

Entrance Test Syllabus-2023

M.Sc. Environmental Science
School of Earth and Environmental Science
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 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 and Cryosphere

Unit 2: Ecology and Ecosystem

Concept, structure and function of an ecosystem, Food chain, Food web, Ecological pyramids, Ecosystem services and Ecological balance in nature, Energy flow, Succession (Hydrosere and Xerosere), Zoo-geographical distribution of important flora and fauna

Unit 3: Environmental Chemistry

Titrimetry, Volumetry, Colorimetry, Gravimetry, Mole concept, Molarity, Normality, Concept of Acids and Bases, Buffer system, 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, Hazards and Disasters, Natural disasters and environmental challenges: Floods, Earthquakes, Landslides, 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

Concept of pollution and pollutants, Water pollution: Causes, Effects and Control measures, Eutrophication, Water-borne diseases: Cholera, Typhoid, Hepatitis, Thermal pollution, Acid precipitation, Soil pollution: Causes, Effects and Control measures, Land degradation

Unit 8: Natural Resources and Management

Land resources: Global land use patterns, Concept of waste land reclamation, Forest resources: Timber and Non-timber forest products, Forest types in India, Water resources: Distribution, Concept of water harvesting and watershed management, Mineral Resources: Distribution in India and J&K

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, Ex-situ conservation: Botanical gardens, Zoos, Seed banks and DNA banks, IUCN Red List categorization, Red Data book

Unit 10: Green Technology

Definition and concepts: Green technology, 3 R's of green technology: Recycle, Renew and Reduce, Green 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 florescent light(CFL)

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, Vermicomposting for Organic Farming, Vermicomposting techniques, Standard composition of vermicompost

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 and 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, Desertification, Deforestation, Global Pandemics, Food and Water security

Unit 14: Environmental Education and Society

Environmental education-goals, objectives and need for public awareness, Formal and Informal Environmental education, Best practices for Environmental education, Assessment of learning, Environmental Literacy, Role of women in Environmental education, Awareness and Sustainable development, Role of NGO's, Mass media, Environmental organizations and Governments in Environmental education

Unit 15: Environmental legislation and Policy

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, International initiatives: Stockholm, Earth Summit, Montreal and Kyoto Protocol