercept form of a line, the point slope form of a line, the intercept form of a line, the two point form of a line, linear in-equations, their graphs,   system of linear in-equations.

Rational integral of x, remainder theorem, Horner's method of synthetic division, problems leading to quadratic equations, graphical solutions of quadratic, Quadratic inequalities in one variable, solution of quadratic in-equations the principle of mathematical induction , The binomial theorem, Pascal triangle.

Quadratic expressions, equations in one variable, sign of quadratic expressions, changes in signs and maximum and minimum values, quadratic in-equations, relation between the roots and the coefficient in an equation, remainder theorem, connecting problems, solving an equation when two or more of its roots are connected by Cartesian relations, Horner's method of synthetic division, trial and error method, Procedure to find multiple roots.

5. GEOMETRY

Structure of geometry, axioms, Historical background, Basic axioms, Parallel line, theorems, triangles and polygons, angles of a polygons, theorems based on, Polygon congruence of triangle SAS, ASA, SSA, axioms, Parallelogram and its

properties, Triangles, Particular types, geometric inequalities in a triangles some theorem, circles and concurrent lines in triangles, Theorems based on circles, Concurrent lines in a triangle, Median, Altitudes of a triangle, line of symmetry, axis of symmetry, point symmetry, image of an angle.

Quadrilaterals, example of different Quadrilaterals, Parallel lines and triangles, theorems, intercept, Theorems, locus, points equidistant from two given points. Theorems, an concurrency, attitude, circum centre, ortho centre, centroid, Areas, polygonal region, Area axiom, congruent axiom, area monotonic axiom, area of parallelogram theorem, Area of Triangle, Theorem based quit, circles are of a circle, semi circle, segment of a circle, Congruence of a circle, Theorems based on circle.

Similar polygons, similar triangle and their properties, Basic proportionality theorem, vertical angle bisection theorem, Similar Triangle, AAA similarity, SSA, SAS similarities Pythagoras theorem, Tangents to a circle, different properties of a tangent to a circle, segments of a chord, Common tangents to two circles.

GEOMETRICAL CONSTRUCTIONS

Construction of triangles, constructions involving concurrence lines, triangles and circles, harder cases, Geometrical constructions involving circles and tangents and triangles and quadrilaterals.

6. MENSURATION

Square, rectangle, triangle, Quadrilateral, Circle, Ring (Annulus), Sector.

Prism, total surface area of right prism, volume of a prism, Volume of a cube, Cuboids, The right pyramid, Cylinder, Hollow cylinder, Cylindrical shell, ratio's of cylinders, cone, Hollow cone, solid cone, Curved surface area, total surface area, volume of a right circular cone, Sphere: Surface area of a sphere, total surface area of a hemisphere, Volume of a sphere, Hollow hemisphere.

7. MATRICES

Matrix Definition, Order of a matrix, Types of matrices, Equality of two matrices, Addition, Subtraction, multiplication of matrix, Product of two matrices, properties of products of matrices, transpose of matrix, properties, skew symmetric matrix, Adjoint and inverse of a matrix, simultaneous linear equations, types of system of simultaneous linear equations, consistency and inconsistency of Simultaneous equation. .

Multiplicative inverse of a square matrix, singular and non singular matrix, solution of a system of linear equations in two variable using matrices determinants, properties of determinants, Matrix inverse method and Cramer's , Inversion and Gauss Jordan method and Solving Equations

Triangle matrices, properties of addition of matrices, sector multiple of a matrix

8. STATISTICS

Cumulative frequency distribution, LCFD, GCFD, Frequency graphs, lesser then frequency distribution, Greater than frequency distribution.

Central Tendency: means of the ungrouped data, Weighted AM, means grouped data, Merit and demerits of AM, Medians from ungrouped and grouped data, mode of ungrouped and grouped data, Empirical relation among mean, Median and mode.

Probability: Random Experiments and Events, Definition, Axiomatic Approach, Independent and Dependent Events, Conditional Probability, Bayes Theorem, random variables , theoretical distributions.

9. COMPUTING

Introduction to computers, Historic development of computers, Structure of a computer, working characteristics of Computers, Problem solving, flow charts and their representation, Operations box, Data box, Decision box, loops, Algorithm, Flow diagram using boxes for mechanics.

10. PROGRESSIONS

Progressions: Common difference, nth term, sum of the first nth terms Arithmetic, Geometric and Harmonic Progressions and problems. AM, GM, HM and its Problems.

11. TRIGONOMETRY

Unit of measurement of angles: Radian measure, relation between radian and degrees, 6 Trigonometric ratios and transformations, behavior of trigonometric functions, Trigonometric functions of complementary angles, trigonometrically tables. Inverse trigonometric functions, Hyperbolic Functions, Properties of Triangles, graphs and periodicity, Trigonometric ratios of compound angles, Trigonometric ratios of multiple and sub multiple angles, Angle of elevation and angle of depression, heights and distance. Trigonometric Expansions.

12. ANALYTICAL GEOMETRY

Distance between two points, Division of a segment internally and externally in a given ratio, slope, Area of triangle, The Straight Line; Pairs of St Lines.

LOCUS, Transformation of Axes.

Three Dimensional Geometry: Co-ordinates; Direction Cosines and Ratios; Cartesian equation of a plane. Circles and System of Circles, Parabola, Ellipse, Hyperbola and polar coordinates.

Part – IV
Teaching Methodology (Marks: 16)

1. Meaning and Nature of Mathematics, History of Mathematics.
2. Contributions of Great Mathematicians – Aryabhatta, Bhaskaracharya, Srinivasa Ramanujan, Euclid, Pythagoras, George cantor.
3. Aims and Values of teaching Mathematics, Instructional objectives (Blooms taxonomy)

4. Mathematics curriculum: Principles, approaches of curriculum construction, -Logical and Psychological, Topical and Concentric, Spiral approaches. Qualities of a good Mathematics text book.
5. Methods of teaching mathematics- Heuristic method, Laboratory method, Inductive and Deductive methods, Analytic and Synthetic methods, Project method and Problem Solving method.
6. Unit Plan, Year Plan, Lesson Planning in Mathematics.
7. Instructional materials, Edgar Dale's Cone of Experience.
8. Evolving strategies for the gifted students and slow learners,
9. Techniques of teaching mathematics like Oral work, Written work, Drilling, Assignment, Project, Speed and Accuracy.
10. Mathematics club, Mathematics structure, Mathematics order and pattern sequence.
11. Evaluation – Types, Tools and Techniques of Evaluation, Preparation of SAT Analysis, Characteristics of a good test.

SCHOOL ASSISTANT - PHYSICAL SCIENCES
SYLLABUS

Part – I
GENERAL KNOWLEDGE AND CURRENT AFFAIRS (Marks: 10)

Part - II
PERSPECTIVES IN EDUCATION (Marks: 10)

1. History of Education : Pre-Vedic and Post-Vedic period, Medieval Education, Recommendations of various committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various committees during post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission(1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

2. Teacher Empowerment: Meaning, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

3. Educational Concerns in Contemporary India: Environmental Education, Meaning and scope of Environmental Education, Concept of sustainable development, Role of Teacher, School and NGOs in development and protection of environment, Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities, Economics of Education, Meaning and scope, Education as Human Capital, Education and Human Resource Development, Literacy – Saakshar Bharat Mission, Population Education, Significance of Population Education, Population situation, policies and programmes in India, Approaches to Population Education and role of school and teacher, Themes of population Education, Family life Education, Sustainable development, Adolescence Education, Health Education, Gender – Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills, Inclusive Education, Conceptual Clarification and Definition, Prevalence, Myths & Facts, Characteristics, Classification & Types, Importance of Early Identification and assessment, Planning Inclusive Education, Classroom Management in Inclusive Education, Evaluation, Documentation and Record Maintenance, Psycho-Social management, Awareness & Sensitization Strategies, Liberalization, Privatization and Globalization, Value Education, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-meals, Rashtriya Madhyamika Siksha Abhiyan(RMSA), KGBVs and SUCCESS Schools.

4. Acts / Rights: Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act, 2005, Child Rights, Human Rights

5. National Curriculum Framework, 2005: Perspective, Learning and Knowledge, Curricular Areas, School Stages and Assessment, School and Classroom Environment, Systemic Reforms

Part - III
CONTENT (Marks: 44)

1. MEASUREMENT, UNITS AND DIMENSIONS: Systems of Measurement, Units of Measurements, Measurement of Length, Triangulation Method, Measuring Instruments, Vernier calipers, Screw Gauge Measurement of Area, Volume, Time, Measurement of Mass and Density, Measuring instruments. Units and Dimensions Fundamental and derived physical quantities, Systems of units, Multiples and submultiples of SI units. Dimensions Dimensional formulae and dimensional equations, dimensional constants and dimensionless quantities, principle of homogeneity of dimensions. Application of dimensional method of analysis. Conversion of one system of units into another, derivation of relationship between different physical quantities.

2. NATURAL RESOURCES AIR AND WATER: Air, Composition of air, Measurement of Atmospheric Pressure, Air Pollution, Volumetric Composition of Water, Hardness of Water, Drinking Water and Supply Water Pollution, Cyclone, Pascal's Law, Archimedes' Principle, Boyle's Law, Bernoulli's Principle, Wind, Rainfall.

3. OUR UNIVERSE: Constellations, Zodiac, Solar System, Stars, Meteors and Comets, Light year, Life on the Planet – Earth.

4. NATURAL PHENOMENA
A. Light - Sources & Nature of Light, Propagation of Light, Reflection, Refraction, Laws of Reflection, Image formed by Plane Mirror, Reflection on Spherical Mirrors, Refraction of Light through Prism and lenses (convex, concave), camera and the human eye, Refractive index of material of prism, critical angle, Total Internal Reflection – Relation between Critical angle and Refractive Index, application of total internal reflection to Optical fibers. visual photometry, LASERS. Newton's Corpuscular Theory, Huygens' Wave Theory, Electromagnetic spectrum. Huygens' Explanation of Reflection, Refraction, interference and diffraction of plane waves at a plane surface, Optical Instruments-Microscope, Telescope, Formula for magnification of microscope, Astronomical and Terrestrial Telescopes.
B. Sound-Wave motion :Wave Motion, Longitudinal and transverse waves, Equation for a progressive wave, principle of superposition of waves, reflection of waves, Formation of waves on stretched string. Sound - Propagation of sound, Musical Instruments, Velocity of Sound in Gases, Solids & Liquids, Progressive & stationary waves, Characteristics of sound. Forced Vibrations, Natural Vibrations – Resonance with examples, standing waves in Organ Pipes, Open Pipes, Closed Pipes. Sound Reflection, Echoes,

Absorption of sound waves, Reverberation – Reverberation Time. Fundamentals of building Acoustics, Sound Pollution.

C. Heat - Sources of Heat, Transmission of Heat, Heat and Temperature its Units, Measurement of Temperature, Fahrenheit and Centigrade scales, Different types of thermometers, Effects of Heat Expansion of solids, liquids, gaseus, Change of state, Calorimetry – specific heat of solids and liquids, calorific values of fuels, latent heat of fusion and latent heat of vaporization, Change of density with temperature, Examples in daily life. Expansion of liquids-coefficients of real and apparent expansion of liquids. Determination of coefficient of apparent expansion of liquid by specific gravity bottle method. Anomalous expansion of water, its significance in nature. Expansion of Gases-Volume and pressure coefficients of gases. Kelvin scale of temperature, Boyle's and Charle's laws. Ideal gas equation. Heat capacity, specific heat, experimental determination of specific heat by method of mixtures. Specific heat of gas (Cp and Cv), External work done by a gas during its expansion. Relation between Cp and Cv (derivation) Latent heat, Determination of latent heat of vaporization of water.

5. KINEMATICS AND DYNAMICS
Kinematics: Motion-Types of Motion, Speed, Velocity, Velocity-time and position-time graphs, Scalars and Vectors, laws of addition of vectors, subtraction of vectors. Acceleration, Newton's law's of Motion, Newtons Universal Gravitation, Centre of Gravity, Stability, Applications, Equations of Motion, Motion of a body under gravity – Acceleration due to Gravity "g", Equations of Motion for a freely falling body, Equations of Motion for a body thrown upwards. Equations, applications and problems. DYNAMICS - Work, Power, Energy, Conservation of Energy and Transformation of Energy, Renewable and Non-Renewable sources of Energy, Impulse, Law of conservation of linear momentum, Potential Energy (PE), Kinetic Energy (KE). Relation between KE and Linear momentum. Circular Motion, uniform circular motion, angular displacement, angular velocity, and angular acceleration, relationship between linear velocity and angular velocity, centripetal and centrifugal force, torque, couple, vector representation of torques, Banking of Roads & Rail Tracks, Simple Harmonic Motion, Simple Pendulum, Law of conservation of energy in case of a simple pendulum. Elasticity - Elasticity and plasticity, stress and strain, Hooke's law, Moduli of elasticity. Fluid Mechanics Laws of Floatation, Principle of Buoyancy, pressure in a fluid. Stream line flow Bernoulli's theorem and its applications. Simple Machines and Moments Moment of a Force, Wheel and Axle, Screw Jack, Gears, Friction, Causes of friction, advantages of friction, disadvantages of friction, methods of reducing friction.

6. MAGNETISM - Natural and Artificial Magnets, Properties of Magnets, Magnetic Induction. Terrestrial magnetism, Magnetic field around a magnet, elements of terrestrial magnetism, Theory of Magnetism, Inverse square of

magnetism, Magnetic field due to a bar magnet, Mapping of magnetic lines of force due to a bar magnet : neutral points, magnetic properties of materials. Coulomb's Inverse Square Law, Definition of Magnetic Field, Magnetic Lines of Force, Uniform and Non-Uniform Magnetic Fields. Couple acting on a bar magnet placed in a uniform magnetic field, Definition of magnetic moment of magnet. Magnetic Induction due to a bar magnet on axial and equatorial lines. Types of magnetic material, Para, Dia, and Ferro magnetism, Definition and properties.

7. ELECTRICITY
Electrostatics - Electrification by friction, Charges, Coulomb's Law: Permittivity of Free Space and Medium, Electric Field – Electric lines of force, their properties – Electric intensity, Electrostatic Potential, Relation between electrostatic potential and electric intensity. Capacitance and capacitors, Dielectric constant, Condenser, its uses –Dielectric Strength – Effect of dielectric on capacitance of capacitors. Current electricity - Primary Cells-Series and Parallel connection-Electric circuits, Electrical Resistance, Ohm's Law and its verification, Ohmic and Non Ohmic elements, Resistance Resistances in Series and Parallel, Heating Effects of Electric Current- Joule's Law, Faraday's Laws of Electrolysis, Magnetic Effects of Electric Current, Principle and Working of an Electric Motor, Electro – Magnetic Induction. Electric current – Flow of Electric charges in a metallic conductor – Drift velocity and mobility – Relation between electric current and drift velocity, Conductance, Electrical Energy – Power.

8. ELECTROMAGNETISM - Electromagnetic Waves, Spectrum Oersted's Experiment, Ampere's Law, Magnetic field near a long straight wire and magnetic field at the Center of a circular coil carrying current, Field on the axis of circular coil carrying current, Force on a moving charge in a magnetic field – Force on a current carrying conductor placed in a magnetic field. Force between two long straight parallel conductors carrying current, Definition of Ampere. Fleming's Left Hand Rule. Current loop as magnetic dipole, force and Torque on Current loop in an uniform magnetic field, magnetic dipole moment of a revolving electron. Electromagnetic induction, Magnetic Flux, Induced EMF, Faraday's and Lenz's Law. Fleming's Right Hand Rule, Self Inductance, Mutual Inductance, Principle of Transformer.

9. MODERN PHYSICS:
Atomic physics - Discharge of Electricity through gases, X-rays. Atomic structure, atomic number, atomic mass and mass defect, radioactivity, artificial transmutation. Discovery of electron – E/M of electron by Thomson's method. X-Rays- Production of X-Rays – Coolidge tube. Nuclear physics - Composition and size of nucleus, mass defect and binding energy and their relation. Radio Activity- Artificial Transmutation of elements, Nuclear Radiation Hazards, Protective shielding. Nuclear Fusion – Energy of sun and stars.

Semi conductor devices - Band theory of solids, Intrinsic and Extrinsic Semiconductors, Junction Diodes and Transistors, Properties and Uses, Basic Principles of Working Intrinsic and Extrinsic semi conductors (n and p type).Junction diode – p–n junction, depletion layer and barrier potential, Forward and Reverse bias, Transistor Function of Emitter, base and Collector, p-n-p and n-p-n Transistors.

10. COMMUNICATION SYSTEMS: Computer-Parts of Computer-Uses of Computer, Telephone, Wireless System-Radio Broad Casting, Recording and Reproduction of Sound, Cine projector, Elements of communication systems (block diagrams only), Television, Bandwidth of signals (speech TV and digital data) bandwidth of Transmission medium – Propagation of electromagnetic waves in the atmosphere sky and apace wave propagation. Modulation – Need for modulation.

11. States of Mater - Gases and Liquids: Measurable Properties of Gases, Gas Laws, Graham's law of diffusion – Daltons law of partial pressures, Avagadro's law, Ideal behavior, empirical derivation of gas equation, ideal gas equation, Kinetic molecular theory of gases, Kinetic gas equation (No derivation) – deduction of gas laws.

12. Atomic Structure: Matter – Its Structure, Cathode Rays, Canal Rays, Discovery of Neutron, Atomic Models – Arrangement of Sub Atomic Particles, Rutherford's model of atom and its drawbacks, Bohr's model of atom and its limitations, Sommerfeld's elliptical model, Sub Energy Levels – Quantum Numbers, Atomic Orbitals, Relative energies of the atomic orbitals, Electronic configuration of Atoms, Some Physical Quantities of Atoms, Nature of Electromagnetic Radiation, Planck's Quantum theory.Explanation of Photo electric effect. Features of Atomic Spectra.Characteristics of Hydrogen Spectrum. Bohr's explanation of Spectral Lines, Wave-particle nature of electron, De Brogile's hypothesis, Heisenberg's uncertainity principle, Important feature of the quantum mechanical model of an atom, Electronic configurations of atoms – Explanation of stability of half filled and completely filled orbitals.

13. Classification of Elements And Periodicity in Properties: Symbols and formulae, Radicals and their formulae, Chemical equation, Meaning, Calculations based on equations and relationship of reactants and products by weights, Classification of Elements, The Periodic Law, Modern Periodic Table, The significance of atomic number and electronic configuration, Classification of elements into s, p, d, f blocks and their characteristics, Period trends in physical and chemical properties of elements, Periodic trends of elements with respect to atomic radii, ionic radii, inert gas radii, ionization energy, electron gain energy, electro negativity, Valency, Variation of atomic radii in inner transition elements.

Alkali and Alkaline Earth Metals

Alkaline Earth Metals, Electronic configuration, occurrence, Trends in properties of alkaline earth metals, Reactions of alkaline earth metals, General methods of preparation of Alkaline Earth Metals, Anomalous properties of the first element in each group, Diagonal relationship. Trends in properties like ionization, enthalpy, atomic and ionic radii, reactivity with oxygen, hydrogen, halogens and water, uses, Preparation and properties of some important compounds by different methods: Sodium hydroxide, Salts of oxo acids, Sodium carbonate and Sodium hydrogen carbonate, Sodium chloride, Biological importance of sodium and potassium, Cao, CaCo3 and CaSo4 preparation and uses, Industrial uses of lime and lime stone, Biological importance of Mg and Ca

P-Block Elements; Group 15 Elements (VA)

Occurrence – physical states of Nitrogen and Phosphorous, allotropy, catenation, capacity, electronic configuration, oxidation states, General Characteristics of Hydrides, Structure of hydrides, General Characteristics of Oxides, General Characteristics of Halides, Oxoacids of Nitrogen, Oxoacids of Phosphorous, Preparation and uses of Nitric acid and Ammonia , Superphosphate of lime.Group 16 Elements: Group (VI A) Elements) : Extraction of Sulphur, Allotropic forms of Sulphur, Physical and Chemical properties of Sulphur, Uses of Sulphur, Preparation of Sulphur dioxide, Manufacture of Sulphuric acid, Properties of Sulphuric acid, Sulphuric acid as oxidizing and dehydrating agent, Laboratory preparation of Hydrogen Sulphide, Properties of Hydrogen Sulphide, Occurrence, electronic configuration, oxidation states, Physical states of oxygen and sulphur and their structure, allotropy, General characteristics of hydrides, oxides and halides, Structural aspects of oxy-acids of halogens, Ozone, uses of ozone.Sodium thiosulphate, Sulphuric acid – industrial process of manufacture. Group 17 Elements : (Group VII A Elements) : Occurrence, electronic configuration and oxidation states, Physical states of halogens, I.P. Values, electro-negativity and electron affinity, bond energies, chemicals reactivity, oxidizing power of chlorine, Structural aspects of oxy acids of chlorine, Preparation, properties and uses of chlorine and bleaching powder. Hydrogen and its Compounds - Volumetric composition of water, Industrial and other uses of water, Laboratory preparation, Properties and Uses of Hydrogen including as a fuel, Laboratory preparation, Properties and Uses of Oxygen, Position of hydrogen in the periodic table, Occurrence, isotopes of hydrogen, Reactions of Hydrogen with different types of elements leading to ionic, molecular hydrides, Physical and Chemical properties of water and heavy water.

14. Chemical Bonding and Molecular Structure

Types of Bonds, Inter Molecular Attractions, Energy changes during a chemical reaction, Exotherimic and Endothermic Relations, ionic bond, energy changes in ionic bond formation, Properties of ionic Compounds, Covalent Bond, Multiple Covalent Bonds, Shapes of some molecules. VSEPR theory,

The valence bond approach for the formation of covalent bonds, Directional nature of covalent bond, Properties of covalent bond, Different types of hybridization involving s, p and d orbitals and draw shapes of simple covalent molecules, Definition of coordinate covalent bond with examples, Description of molecular orbital theory of homo nuclear diatomic molecules, Bonding, antibonding molecular orbitals, σ, π bond orbitals, their symmetry.

15. Chemical Kinetics, Energitics, Chemical Calculations And Stoichiometry
Chemical combination, Chemical decomposition, Chemical displacement, Chemical Double decomposition, Slow and Fast reactions, Rate of a Reaction, Factors affecting the reaction rate, Reversible and Irreversible Reactions, Law of conservation of mass, Law of definite proportions, Law of multiple proportions, Rate law, units of rate constant, Collision theory of reaction rates (elementary ideas), concepts of activation energy. Stoichiometry - Meaning of Chemical Equations, Thermochemical Equations, Problems Based on Equations, Laws of chemical combination, principles and examples, Molar mass, concept of equivalent weight with examples, Percentage composition of compounds and calculations of empirical and molecular formula of compounds, Oxidation number concept, Balancing of redox reactions by ion electron method and oxidation number method, Types of redox reactions, Applications of redox reactions in titrimetric quantitative analysis and redox reactions in electrode process, Numerical calculations based on equations. Equilibrium - Differences between Physical and Chemical change, Equilibrium in physical and chemical process, Dynamic nature of equilibrium, law of mass action, Equilibrium Constant, Factors affecting equilibrium.

16. Solutions, Acids And Bases
Solutions, Types, Solubility and Factors affecting concentration of solutions, Ionization of Substances in Water, Classification of solutions – Methods of expressing concentration of solutions – Molarity, Normality, Molality, Mole Fraction, Preparation of Acids and Bases, General properties of Acids an Bases, Arrhenius Theory, The Strengths of Acids and Bases, Neutralisation and Heat of Neutralisation, Ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionic product of water, Concept of pH., pH of some common fluids, Common Salt, Electrolysis of brine, Chlorine, Properties of Chlorine, Uses of Chlorine, Hydrogen Chloride

17. Chemistry of Carbon Compounds
Allotropic forms of Carbon, Oxides of Carbon, Uniqueness of Carbon and Source of Carbon Compounds, Anomalous behavior of first element namely Carbon, Carbon-catenation, allotropic forms, physical and chemical properties and uses, Fuel gases – producer gas and water gas manufacture and uses.
Hydrocarbons -Classification : Alkanes – Nomenclature, isomerism, conformations, Methods of preparation of ethane, Physical properties, chemical reactions including free radical mechanism of Halogenation, combustion and Pyrolysis of Ethane, Cycloalkines, preparation and properties

of cyclohexane. Alkenes – Nomenclature, structure of double bond (Ethene), Geometrical isomerism, physical properties, Methods of preparation of ethylene, Physical properties, chemical reactions : Addition of hydrogen, halogen, Water, Hydrogen halides (Markownikoff's addition and Peroxide Effect), Ozonolysis, Oxidation, Mechanism of Electrophilic addition. Alkynes – Nomenclature, Structure of triple bond, Methods of preparation of acetylene, Physical properties, Chemical reactions: Acidic character of acetylene, addition reaction of hydrogens, 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 mono-substituted benzenes; carcinogenicity and Toxicity.

18. Carbohydrates, Proteins, Vitamins & Lipids
Carbohydrates, Manufacture of Cane-sugar, Manufacture of Alcohol, Classification (aldoses and ketoses), Monosaccharides (glucose and fructose), Oligosaccharides (sucrose, lactose, maltose), Polysaccharides (starch Cellulose, Glycogen – Preparation, properties and structure, Importance. Proteins - Elementary idea of amino acids, peptide bond, Poly peptides, Proteins, Primary Structure, secondary structure, Tertiary structure and quaternary structure (qualitative ideas only), De-naturation of proteins, enzymes. Vitamins - Classification, Functions in biosystems. Lipids - Classification, structural features, Functions in biosystems.

19. Chemistry & Industry
Uses of Oils and Fats, Hydrogenation of Oils, Manufacture of Soap, Portland Cement, Glass Industry, Plastics, Adhesives and Man-made Fibres, Cosmetics, Dyes, Drugs and Pharmaceuticals, Petroleum Industry, Common Fertilizers, Classification of polymers, Addition, condensation, copolymerization, Natural rubber, vulcanization of rubber, synthetic rubber Molecular weights of polymers – number average and weight average, molecular weights – definitions only, Bio-Polymers, bio-degradable polymers Some commercially important polymers like polythene, nylon, polyesters and Bakelite.

20. General Principles Of Metallurgy
Occurrence and Relative Abundance of metals in earth's crust, The Metallurgy of Iron & Extraction, Protection of Metals and Prevention of Corrosion, Principles and methods of extraction – concentration, reduction by chemical and electrolytic methods and refining

21. Environmental Chemistry
Pollution: Air, Water and Soil Pollution, Oxides of Carbon, Carbon Monoxide, Oxides of nitrogen and Sulphur, Chlorofluro carbons, Chemical reactions in atmosphere, smogs, major atmospheric pollutants, acid rain, Ozone and its reactions, effects of depletion of ozone layer, Green house effect and global

warming, Pollution due to industrial wastes, Green chemistry as an alternative tool for reducing pollution with two examples.

Part – IV

Teaching Methodology (Marks: 16)

1. The Nature of Science: Nature and scope of science, Science, ideology and Society, Structure of Science (a) Substantive structure – Empirical knowledge, Theoretical Knowledge – (Facts, Concepts, hypothesis, theory, Principle Law), (b)Syntactic Structure of Science – Scientific inquiry, Processes of Science, Attitudes of inquiry

2. The History and Development of Science: A brief introduction to oriental and western science, Contribution of the following Scientists in the Development of Science: Aryabhatta, BhaskaraCharya, Aristotle, Copernicus, Newton, Einstein, C.V.Raman, Various organizations working for the development of science in India

3. Aims and Values of teaching Physical Sciences: Aims of teaching Physical Sciences, Values of teaching Physical Science, Correlation of Physics and Chemistry with other subjects

4. Objectives of teaching Physical Sciences: Meaning and importance of objectives, Bloom's Taxonomy of Educational objectives, Specific / Behavioral objectives / (Instructional objectives), Critique on Bloom's Taxonomy

5. Approaches and Methods of teaching Physical Sciences: Inductive and Deductive Approaches, Micro Teaching, Team Teaching, Lecture Method, Lecture cum Demonstration Method, Historical Method, Heuristic Method, Project Method, Laboratory method, Problem Solving Method, Scientific Method, Multimedia Approach in Teaching Learning process, Programmed Learning, CAI and CAL

6. Planning for effective instruction in Science: Year Plan, Unit Plan, Lesson Plan, Learning experience, characteristics, classification, source and relevance.

7. Teaching Learning Material (TLM): Characteristics and Importance of TLM, Classification and Types of TLM, Hardware and Software in TLM, TLM-Principles to be followed, Edgar Dale's cone of learning experience.

8. Science laboratories: Importance of Practical work in science, Planning of Science laboratories, Procurement, care and maintenance of laboratory equipment, Registers, Management of safety and science kits, Development of improvised Apparatus.

9. Physical Science Curriculum: Principles of Curriculum Construction, Defects in the existing school science curriculum, Qualities of a good Science Text Book.

10. Non-formal Science Education: Science Clubs, Science Fairs – purposes, levels, organization, advantages, Science Library, Role of NGOs and State in popularizing Science

11. Evaluation: Concept and Process of Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test (SAT), Analysis and interpretation of Scores

SCHOOL ASSISTANT – BIOLOGICAL SCIENCE
SYLLABUS

Part – I
GENERAL KNOWLEDGE AND CURRENT AFFAIRS (Marks: 10)

Part - II
PERSPECTIVES IN EDUCATION (Marks: 10)

1. History of Education : Pre-Vedic and Post-Vedic period, Medieval Education, Recommendations of various committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various committees during post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission(1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992

2. Teacher Empowerment : Meaning, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.

3. Educational Concerns in Contemporary India: Environmental Education, Meaning and scope of Environmental Education, Concept of sustainable development, Role of Teacher, School and NGOs in development and protection of environment, Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities, Economics of Education, Meaning and scope, Education as Human Capital, Education and Human Resource Development, Literacy – Saakshar Bharat Mission, Population Education, Significance of Population Education, Population situation, policies and programmes in India, Approaches to Population Education and role of school and teacher, Themes of population Education, Family life Education, Sustainable development, Adolescence Education, Health Education, Gender – Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills, Inclusive Education, Conceptual Clarification and Definition, Prevalence, Myths & Facts, Characteristics, Classification & Types, Importance of Early Identification and assessment, Planning Inclusive Education, Classroom Management in Inclusive Education, Evaluation, Documentation and Record Maintenance, Psycho-Social management, Awareness & Sensitization Strategies, Liberalization, Privatization and Globalization, Value Education, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-meals, Rashtriya Madhyamika Siksha Abhiyan(RMSA), KGBVs and SUCCESS Schools.

4. Acts / Rights : Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act, 2005, Child Rights, Human Rights
5. National Curriculum Framework, 2005: Perspective, Learning and Knowledge, Curricular Areas, School Stages and Assessment, School and Classroom Environment, Systemic Reforms

Part - III
CONTENT (Marks: 44)

1. Biological Sciences: Its importance and human welfare, Branches of Biology, Biologists, Reputed Biological Institutions in India
2. Living World: Life and its Characteristics, Classification of Living Organisms
3. Microbial World: Virus, Bacteria, Algae, Fungi and Protozoan, Useful and Harmful Micro-organisms
4. Cell & Tissues: Cell - Structural and Functional unit of life. Prokaryotic and Eukaryotic Cell, Structure of Eukaryotic Cell, Cell Organelles, Differences between Plant Cell and Animal Cell, Cell Division – Mitosis and Meiosis, Tissues – Structure, Functions and Types of Plant and Animal tissues.
5. Plant World : Morphology of a Typical Plant – Root, Stem, Leaf, Flower, Inflorescence, Fruit - their Structure, Types and Functions, Parts of a Flower, Modifications of Root, Stem and Leaf, Photosynthesis, Transpiration, Transportation (Ascent of Sap), Respiration, Excretion and Reproduction in Plants, Plant Hormones, Economic importance of Plants, Wild and Cultivated Plants, Agricultural Operations, Crop diseases and Control measures, Improvement in Crop yield, Storage, Preservation and Protection of Food and Plant Products
6. Animal World: Organs and Organ Systems including man – Their Structure and Functions Digestive, Respiratory, Circulatory, Excretory, Nervous, Control and Coordination and Reproductive, Sense Organs: Structure and Functions of Eye, Ear, Nose, Tongue and Skin. Nutrition in man – Nutrients and their functions, Balanced Diet, Deficiency diseases, Tropical diseases, Skin diseases, Blindness in man: Causes, Prevention and Control, Health agencies, First Aid – Bites: Insect, Scorpion and Snakes, Fractures, Accidents, Life skills, Wild and Domesticated animals, Economic Importance of Animals, Animal Husbandry – Pisciculture, Sericulture, Poultry, Breeding of Cows and Buffaloes, Heredity.
7. Our Environment : Abiotic and Biotic factors and Ecosystems, Natural Resources – Classification, Judicial use of Renewable, Non-renewable and Alternative Resources, Wild Life - Conservation, Sanctuaries, National Parks in India, Bio-Geochemical Cycles, Pollution – Air, Water, Soil and Sound   Global Environmental issues – Global Warming (Green House Effect), Acid Rains and Depletion of Ozone layer, Food Chain

8. World of Energy: Work and Energy, Energy transformation, Need for Energy in living organisms, Basal Metabolic Rate (BMR), Energy relations in Ecosystems, Bio-mass and Bio-fuels, Non-Conventional Energy sources
9. Recent Trends in Biology: Hybridization, Genetic Engineering, Gene Bank, Gene Therapy, Tissue Culture and Bio-Technology, Nano Technology

Part – IV

Teaching Methodology (Marks: 16)

1. The Nature & Scope of Science: A brief introduction of Oriental and Western Science, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. Aims and Values of Teaching Biological Sciences: Aims of teaching Biological Sciences, Values of teaching Biological Sciences.
3. Objectives of Teaching Biological Sciences: Importance of Objectives of Teaching Biological Sciences, Bloom's Taxonomy of Educational Objectives and limitations, Writing Instructional Objectives and Specifications
4. Approaches and Methods of Teaching Biological Sciences: Inductive Approach and Deductive Approach, Methods of Teaching 1. Lecture Method, 2. Lecture cum Demonstration Method, 3. Heuristic Method, 4. Project Method, 5. Experimental Method, 6. Laboratory Method.
5. Planning for effective Instruction: Year Plan, Unit Plan, Lesson Plan – Herbartian and Bloom's Approach, Criteria for Evaluation of Lesson Plan. Self Evaluation and Peer Evaluation, Learning experiences – Characteristics, Classification, Sources and Relevance, Teaching – Learning Material and Resources in Biological Sciences.
6. Science Laboratories: Importance of Practical work in Biological Sciences, Planning Science Laboratory, Procurement, Care and Maintenance of Laboratory Equipment, Maintenance of different Registers, Safety and First aid, Development of Improvised Apparatus
7. Science Curriculum: Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Biological Sciences with other School Subjects, Qualities of a good Biological Science Text-book.
8. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities
9. Non-formal Science Education: Science club, Eco-club, Blue-club, Redribbon club, Science fairs – Objectives, levels of organizations, importance, Science Laboratories, Role of NGO`S and State in popularizing science.
10. Evaluation: Concept and process of Measurement and Evaluation, Continuous Comprehensive Evaluation, Tools of Evaluation, Preparation of Scholastic Achievement Test(SAT), Analysis and interpretation of scores.

SCHOOL ASSISTANT - SOCIAL STUDIES
SYLLABUS

Part – I
GENERAL KNOWLEDGE AND CURRENT AFFAIRS (Marks: 10)

Part – II
PERSPECTIVES IN EDUCATION (Marks: 10)
1. History of Education : Pre-Vedic and Post-Vedic period, Medieval Education, Recommendations of various committees during British period with special reference to Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944), Recommendations of various committees during post independent period with special reference to Mudaliar Commission (1952-53), Kothari Commission(1964-66), Ishwarbhai Patel committee (1977), NPE-1986, POA-1992
2. Teacher Empowerment: Meaning, interventions for empowerment, Professional code of conduct for teachers, Teacher motivation, Professional development of Teachers and Teacher organizations, National / State Level Organizations for Teacher Education, Maintenance of Records and Registers in Schools.
3. Educational Concerns in Contemporary India: Environmental Education, Meaning and scope of Environmental Education, Concept of sustainable development, Role of Teacher, School and NGOs in development and protection of environment, Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities, Economics of Education, Meaning and scope, Education as Human Capital, Education and Human Resource Development, Literacy – Saakshar Bharat Mission, Population Education, Significance of Population Education, Population situation, policies and programmes in India, Approaches to Population Education and role of school and teacher, Themes of population Education, Family life Education, Sustainable development, Adolescence Education, Health Education, Gender – Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills, Inclusive Education, Conceptual Clarification and Definition, Prevalence, Myths & Facts, Characteristics, Classification & Types, Importance of Early Identification and assessment, Planning Inclusive Education, Classroom Management in Inclusive Education, Evaluation, Documentation and Record Maintenance, PsychoSocial management, Awareness & Sensitization Strategies, Liberalization, Privatization and Globalization, Value Education, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Mid-day-meals, Rashtriya Madhyamika Siksha Abhiyan(RMSA), KGBVs and SUCCESS Schools.

4. Acts / Rights: Right of Children to Free and Compulsory Education Act, 2009, Right to Information Act, 2005, Child Rights, Human Rights
5. National Curriculum Framework, 2005: Perspective, Learning and Knowledge, Curricular Areas, School Stages and Assessment, School and Classroom Environment, Systemic Reforms

Part - III
CONTENT (Marks: 44)
GEOGRAPHY

1. Maps: reading analysis, different kinds, and making of maps- Globe as the model of earth.
2. The Solar System and the Earth: Origin and Evolution of the Solar System – Galaxy – The Earth as member of the Solar System, Origin of the Earth, Rotation and Revolution of the Earth and its effects, Latitudes and Longitudes – Standard Time and International Date Line.
3. The Earth: Interior of the Earth – Structure, Temperature, Pressure and Density of the Earth's interior, Major Rock types and their characteristics (Igneous Rocks, Sedimentary Rocks and Metamorphic Rocks)
4. Major Landforms: Mountains, Plateaus and Plains, Classification and distribution of Mountains in the World, Geomorphic process: Rock – Weathering, Mass wasting, Erosion and deposition, Origin and distribution of Plateaus in the World, Classification of Plains, Formation and types of Soils and its distribution in the World.
5. Climatology (Weather and Climate): Atmosphere – Composition and Structure, Insolation – Factors influencing Insolation, Temperature – Factors Controlling Temperature, Distribution of Temperature and Inversion of Temperature, Pressure – Global Pressure Belts, Winds – Planetary, Seasonal, Local, Humidity and Precipitation – Rain : Types and Distribution of Rainfall, Weather Reports
6. Volcanoes: Types and Distribution of Volcanoes in the World.
7. Earthquakes: Causes and Effects of Earthquakes, Distribution of Earthquakes
8. Natural Realms of the Earth: Lithosphere, Hydrosphere, Atmosphere and Biosphere.
9. Ground water: Tanks, building of tanks – decline of tanks and fishing in tanks.- ground water level or water table – rocks and ground water in telangana- recharging of ground water – quality of ground water and use of ground water.
10. Forests: description and distribution- status of forests in telangana- tribal use of forests-forest products- economic importance and trade- deforestation- forest conservation- (social forestry) –forest rights Act

11. Major Natural Regions of the World: The Equatorial Region, The Tropical Hot Deserts Region, The Savannas or the Tropical Grasslands Region, The Temperate Grasslands Region (Steppes), The Monsoon Lands, The Mediterranean Region, The Taiga Region and The Tundra Region

12. Continents: Asia, Africa, Europe, North America, South America, Australia and Antarctica – with reference to Location and Extent, Physical features, Climate, Natural Vegetation and Wild life, Population, Agriculture, Minerals and Industries, Transportation and Trade.

13. World Population: Population Growth and Density, Factors influencing the distribution of World Population, Population distribution patterns, Population problems in developing and developed countries

14. Geography of India and Telangana. : Location and Extent, Physical features - Relief and Drainage, Climate, Natural Vegetation, Soils, Irrigation, Power, Population, Minerals and Industries, Transport and Communication, Sea Ports and Towns, International Trade, Places of Interest

HISTORY

1. Study of the Past: Pre-historic Age, Proto-historic Age, Historic Age
2. Bronze Age Civilization
3. Early Iron Age Societies: Impact of Iron Age and the Growth of Civilization, Early Iron Civilization in India, The Ancient Chinese Civilization, Persian Civilization, Greek Civilization, Roman Civilization, Judaism and Christianity, The Early African Civilizations and the Early American Civilizations
4. The Medieval World: Main Features of Medieval Europe, Political Developments – Feudalism, The Holy Roman Empire, The Rise of Islam and the spread of Islam, India in Medieval Ages, Asia in the Medieval times – China and Japan
5. Ancient Indian Civilization: Indus Valley Civilization (Harappan Culture), Aryan Civilization – Early Vedic and Later Vedic Civilization
6. Political and Religious Developments of 6th century B.C.
7. India B.C. 200 A.D. to 300 A.D: The Mauryas, Andhra Satavahanas, The Persian and Greek Invasions, Magadha, Sangam age, Kushans
8. India from 300 A.D. to 800 A.D: The Gupta Empire, The Pushyabhuti Dynasty (Harshavardhana)
9. Deccan and South Indian Kingdoms: The Chalukyas, the Pallavas, the Cholas, the Rashtrakutas, the Yadavas and the Kakatiyas
10. The Muslim Invasions in India: The Condition of India on the Eve of Arab Invasions, Turkish Invasions, Ghaznavids Raids and its results, Effects of Muslim Invasions
11. Delhi Sultanate: The Slaves, The Khiljis, The Tughlaqs, The Sayyids and the Lodis, Downfall of Delhi Sultanate, Sufi Movement and Bhakthi Movement and Influence of Islam on Indian Culture

12. The South Indian Kingdoms: The Kakatiyas, The Vijayanagara Empire, The Bahmani Kingdom

13. Mughal Empire : Conditions of India on the eve of Babur's Invasion, Babur, Humayun, Shershah, Akbar, Jahangir, Shahjahan, Aurangajeb, The reasons for the downfall of Mughal Empire, The rise of Marathas, History of the Sikhs

14. Advent of Europeans: Portuguese, Dutch, French, English, Anglo-French Rivalry – Carnatic Wars, Establishment of British Empire in India, The first war of Indian Independence, The Governor Generals and the Viceroys, The Socio-Religious Movements of the 19th Century - Brahma Samaj, Arya Samaj, Rama Krishna Mission, Theosophical Society, Aligarh Movement, Satya Sodhak Samaj (a) Movements among Muslims for Social Reforms

15. Cultural Heritage of India and Intellectual Awakening: Growth and Development of Early Cultures and Racial synthesis, Characteristic features of Indian History, Art and Architecture, Development of Education and Philosophy, Cultural Unity and Bhakthi Movement, Development of National Consciousness, Impact of Alien Cultures in India, Conquest of India by British and Impact of British Rule, impact of colonialism in India, Impact of English Education, Impact of Revolt of 1857 A.D.

16. India between 1858 – 1947: Political, Economic and Social Policies in India, British Policy towards Indian Princess, British Policies towards neighbouring countries

17. Changes in Economic and Social sectors during the British period: Agriculture, Famines in India between 1858 – 1947, Rise of New Classes in Indian Society

18. Rise of Nationalism – Freedom Movement: Causes for the Rise of Nationalism, The Birth of Indian National Congress, The Age of Moderates and the Age of Extremists, Vandemataram Movement (Swadeshi Movement 1905-11), India during the First World war, Home Rule Movement, Mahatma Gandhi and Indian National Movement, Different stages of Freedom Movement, Quit India Movement, Mountbatten Plan, Integration of Princely States, Liberation of French and Portuguese Colonial possessions in India

19. Independent India – the first thirty years 1947 – 1977- First General Elections- Election Procedure- One party domination in political system- Demand for State Reorganization- State Re organization Act, 1956- SRC- State are organization commission- social and Economic change- Foreign policy and Wars- anti- Hindi agitation- Green Revolution- Regional Parties and Regional Movements- Bangladesh war- Emergency.

20. Emerging Political Trends (1977-2007)- Return of Democracy after emergency- Electins – 1977- End of Emergency- some important parties of 1970s BLD, Congress, CPI(M), DMK, Jan Sangh, SAD- Regional party- Telangana- Assam movement- the Punjab Agitation- The new initiatives of Rajiv Gandhi Era- Rise of

Communalism and Corruption in High places- the Era of coalition politics- Mandal, Mandir, Market.

21. Post – War World and India- After world war-II- UNO- Cold war (1945-1991)- Proxy war- Military alliances- Arms and space race- NAM- West Asian Conflicts- Growth of Nationalism in middle east- Peace movements- Collapse of the USSR.

22. Social Movements in our times: Civil rights and other movements of 1960s- Human Rights Movements in the USSR- Anti-nuclear and Anti- war movements- Globalization, marginalized people and environmental movements- Greenpeace Movement in Europe- Bhopal Gas Disaster related movements- Silent Valley Movement 1973-85- Movement against dams- Narmada river- Movement of women for social Justice- Aadavallu Ekamaite- Social mobilization on human rights- Meria paibi Movement.

23. Land lords and tenants under the British and Nizams- Freedom movement in Hyderabad State.

24. The Movement for the Formation of Telangana State: The merger of Hyderabad with India- The Gentlemen's Agreement- Mulki rules- 1969 Agitation- Movements in 1990s- In the process of achieving Telangana- Withdrawal of announcement- Telangana achieved –Prof. Jaya Shanker.

25. The Modern World: Beginning of Modern Age, Renaissance, Development in Science, The Reformation Movement, Rise of Nation States, Struggle against Absolute Monarchies.

26. Changing Cultural Traditions in Europe 1300-1800: The Ancient and Medieval World in Europe- Medieval Asia- Beginning of Modern era- Humanism- Artists and Realism- Architecture- The Printing Press- A New Concept of Human Beings- The Aspirations of Women- Reformation- Beginning of Modern Science- Exploration of Sea Routes- Renaissance in India

27. Democratic and Nationalist Revolutions 17th and 18th 19th Centuries: England- The Civil War and the Glorious Revolution- American War of Independence 1774-1789-French Revolution-Growing Middle Class- The Outbreak of the Revolution- France- Constitutional Monarchy- The Reign of Terror- Directory of Rule –Nepolean-Unification of Germany- Unification of Italy.

28. Capitalism and Industrial Revolution –Social Change.

29. The Revolutionary Movements: The Glorious Revolution, The American war of Independence, The French Revolution of 1789

30. Nationalist Movements: Rise and fall of Napoleon, French Revolution of 1830 and the 1848 Revolt, Unification of Germany and Italy, Socialist Movements – Rise of Working class, Paris Commune of 1871

31. Imperialism: Factors in the rise of Imperialism, Forms and Methods of Imperialism, Scramble for Africa and Asia, Colonialism in America.

32. Contemporary World: The First World war, League of Nations, The Russian Revolution of 1905 and 1917- Expansion of Democracy- in World.
33. The World upto World War II: Rise of Fascism and Nazism, Militarism in Japan, U.S.A. and U.S.S.R. after World War I, Turkey after World War I,Failure of League of Nations, Spanish Civil war, World war II, The Nationalist Movements in Asia and Africa, Emergence of Latin America.
34. The World after World War II: Formation of Military Blocks, Role of independent Nations of Asia and Africa in the World Affairs, Non-Alignment Movement, Role of UNO in preserving World Peace, Problems of Disarmament and Nuclear Weapons, Prominent Personalities of the World.

Civics:

1. Family/Social Institutions: Family, Marriage, Religion, Education, Economic and Political.
2. Community and Groups: Types of Community and Groups, Community Development, Civic life, Social evil in our Society, Evolution of Society, Culture and Society
3. State: Essential elements of State, Nation and State – Nation, Nationality, Nationalism.
4. Our Government: Local Self Government – Rural and Urban, Decentralization of powers, District Administration, Role of Public Services ,Govt. at Centre, State with reference to • Executive – Executive Council in the Union Government and State, Government. • Legislative – Indian Parliament, State Legislative Assembly, Legislation and • Judiciary and interpretation of Laws – Independent Judiciary, Judiciary system in the Country and State, Courts as watch dogs of Citizens Rights, Lok Adalats.
5. Citizenship Administration – Citizen Charter, Central Vigilance Commission, Lok Ayukta, Human Rights Commission, Good Governance – Right to Information Act, Information Technology Act, e-Governance, People's participation in Governance, Indian Constitution: Historical background, Constituent Assembly, Drafting Committee, Sources of Indian Constitution, Classification of Constitution, India as a Nation, Preamble, Salient features of Indian Constitution, Fundamental Rights and Directive Principles, Fundamental Duties, Rights and Duties – Meaning, kinds of Rights and Duties, India as a Federation and Unitary State, Unity in Diversity, National Integration.
6. Indian Democracy: Meaning, Nature, Types of Democracy, Elections and Election process, Major Political parties, Role of Political parties in Democracy, Presidential and Parliamentary Democracy, Future of Democracy, Public opinion – Agencies of Public opinion, Press, Media, Political parties, Pressure groups. Democracy in village level, Local Self Governments in urban areas.
7. Socialism: Meaning, Definition, Characteristics of Socialism, Social barriers in India, Socialism in practice – Challenges facing in our Country – Illiteracy, Regionalism, Communalism, Child Rights, Law, Society and individual, Anti Social Practices, Socialism and Constitutional Provisions
8. Secularism: Need and Importance, India – Religious tolerance, Promotion of Secularism in India.

9. World Peace and Role of India: India in the International Era, Foreign Policy,Non-Alignment Movement (NAM) Policy, India and Common Wealth, India's relations with super powers, India and neighbours, India and SAARC, India's leading role in the World.
10. U.N.O. and contemporary World problems: UNO – Organs and specialized Agencies,functions, achievements, India's Role in UN, Contemporary World problems, New nternational Economic Order,Environmental Protection,Human Rights.
11. Traffic Education / Road Safety Education.
12. Women Protection Acts and Child Rights.
13. Culture and Communication- Handicrafts and handlooms in Telangana Structural Monuments- performing arts- and artists, Film and print media and sports: Nationalism and Commerce.

Economics :
I.   Economics – Meaning, Definitions, Scope, Importance, Classification of Economics (micro and macro) – Concepts of Economics – different types of goods, wealth, income, utility, value, price, wants and welfare Basic Elements of Economics – Types of Utility, Consumption, Production, Distribution, Scarcity, Economic agents.Factors of Production – Land, Labour, Capital and Organization – Forms of Business Organization.

II.   Consumption: Cardinal and Ordinal Utility, The Law of diminishing Marginal Utility – Limitations and Importance, Law of Equi-Marginal Utility – Consumers Equilibrium, Importance of the Law.

III.   a) Theory of Demand: Meaning, Determinants of Demand, Demand Schedule – Individual and Market Demand Schedule, the Law of Demand, Demand Curve, Demand function, Elasticity of Demand.
b) Supply: Theory of Production, Production function, factors of Production, Supply schedule, Determinants of Supply, Supply function, Law of Supply, Supply Curve. Cost Curves – Fixed and variable costs, money costs and real costs, total cost, average cost,and marginal cost – opportunity cost. Revenue – total, average and marginal revenue.
c) Theory of Value - Classification of Markets, Perfect Competition – features, Price determination - Types of Imperfect competition – Monopoly, Oligopoly, Duopoly.

IV.   Theory of Distribution: Distribution of Income – determination of factor.
prices – rent, wage, interest and profit, Types of Economics,Capitalistic, Socialistic and Mixed economy.

V.   National Income: Definitions of National Income – Concepts – Gross National Product – Net National Product – National Income at factor cost – Personal income – Disposable income – Per capita income – Gross Domestic Product – Net Domestic Product – Nominal and Real Gross National Product, Components of National income – Consumption – Investment – Government expenditure – Exports minus Imports (Y=C+I+G+X-M), National Income and Distribution – Standard of living, Human Development Index, Economic inequalities and Poverty Line.

VI. Revenue and Expenditure: Types of Revenue, Taxation – Direct and Indirect Taxes, Types of Taxes, System of Taxation – Progressive, regressive, Proportionate, Cannons of Taxation, Effects of Taxes, Public Expenditure

VII. Budget: Meaning, Definition, Central and Stage Budgets, Types of Budget – Surplus, Balanced and Deficit, Classification of Revenue & Expenditure in Budget, Types of Deficits.

VIII. Money: Definition, Functions of Money, Classification of Money, supply of Money.

IX. Banking: Commercial Banks – functions, Central Bank – origin, functions, Reserve Bank of India, Co-operative Rural Banks, Regional Rural Banks.

X. Inflation: Meaning – Definition, Types of Inflation – Effects of Inflation, Measures to control Inflation – Monitory and Physical Policies.

XI Economic Growth & Development: Economic Growth, Economic Development – Concept, Indicators, Factors influencing Economic Development, Economic development in India.

XII. a) Indian Economy: Characteristics of Indian Economy before Independence, Indian Economy since Independence – Organized and Unorganized Sectors.
b) Population – World Population, Population in India and Telangana – Birth and Death rate – Occupational distribution of Population in India and Telangana.
c) Human Resource Development: Meaning of Human Resource Development – Role of Education and Health in Economic Development, Human Development Index
d) Agriculture sector in India: Importance, Characteristics of Indian agriculture, Causes of Low Productivity, Measures to increase Agriculture Productivity in India, Land reforms in India, Green Revolution, Agriculture Marketing, Agricultural Finance, Role of Banks in Agriculture Development (Commercial Banks, NABARD, Co-operative Banks, Regional and Rural Banks).
e) Industrial Sector: Role of Industrial Sector in Indian Economy, Classification of Industries, Industrial Growth, Industrial Policy Resolution – 1948, 1956 and 1991 New Economic Policy
f) Tertiary Sector (Service Sector) - importance
g) Problems of Indian Economy: Poverty, Unemployment, Regional Disparities, Inflation, Income Inequalities – Lorenge Curve.
h) Planning: Meaning and Definition, Planning Commission, Five Year Plans in India – A brief review, General and specific objectives of Indian Five Year Plans, Achievements and failures of Five Year Plans.

XIII. Natural Calamities and Diaster Management- Sustainable Development.

Part – IV

Teaching Methodology (Marks: 16)

1. Social Studies – Meaning, Nature and Scope: Defining Social Studies, Main features of Social Studies, Social Studies and Social Sciences differentiated, Scope of Social Studies – Types of Subject material and learning experiences included in the study of Social Studies, Need and importance of Social Studies

2. Values, Aims and Objectives of Teaching Social Studies: Values of teaching Social Studies, Aims of teaching Social Studies at Secondary Level, Instructional Objectives of teaching Social Studies, Relationship of instructional objectives with general aims and objectives of Social Studies, Taxonomy of Educational and instructional objectives, Writing objectives in behavioural terms

3. Social Studies Curriculum: Social Studies as a Core subject, Principles of Curriculum Construction in Social Studies, Organization of subject matter – different approaches correlated, integrated, topical, concentric, unit and chronological .

4. Instructional Strategies in Social Studies: Techniques, devices and maxims, Different methods of teaching Social Studies - Story telling, lecture, source, discussion, project, problem, inductive, deductive, observation, assignment – socialized recitation, Team teaching, Supervised study

5. Planning for Instruction: Developing teaching skills through Micro-teaching, Year Planning, Unit Planning, Lesson Planning

6. Instructional Material and Resources: Text books, work books, supplementary material syllabus, curriculum guides, hand books, Audio visual, Social Studies laboratory, library, clubs and museum, Utilizing community resources

7. Social Studies Teacher: Qualities of a good Social Studies teacher, Roles and responsibilities

8. Evaluation in Social Studies: Concept and purpose, Types of Evaluation, Evaluation as a continuous and comprehensive process, Different techniques of Evaluation, Preparation for Scholastic Achievement test