RMSA- Recruitment to Model Schools
Category of Post: TGT - General Science
Syllabus

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

Part – II
PERSPECTIVES IN EDUCATION (Marks: 10)

1. Education: Meaning, Aims of Education, Functions of Education, Types of Education; Constitutional Provisions, important articles and their Educational implications for General and disabled population; Universalization of Elementary Education - Schemes and Programmes to achieve UEE like OBB, APPEP, DPEP, SSA, Open schools, Mid-day-Meals; Recommendations of various committees and commissions during pre-independent and post-independent period.
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 : Inclusive Education: Conceptual Clarification and Definition, Prevalence, Myths & Facts, Characteristics, Classification & Types, Importance of Early Identification and Assessment, Planning Inclusive Education, Programming and Classroom Management in Inclusive Education, Evaluation, Documentation and Record Maintenance, Psycho-Social management, Awareness & Sensitization Strategies; Environmental Education: Concept, Objectives of Environmental Education, Environment and Natural Resources; Environmental Pollution – causes and effects and measures for the protection of environment, Development of Environmental Values through Environmental Education. Literacy: Saakshar Bharat Mission, National Programme for Education of Girls at Elementary Level (NPEGEL) School Health Programme, Disaster Management, Population education, Adolescence Education and Life Skills, Liberalization, Privatization and Globalization, Value Education
4. Acts / Rights: Right of Children to Free and Compulsory Education Act, 2009 and Andhra Pradesh Right of Children to Free and Compulsory Education Rules 2010 and Child 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. **Light:** Light, Propagation of light, reflection, refraction, image formed by lenses, laws of reflection, defects of vision, and their correction, mirror formula and magnification, refraction of light, lens formula and magnification, power of lenses.
2. **Sound:** Propagation of sound, properties of sound waves, loudness and pitch, audible and in-audible sounds, noise and music, noise pollution, reflection of sound, reverberation uses of multiple reflections of sound, applications of ultra sound, Earth quakes.

3. **Heat:** Heat and Temperature, Measurement of temperature, Thermometers, Transformation of Heat, conduction, convection, radiation, Expansion.
4. **Magnetism**: Magnetic and non-magnetic substances, Magnetism, earth magnetism, compass, magnetic properties, permanent magnets and electro magnets.
5. **Electricity:** Current electricity, Effects of electric current, and their applications, Electro magnet, Electric bell, Static Electricity, resistance, ohms law, resistance in series and parallel, magnetic field due to the current carrying conductors, right hand thumb rule, Magnetic field due to the circular loop, Magnetic force on current carrying conductor in magnetic field, Flemings left hand rule, electric motor, electro magnetic induction, Flemings right hand rule, electric generator, domestic electric circuits.
6. **Mechanics :** Motion, types of motion, motion along the straight line, measurement of distance, measurement of time, units of measurements (length and time),speed, velocity, acceleration, distance-time, velocity-time, graphs, equations of motion, uniform circular motion, Newton's laws of motion, inertia and mass, conservation of momentum, types of forces, work and energy, forms of energy, sources of energy, law of conservation of energy, friction, factors affecting the friction, Thrust and Pressure, buoyancy, Archimedes principle, relative density, atmospheric pressure, gravitation, universal law of gravitation.
7. **Natural Resources:** Forms of water, clouds, rains, water cycle, water management, composition of air, atmosphere, winds, storms and cyclones, Pollution of Air, Water.
8. **Our Universe:** Earth, Moon, Stars, constellations, planets, solar system, asteroids, meteors, comets, artificial satellites**.**
9. **Basic concepts of Chemistry:** Elements, compounds, atoms, laws of chemical combination, chemical reactions and equations, chemical bonding, states of matter, mixtures, Physical and chemical changes, Metals and non metals- Gas laws, ideal gas equations.
10. **Atomic Structure:** Sub Atomic particles, Atomic models, Bohr's model of atom, Quantum mechanical model, Filling up of orbital's in atom.
11. **Classification of Elements and Periodicity:** Genesis of periodic classification, modern periodic law, electronic configuration and types of elements: s,p,d,f-block elements, periodic trends.
12. **Solutions:** Solutions-Types of solutions, Mole, Mole concept, Molecular mass.
13. **Acids, Bases and Salts:** Acids and Bases,-theories, neutralization and its application in daily life, indicators, ionic product, pH-scale.
14. **Chemistry of Carbon Compounds:** Bonding in carbon, versatile nature of carbon, saturated and unsaturated carbon compounds, Nomenclature, chemical properties of carbon compounds, Isomerism, soaps, detergents, coal petroleum and natural gas, Synthetic fibres and plastic polymers.
15. **Living world:** Life and its characteristics, Diversity in living organisms and Classification.
16. **Micro-organisms:** Viruses, Bacteria, Algae, Fungi, Protozoans and Useful and harmful micro-organisms.
17. **Cell - Structure and functions:** Parts of a cell, Differences between plant and animal cells, Cell-division, Tissues – plants and animals.
18. **Plant world:** Morphology of a flowering plant, Modifications: root, stem, leaf, Parts of a flower, Photosynthesis, Transportation, Respiration, Excretion, Reproduction, Plant hormones, Economic Importance of plants.
19. **Animal world:** Organs and organ systems including human beings, Sense organs: Eye, Ear, Nose, Tongue and skin - structure, functions and diseases,

Nutrition, Digestion, respiration, transportation, excretion, reproduction, control and co-ordination, body movements and endocrine glands. Reaching the age of adolescence

20. **Our Environment -** Biotic and Abiotic factors, Eco-system, Forests - Deforestation and its causes, Biosphere, reserve, Flora and Fauna, Endemic species, Wild life sanctuaries, National parks, Wild life act, Red data Book, Migration, Reforestation
21. **Health and its failures-** Disease and its causes- Infectious and non infectious diseases.
22. **Improvement in Food Resources,** Improvement in crop yield, Crop production and Management, Need for intercropping, Animal Husbandry and Cross breeding.
23. **Heredity & Evolution-** Heredity, Mendel's Laws of Inheritance, Sex determination, Mutations, Genetic disorders, Evolution and Classification, Acquired and Inherited traits, Homologous and Analogous organs, Fossils and Human Evolution.

Part - IV

TEACHING METHODOLOGY (Marks: 16)

1. **The Nature & Scope of Science:** A brief introduction of Oriental and Western Sciences, Nature of Science, Scope of Science, Substantive and Syntactic Structure of Science.
2. **Aims and Values of Teaching Science:** Aims of teaching Science, Values of teaching Science.
3. **Objectives of Teaching Science:** Importance of Objectives of Teaching Science, Bloom's Taxonomy of Educational Objectives and limitations, Instructional Objectives and Specifications.
4. **Approaches and Methods of Teaching Science:** Inductive and Deductive Approaches, 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, Use of Computers.
6. **Science Laboratories:** Science Laboratory - Planning, Procurement, Care and Maintenance. Safety and First aid, Development of Improvised Apparatus
7. **Science Curriculum:** Principles of Curriculum Construction, Defects in the existing School Science Curriculum, Correlation of Science with other School Subjects, Qualities of a good Science Text-book.
8. **Science Teacher:** Qualifications, Qualities, Roles and Responsibilities of a good Science Teacher.
9. **Non-formal Science Education:** Science club, Eco-club, Science fairs – Objectives, levels of organizations, importance, Role of NGOs and the Government in popularizing science education.
10. **Evaluation:** Concept and process of Measurement and Evaluation, Continuous and Comprehensive Evaluation, Tools of Evaluation, Scholastic Achievement Test (SAT) – Preparation, Analysis and interpretation.