

Cluster University Srinagar

ENTRANCE TEST SYLLABUS FOR ADMISSION TO 5-YEAR INTEGRATED, 3-YEAR HONOR'S & PROFESSIONAL PROGRAMMES SESSION 2019

SYLLABUS CLASS XI

Code : 228

ENVIRONMENTAL SCIENCE Class 11th

Maximum Marks: 100

Theory: 70

Practical: 30

Unit 1:- Understanding Environment

(7 marks)

- Concept of Environment and its types: physical, biological and social environment.
- Scope and importance of Environmental Sciences
- Components of environment:
 - a. Lithosphere
 - b. Hydrosphere
 - c. Atmosphere
 - d. Biosphere
- Origin of Earth
- Human and environment relationship

Unit 2:- Ecology

(7 marks)

- Ecology (definition and types)
- Concept and structure of ecosystem
- Trophic relationships (food chain, food web, ecological pyramids)
- Functions of ecosystem (energy flow in an ecosystem)
- Ecological Succession (types and stages)

Unit 3:- Ecological Interactions and Adaptations

(7 marks)

- Ecological interaction and its types
- Inter-specific interaction: positive interaction (mutualism, proto-cooperation, commensalism, symbiosis and scavenging), negative interaction (parasitism, competition and ammensalism)
- Intra-specific interaction: cooperative and competitive
- Adaptations: concept and need
- Types of adaptations (with special reference to wind, light and temperature)

Unit 4:- Population Ecology

(7 marks)

- Concept of species, population and communities
- Population Dynamics (population size and density, dispersion, natality, mortality, age structure)
- Population growth (exponential and logistic growth)
- Factors regulating population growth (competition, weather and climate, territory, predation, natural disasters and diseases)
- Human population growth (Malthusian theory and neo-Malthusian theory, Demographic Transition)

Unit 5 :- Energy Resources

(7 marks)

- Concept of energy resources
- Non-renewable energy resources: coal, petroleum, natural gas
- Renewable energy resources (solar, wind and hydropower)
- Nuclear energy (uses and limitations)
- Biofuels

SYLLABUS CLASS XI

Unit 10:- Managing Agriculture

(7 marks)

- Concept of traditional and modern agriculture
- Green revolution and white revolution
- Pesticides and fertilizers (types, advantages and disadvantages)
- Integrated pest control
- Food security

PRACTICALS:

1. Study of density and abundance of different plant species in a particular area using quadrat method.
2. Determination of water, air and soil temperature.
3. Collection of locally available herbal plants and preparation of herbarium.
4. Field work and visit to National Park / wild life sanctuary / STP / water body and preparation of a field report.
5. Visit to a nearby primary or middle school to impart environmental awareness.
6. Documentation of agricultural crops, fertilizers and pesticides used in your locality.

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ENVIRONMENTAL SCIENCE

Maximum Marks: 100

Theory: Marks 70

Time: 3 hours

Practicals: Marks 30

External : Marks 20

Internal : Marks 10

The subject deals with the interdependence of living things within their environment and provides an insight into the orderly interplay of the factors influencing environmental change. The impact of human demands on renewable and non-renewable resources, and the limited availability of these resources in nature, have been linked to correlate with patterns of human behavior necessary to evolve a sustainable environmental paradigm.

AIMS:

"Environment education should simultaneously attempt to create awareness, transmit information, teach knowledge, develop habits and skills, promote values, provide criteria and standards and present guidelines for problem solving and decision-making. It, therefore, aims at both cognitive and affective behavior modifications. The latter necessitates both classroom and field activities. This is an action-oriented, project centered and participatory process leading to self-confidence, positive attitudes and personal commitment to environment protection. Furthermore, the process should be implemented through an interdisciplinary approach."

1. To acquire knowledge of the origin and functioning of the nature system and its correlation with the living world.
2. To develop an understanding that human beings, plants and animals are part of a natural phenomenon and are interdependent.
3. To appreciate the influence of human activity on the natural processes.
4. To develop awareness of the need and responsibility to keep the natural system in a condition that sustains life.
5. To develop sensitivity in personal attitudes to environmental issues.
6. To develop an understanding of how local environments contribute to the global environment.
7. To develop sense of responsibility and concern for the welfare of the environment and all life forms which share this planet.
8. To develop a sound basis for further study, personal development and participation in local and global environmental concerns.

1. Action on the Atmosphere:

10 marks

- (a) Control of atmospheric pollution: methods; costing urgency, legislation; role of government (local and national); responsibility of industry; role of environmental organization.

- (b) Renewable energy: limitations of conventional sources; sources of renewable energy and their features (solar, wind, biomass, micro-hydel and muscle power)
- (c) Health: incidents of disease as an indicator of the health of the environment; prevention of diseases by better nutrition, sanitation, access to clean water, etc.; communicable and non-communicable diseases; techniques of low cost sanitation; policy and organization to provide access to basic health service for all; the role of traditional and local systems of medicine.
- (d) Biotechnology: potential; limitations.

5. Pollution

13 marks

- (a) Disruption of nutrient cycles and habitats: atmospheric pollution; human activities that change the composition of the atmosphere; connection between pollution and development; local and global effects (greenhouse effect, ozone depletion) and their impact on human life; burning of fossil fuel products- effect on ecosystem and human health.
- (b) Pollution control approaches-prevention and control: as applied to fossil fuel burning; the role of PCBs; industrial pollution control-principles-devices-costs-policy incentives; combating global warming; third world interest; impact on economic growth. The international political dimensions; third world interest; impact on economic growth.
- (c) Water pollution: Water cycle; pollution of surface water, ground water, ocean water; industrial pollution and its effects; domestic sewage and its treatment - techniques and appropriate technology; marine ecosystem protection and coastal zone management; soil pollution-source - effects.

6. Legal Regimes for Sustainable Development

10 marks

- (a) National legislative frameworks for environment protection and conservation; survey of constitutional provisions (including directive principles); national laws; state laws of India.
- (b) International legal regimes: on trade and environment (GATT, WTO, IPR, TNC regional arrangement and preferential trade arrangements); on climate; on common resources (forests, bio-diversities, oceans and space); international institutions (UNEP, UNCTAD, WHO, UNDP, etc.); international initiatives (Earth Summit, Agenda 21).

Course Work / Project Work

Marks: 20

Suggested Assignments

The practical/project work carrying 20 marks has to be undertaken under the guidance of the teacher and to be evaluated as a part of the External Assessment. The project work could take one of the following forms:

1. Address a current environmental problem (preferably at local or regional scale) and should include problem identification and analysis, use of secondary data as well as some collection of primary data, design of solution, documentation of the entire process in the form of a solution proposal or make a field study of the effect of human interaction on the natural