Part – I
General Knowledge And Current Affairs (Marks: 10)

Part – II
Perspectives in Education (Marks: 10)

1. History of Education:
   - The Education in Ancient India - Pre-Vedic and Post-Vedic period, Medieval Education.
   - Education in Pre Independent era - Woods Despatch (1854), Hunter Commission (1882), Hartog Committee (1929), Sargent Committee (1944).

2. Teacher Empowerment:
   - Need, 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:
   - Democracy and Education, Equality, Equity, Quality in Education, Equality of Educational opportunities.
   - Population Education, Gender - Equality, Equity and Empowerment of Women, Urbanization and migration, Life skills.
   - Adolescence Education
   - Value Education – Morel Value and Professional Eathics in Education.
   - Health and Physical Education
   - Inclusive Education - Classroom Management in Inclusive Education
   - Role of Education in view of Liberalization, Privatization and Globalization
   - Programmes and Projects – APPEP, DPEP, Sarva Siksha Abhiyan, National Programme for Education of Girls at Elementary Level (NPEGEL), Rashtriya Madhyamika Siksha Abhiyan(RMSA), Rashtriya Aveshekar Abhiyan (RAA), KGBVs, Model Schools.

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

Part - III

Educational Psychology (Marks: 10)

1. Development Of Child
   • Development, Growth & Maturation — Concept & Nature
   • Principles of development and their education implication
   • Factors influencing Development — Biological, Psychological, Sociological, emotional.
   • Understanding Development — Piaget, Kohlberg, Chomsky, Carl Rogers, Erikson
   • Individual differences — Infra & Inter Individual differences in the areas of Attitudes, Aptitude, Interest, Habits, Intelligence and their Assessment.
   • Development of Personality — Concept, Factors effecting development of personality, self concept.
   • Adjustment, Behavioural problems, Mental Health, Defense mechanism.
   • Methods and Approaches of Child Development — Introspection, Observation, Interview, Case study, Experimental, Cross sectional and Longitudinal
   • Developmental tasks and Hazards

2. Understanding Learning
   • Concept, Nature of Learning — input — process — outcome
   • Factors of Learning — Personal and Environmental
   • Approaches to Learning and their applicability—Behaviorism (Skinner, Pavlov, Thorndike) Constructivism (Piaget, Vygotsky), Gestalt(Kohler, Koffka) and Observational (Bandura)
   • Dimensions of Learning — Cognitive, Affective and Performance.
   • Motivation and Sustenance —its role in learning.
   • Memory & Forgetting
   • Transfer of Learning

3. Pedagogical Concerns
   • Teaching and its relationship with learning and learner.
   • Learners in Contexts: Situating learner in the socio-political and cultural context
   • Children from diverse contexts—Children With Special Needs (CWSN), Inclusive Education.
   • Understanding of pedagogic methods — Enquiry based learning, Project based learning, Survey, Observation and Activity based learning, Cooperative and collaborative learning.
   • Individual and Group learning: Issues and concerns with respect to organizing learning in class room like Study habits, Self learning and Learning to learn skills.
   • Organizing learning in heterogeneous class room groups — Socio-economic background, Abilities and Interest.
Paradigms of organizing Learning-Teacher centric, Subject centric and Learner centric.

Theory of instruction – Bruner

Teaching as Planned activity — Elements of Planning

Phases of Teaching — Pre active, Interactive and Post active

General and Subject related skills, competencies required in teaching and attributes of good facilitator.

Learning resources — Self, Home, School, Community, Technology.

Class room Management: Role of student, teacher, Leadership style of teacher, Creation of non threatening learning environment, Managing behaviour problems, Guidance & Counselling, Punishment and its legal implications, Rights of a child, Time Management.


Part - IV

Content (Marks: 50)

1. Classification of Plant Kingdom
2. Branches of Botany
5. Fungi: General characteristics of fungi, occurrence, thallus structure of fungi, modes of nutrition, reproduction, phylogeny of these types: Albugo, Mucor, Penicillium, Puccinia, Peziza, Alternaria. General account of Lichens, Economic importance of Fungi.
7. Pteridophyta: General characteristics of Pteridophyta, classification of Pteridophyta, structure, reproduction in Rhynia, Lycopodium, Equisetum and Marsilea.
Botanical Nomenclature, principles, typification, citation & authority. Study of the following families with reference to their characteristics, economic importance and attributes etc. a) Annonaceae  b) Malvaceae c) Fabaceae d) Caesalpinaceae e) Mimosaceae f) Cucurbitaceae g) Asclepiadaceae h) Euphorbiaceae i) Orchidaceae j) Rubiaceae k) Poaceae


12. Cytology, genetics and Evolution: Mitosis and Meiosis; Chromosome (Morphology, Structure, importance); concept of gene laws of inheritance; gene action; genetic code; linkage and crossing over; general account of mutations; polyploidy and its role in crop improvement, Concept of Primitive flower; development of anther and ovule; general account of embryosac and types of embryo; fertilization; endosperm morphology and types; polyembryony and apomixes.


14. Physiology
Absorption and translocation of water; Transpiration and stomatal behaviour; Absorption and uptake of Ions, Donnan’s equilibrium; Role of micronutrients in plant growth; Translocation of solutes; Photosynthesis (Light and dark reaction, Red drop, Emerson effect, Two pigment systems, Mechanism of Hydrogen transfer, Calvin cycle, Enzymes of CO₂ reduction, Hatch and slack cycle, C4 cycle, CAM Pathway, Factors affecting photosynthesis, Pigments.); Respiration (Glycolysis, Pentose phosphate shunt, structure and role of mitochondria, Kreb’s cycle, Oxidative Phosphorylation, Photorespiration, respiratory quotient, fermentation, Pasteur effect, factors affecting.); The enzymes (Nomenclature and classification, structure and composition, Mode of enzyme action , Factors affecting.); Nitrogen metabolism and bio synthesis of proteins, Nitrogen fixation, Nitrogen cycle, (Physical and Biological); Nitrogen assimilation, Amino acid metabolism, Plant Hormones(Auxins, Gibberellins, Cytokinins, Abscissic acid – general account.)

15. Economic Botany: Utilisation of plants, food plants, fibres, vegetable oils, wood yielding plants, spices, medicinal plants, beverages and rubber.

16. Recent aspects of Botany: Genetic Engineering; Plant tissue culture; Social forestry; Environmental Pollution (Water, Soil, Air) Health hazards and control, Biotechnology.

Teaching Methodology (Marks: 20)
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.


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.


8. Biological Science Teacher: Qualities of a good Biological Sciences Teacher, Roles and Responsibilities.
