

Entrance Test Syllabus-2024

MSc. Environmental Science
School of Earth and Environmental Sciences
University of Kashmir Srinagar

The question paper containing 60 multiple answer type questions for the entrance examination for admission to M. Sc. Environmental Science will be broadly based on the below mentioned topics placed under 15 units drawn from different branches of science strongly related to the Environment. The paper will be spread over the whole syllabus, with four questions from each unit and each carrying one mark.

Unit 1: Components of Environment

Importance, structure and composition of Atmosphere, Hydrosphere and Hydrological Cycle, Origin of Earth, Origin and evolution of life, Lithosphere: Structure and composition, Biosphere Cryosphere and Anthrosphere

Unit 2: Ecology and Ecosystem

Concept and Structure and function of an ecosystem, Food chain, Food web, Pyramids, Ecosystem services and Ecological balance in nature, Energy flow, Ecosystem productivity, Succession (Hydro sere and Xerosere), Zoo-geographical distribution of important flora and fauna

Unit 3: Environmental Chemistry

Titrimetry, Volumetry, Colorimetry, Mole concept, molarity, normality, quantitative volumetric analysis, Concept of Acids and Bases, Buffer system, Thermochemical and photochemical reactions in atmosphere, Chemistry of greenhouse gases, Physico-chemical properties of water, Biological oxygen demand and Chemical oxygen demand, Inorganic and organic components of soil, soil profile

Unit 4: Environmental Geosciences

Geological time scale, Continental drift and plate tectonic, Types of rocks and rock cycle, Internal and external earth surface processes, Weathering Process, Disaster management framework, Disaster risk and vulnerability, Physiography and river systems of India with special reference to J&K

Unit 5: Human, Environment, Man-wildlife conflict

Environmental ethics, Anthropocentrism, Biocentrism, Ecocentrism, Technocentrism, Ecofeminism, Deep and shallow ecology, Land ethic, Gaia hypothesis, Impact of conflict on humans and wildlife, Impact of habitat fragmentation, social inequality in terms of forest conservation, Bishnoi movement, Chipko movement, Appiko movement, Narmada Bachao Andolan, Tehri dam conflict

Unit 6: Air and Noise Pollution

Ambient air quality: monitoring and standards, Types and sources of air pollution, Air quality index, Effects of air pollutants on environment and health, Indoor air pollution, Control of air pollution, Ambient noise quality and standards, Sources, Effects and Control of noise pollution

Unit 7: Water and Soil pollution

Water pollution: causes, impacts and prevention/control measures, Eutrophication, Thermal pollution, Acid precipitation, Soil pollution, causes, effects and control measures, Solid waste: Municipal and industrial wastes

Unit 8: Natural Resources and Management

Land resources: Global land use patterns, concept of waste land reclamation and desertification, Forest resources: Use and consequences of over-exploitation, Forest types in India, Water resources: Use and consequences of over-utilization, concept of water harvesting and watershed management, Mineral Resources: distribution in India and J&K, Food resources: World food problems and concept of sustainable agriculture

Unit 9: Biodiversity and Conservation

Biodiversity: meaning, levels and values (commercial, ecological, social and aesthetic), Measures of diversity : alpha, beta, gamma, richness and evenness, Threats to biodiversity, Hot Spots and cold spots, Concept of endemic and exotic species, In-situ conservation: National parks, sanctuaries, biosphere reserves, Ramsar sites, Ex-situ conservation: botanical gardens, zoological parks, zoos, seed banks, in-vitro conservation, pollen culture, tissue culture and DNA banks, IUCN Red List categorization – guidelines, practice and application; Red Data book

Unit 10: Green Technology

Definition and concepts: green technology, 3 R's of green technology: recycle, renew and reduce, Green buildings; history of green buildings, need and relevance of green buildings over conventional buildings; LEED certified building, Eco-mark certification, establishment of Eco-mark in India, its importance and implementation, Carbon capture and storage (CCS) technologies, Life cycle assessment(LCA), Compact fluorescent light(CFL) and cogeneration

Unit 11: Solid waste management and Vermicomposting

Sources and generation of solid waste, Composition and characteristics of solid waste, Biomedical and hazardous waste, Effects of solid waste on environment, Management of solid waste, Resource recovery, composting and waste to energy, Importance of Vermicompost in Agri-horticultural practices, Vermicomposting for Organic Farming, Vermicomposting techniques, standard composition of vermicompost, Earthworms: Type, identification & usefulness

Unit 12: Energy, Environment and sustainable Development

Renewable energy resources: Solar energy, Wind energy, Tidal energy, Geothermal energy, Nuclear energy, Biomass energy, Non-renewable energy resources: Fossil fuels (coal, petroleum, Natural Gas), Concept of Sustainable development, Brundtland commission report, Sustainable development Goals (SDG's)

Unit 13: Environmental Issues and Challenges

Acid rain, Smog and Ozone depletion, Climate change: causes and consequences, Human population growth and environment, Water-borne diseases: Cholera, Typhoid, Hepatitis, Natural disasters and environmental challenges: Floods, Earthquakes, Landslides, Pandemics, Food and water security

Unit 14: Environmental Education and Environment and Society

Environmental education-goals, objectives and need for public awareness, role of women in environmental education, awareness and sustainable development, Role of NGO's and mass media, environmental organizations and governments in environmental education

Unit 15: Environmental legislation and Policy

International initiatives: Stockholm, Earth summit, Montreal and Kyoto protocol, Wildlife protection Act-1972, Water Act-1974, Air Act-1981, Environment protection act- 1986, Forest conservation Act-1980, Noise pollution Rules-2000, Constitutional provisions: Article 21, 48A, 51A, Principle of no fault, Polluter pay principle.