

**M.SC.(FINAL) BOTANY  
PAPER -VIII B**

**ADVANCED ECOLOGY**

**UNIT-I**

1. Scope of grassland ecology; grassland climate, Basis of grassland classification, phytogeography of grasslands, major grassland types, grasslands in India with special reference to Rajasthan.
2. Grassland as an ecosystem; Dynamics of grassland ecosystem, nutrition of grasslands, Grass-legume association; Ecology of fire in grasslands; Grasses and grasslands in relation to soil conservation; management of grasslands.

**UNIT-II**

3. Inter-relationships between physico-chemical properties and biota of lentic freshwater ecosystems. Diel cycles and their significance.
4. Organic matter production in freshwater ecosystems; ecological pyramids; eutrophication, its causes and consequences.
5. Forest ecosystem : Major forest types of the world and of India; forest environment, food chains, energetics, and biogeochemical cycles operating in forests.

**UNIT-III**

6. Environmental pollution – types ( Air, Water, Soil, Radioactive, Noise, Thermal) effects on plants, animals and buildings; control of pollution; green house effect and global warming; ozone depletion; UV B radiations; acid rain; Indoor air pollution
7. Environmental monitoring; Biomonitoring; Bioindicators;
8. Environmental impacts of mining and industrialization.

**UNIT-IV**

9. Survey and classification of natural resources; conservation; Development without destruction; management of resources: Management and utilization of inland freshwater resources; management of forest resources.
10. Biomass as a source of energy, non-conventional sources of energy.
11. Biological diversity; Biosphere reserves; threatened plants of India.

**UNIT-V**

12. Wastelands – Description, classification, reclamation.
13. Solid Waste- Sources and management; Composting and methane production; Hazardous waste; Disposal and management of radioactive waste.

14. **Environmental Biotechnology- Scope and applications; Concept of cleaner technology.**
15. **Phytoremediation of disturbed ecosystems.**
16. **Environmental education; Remote sensing and its applications.**

**Note:**

The paper setter is required to set questions of 3 types contained in 3 Sections (Section A- 10 questions, Section B- 10 questions and Section C- 4 questions) from the 5 units of each paper. There will be 10 questions in Section A which will be asked from all the 5 units, i.e., 2 questions from each unit. These questions have to be answered in one word or a few words only. Each question will be of one mark. All the questions in Section A are compulsory. In Section B, 10 questions will be set from the 5 units, i.e., 2 questions from each unit. Students are required to attempt at least 1 question from each unit. Each question will carry 10 marks. The answers of each question should be given in about 250 words. In Section C there will be 4 descriptive type questions set from all the 5 units, not more than 1 question from each unit. These questions may also have sub-divisions. The students are required to answer 2 questions, each in approximately 500 words. Each question will carry 20 marks .

In short, pattern of question paper and distribution of marks for PG classes will be as under :

- a. **Section A : 10 questions, 2 questions from each unit, short answer, all questions compulsory. Total marks : 10**
- b. **Section B: 10 questions, 2 question from each unit, 5 question to be attempted, at least 1 from each unit, answer approximately in 250 words. Total marks : 50**
- c. **Section C: 04 questions (question may have sub-division), not more than 1 question from each unit, descriptive type, answer in about 500 words, 2 questions to be attempted. Total marks : 40**