

GOVERNMENT DEGREE COLLEGE, NANDIKOTKUR

DEPARTMENT OF BOTANY

Plant Ecology, Biodiversity and Phytogeography

Unit 1: Basic Concepts in Ecology

Short Answer Questions:

1. Define ecology and explain its relation to other sciences.
2. Describe the structure of an ecosystem, highlighting its biotic and abiotic components.
3. Explain the flow of energy through trophic pyramids.
4. What are food chains and food webs? How are they interconnected?
5. Discuss the role of light and temperature as climatic factors affecting plants.

Long Answer Questions:

1. Describe the cycling of materials in an ecosystem with reference to water, carbon, nitrogen, and phosphorus cycles.
2. Explain the interactions between plants and their environment.
3. Discuss the significance of plant-animal interactions in ecosystems.
4. Write an essay on the structure and functions of ecosystems.

Unit 2: Population and Community Ecology

Short Answer Questions:

1. What is population ecology? Describe the characteristics of a population.
2. Explain the terms natality, mortality, and growth curves.
3. Define community ecology and mention its characteristics.
4. Write a brief note on ecological succession with reference to hydrosere and xerosere.
5. What are GPP and NPP? How do they relate to community respiration?

Long Answer Questions:

1. Discuss the concept of ecotypes and ecads with examples.
2. Explain the process of ecological succession in detail.

3. Describe the concepts of primary and secondary productivity in ecosystems.
4. Explain the significance of P/R ratios in ecological studies.
5. Compare and contrast the characteristics of population and community ecology.

Unit 3: Climate Change - Impacts

Short Answer Questions:

1. What are the causes and consequences of soil degradation?
2. Discuss the impact of deforestation on ecosystems.
3. Explain the causes and effects of global warming.
4. What is the significance of the Montreal and Kyoto protocols in environmental protection?
5. Describe the role of plant indicators in environmental monitoring.

Long Answer Questions:

1. Write an essay on forest fires, their causes, consequences, and management strategies.
2. Discuss ozone layer depletion and its effects on ecosystems.
3. Explain acid rain and ocean acidification, mentioning their causes and impacts.
4. What are carbon footprints and carbon credits? Discuss their significance.
5. Suggest management strategies to mitigate the effects of soil degradation and deforestation.

Unit 4: Concepts of Biodiversity

Short Answer Questions:

1. Define biodiversity and explain its significance.
2. What is the Earth Summit? How did it contribute to biodiversity conservation?
3. Describe the biodiversity hotspots of India, with emphasis on the North Eastern Himalayas and Western Ghats.

4. Explain the IUCN threat categories and the importance of the RED data book.
5. What are the roles of NBPGR and NBA in biodiversity conservation?

Long Answer Questions:

1. Discuss the types and levels of biodiversity with suitable examples.
2. What are the major threats to biodiversity? Suggest measures for its conservation.
3. Write an essay on the value of biodiversity in ecosystems.
4. Explain the principles of biodiversity conservation and their practical applications.
5. Describe the significance of biodiversity hotspots and their role in global conservation efforts.

Unit 5: Phytogeography

Short Answer Questions:

1. What are the principles of phytogeography?
2. Define endemism and explain its types and causes.
3. Describe the phytogeographic regions of the world.
4. Name the major phytogeographic regions of India.
5. What are the vegetation types found in Andhra Pradesh?

Long Answer Questions:

1. Discuss the distribution patterns of plant species, highlighting wide, endemic, and discontinuous species.
2. Explain the causes and significance of endemism in plants.
3. Describe the vegetation types of Andhra Pradesh and their ecological importance.
4. Write an essay on the phytogeographic regions of the world and their plant distribution.
5. Compare the phytogeographic regions of India with those of the world, emphasizing their unique features.