



**PAPER-VI**  
**GENERAL SCIENCE, ENVIRONMENT & TECHNOLOGY DEVELOPMENT**

**Total Marks : 200**

The question paper of General Science, Environment & Technology Development shall have six sections. Section – I, shall have 20 objective type of questions, each of 2 marks ( $20 \times 2 = 40$  marks). Questions for this section will be drawn at the rate of four questions from each of the five Groups of the syllabus. Sections II, III, IV, V and VI of the question paper shall have two optional questions each, drawn respectively from Groups A, B, C, D and E of the syllabus; of which candidates will be required to answer only one question from each group, each question carrying 32 marks. Optional questions shall be answered in the traditional manner, requiring descriptive answers, not exceeding 500 to 600 words. Thus, altogether candidates will be required to answer one objective type compulsory question (40 marks) and five descriptive type optional questions ( $5 \times 32 = 160$  marks).

**Group (A) - Physical Science**

- (I) System of Units : MKS, CGS and SI.
- (II) Definition of speed, velocity, gravity, mass, weight, force, impact, work, power and energy.
- (III) Solar system, relative position of Earth with respect to Sun and other planets, movement of earth and moon in solar system, lunar and solar eclipses.
- (IV) Concept and Nature of sound, Wave length and frequency, Infrasonic and Ultrasonic sounds. Sources of Infrasonic sound in nature, Ultrasonic sound characteristics and some applications.

**Group (B) - Life Science**

- (i) The living world, Cell-Structure and its functions, Diversity of organism.
- (ii) Bio molecules - structure and function of carbohydrates, proteins and fats, Vitamins and deficiency diseases, Enzymes, Hormones - Plant hormones and growth regulation, Animal hormones and their functions.
- (iii) Cell reproduction - Cell cycle, Mitosis and Melosis.
- (iv) Medallion Inheritance - Monohybrid and Dihybrid cross, Sex linked Inheritance, Sex Determination, DNA Structure & Function, DNA Replication, Protein Synthesis, Gene Regulation, Molecular basis of differentiation.
- (v) Theories of Evolution of Life on earth, including Human Evolution.

**Group (C) - Agriculture Science**

- (i) Different agro-climatic zones of Jharkhand, rain fall pattern and known abiotic stresses in each zone.
- (ii) Rain fed agriculture: Conventional food and horticultural crops of the state, Need for diversification of crops for food as well as nutritional security in the wake of climate change; Rain water harvesting and its role in improving agriculture output in Jharkhand; Fish farming.



- (iii) Soil fertility status of Jharkhand. Application of Vermi compost and Farm Yard Manure (FYM) for improving soil health. Nitrogen fixing bacteria; their applications and Concept of Organic farming.
- (iv) Concept of Agro-forestry. Waste lands and means to reclaim them.
- (v) Government schemes for the benefit of the farmers of the state.

#### **Group (D) - Environmental Science**

Concept of Ecosystem, Structure and Function of Ecosystem, Natural resources-Renewable and Non renewable resources, Environmental Conservation in-situ and ex-situ conservation, Pollution-Air, Water, Sound and Soil, Solid Waste Management; Biodiversity: concept, hotspots, threats to biodiversity: Global Environmental Issues: Climate change, Global warming, Ozone layer depletion, Acid rain, Desertification, Environmental Laws-The Environment (Protection) Act, The Air (Prevention & Control of Pollution) Act, The Water (Prevention & Control of Pollution) Act, Forest Conservation Act.

#### **Group (E) - Science & Technology Development**

National Policy on Science and Technology: Energy demand of the country: Conventional and Non-conventional sources of energy: Nuclear Energy: its merits and demerits: Trends in Nuclear Policy, NPT and CTBT. Space Technology-Indian space programmes, Application of Satellites for different purposes; Indian missile programme; Remote sensing : GIS and its application in weather forecasting disaster warning mapping of water, soil, and mineral Resources etc; Use of Biotechnology in agriculture, animal breeding, pharmaceuticals, food technology, and environmental conservation: Possible adverse effects of biotechnological interventions; Information technology: Computers and its application in data processing, data programmes, Cybercrime and cyber laws.

National Health Policy: national programmes for prevention and control of Malaria, Leprosy, T.B., Cancer, Aids, Blindness etc.

**Note :- The Government may facilitate the Commission with specific instructions for setting up the question papers from time to time.**

Approval has been granted on the proposal through Departmental Memorandum Memo No. 11/Lo.Se.Aa-01-03/2020-95 dated 06.01.2021 on State Cabinet's Meeting dated 06.01.2021 vide Item no. 2.

By the order of the Governor of Jharkhand

**Ajoy Kumar Singh,**  
Principal Secretary to the Government.

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