

## **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.