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.
- Distinction between Assessment for Learning & Assessment of Learning, School based Assessment, Continuous & Comprehensive Evaluation : Perspective & Practice.

Content (marks: 50)


**V. Electricity:** Electrostatics: Gauss law, uniformly charged sphere, charged cylindrical conductor and an infinite conducting sheet of charge. Deduction of Coulomb’s law from Gauss law, Mechanical force on a charged conductor Electric potential –Potential due to a charged spherical conductor, electric field strength from the electric dipole and an infinite line of charge, Potential of a uniformly charged circular disc. Dielectrics: An atomic view of dielectrics, potential energy of a dipole in an electric field. Polarization and charge density, Gauss’s law for dielectric medium– Relation between D,E, and P. Dielectric constant, susceptibility and relation between them. Capacitance: Capacitance of concentric spheres and cylindrical condenser, capacitance of parallel plate condenser with and without dielectric. Electric energy stored in a charged condenser – force between plates of condenser, measurement of dielectric constant and potential difference.

VII. Electronics: Basic Electronics: Energy bands in solids, Intrinsic and extrinsic semiconductors, p-n junction diode, half wave and full wave rectifiers, filters, ripple factor, Zener diode and its application, p-n-p and n-p-n transistors, current components in transistors, CB,CE and CC configurations, transistor as an amplifier – Positive and negative feedback, Barkhausen criterion, RC coupled amplifier and phase shift oscillator. Digital Principles: Binary and Hexa decimal number system and their conversion, Logic gates: OR, AND, NOT gates, truth tables, realization of these gates using discrete components. NAND, NOR as universal gates, Exclusive – OR gate, De Morgan’s Laws, Half and Full adders, Parallel adder circuits.

VIII. Modern physics:


Teaching Methodology (Marks: 20)


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, Bhaskara Charya, 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 with other subjects.
4. **Objectives of teaching Physical Sciences**: Meaning and importance of objectives, Bloom’s Taxonomy of Educational objectives, Specific / Behavioural objectives / (Instructional objectives), Critique on Bloom’s Taxonomy.


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.