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[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 8622

J

Unique Paper Code : 32231102

Name of the Paper : Principles of Ecology

Name of the Course : **B.Sc. (Hon) Zoology**

Semester : I

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **five** questions in all. Question No. 1 is compulsory.

1. (a) Define the following :

(i) Guilds

(ii) Restoration

(iii) Edge Effect

(iv) Hypervolume Niche

(v) Resilience

(5)

P.T.O.

(b) Distinguish between the following :

- (i) Unitary and Modular population
- (ii) Amensalism and Commensalism
- (iii) Semelparity and Iteroparity
- (iv) Scramble and Contest competition (8)

(c) Explain the following statement :

- (i) Dynamic life tables are the most accurate types of life tables.
- (ii) Shannon-Weiner diversity Index is low in a polluted water body. (4)

(d) Name the scientists associated with the following terms :

- (i) Competitive exclusion principle
- (ii) Life table
- (iii) Climax pattern theory
- (iv) Trophic Niche (4)

(e) Fill in the blanks :

- (i) The terrestrial biome with highest level of primary productivity on earth is _____ .

(ii) _____ is the process by which plants release phytochemicals directly into their surrounding environment, inhibiting seed germination and growth of established neighboring species.

(iii) In autogenic succession, the biomass/production ratio will _____ .

(iv) The _____ was the first Biosphere Reserve established in India in 1986. (4)

(f) Illustrate the following with the help of diagrams (no description required):

- (i) Types of survivorship curves
- (ii) Exponential growth curve (2)

2. (a) Describe density dependent regulation of a population.

(b) Briefly describe Shelford's Law of Tolerance with the help of suitable examples. (8,4)

3. (a) Describe various possible outcomes of inter-specific competition with graphical representation and equations.

(b) Differentiate between r-selected and k-selected species. (9,3)

4. (a) Describe the Universal energy flow model with the help of diagrams.

(b) Briefly describe various factors responsible for the loss of biodiversity. (6,6)
5. (a) Describe Lotka-Volterra model for predation with the help of diagrams and equations.

(b) Describe the role of microbes in Nitrogen cycle. (8,4)
6. Write short notes on **any three** of the following :
 - (a) Application of ecology in wildlife conservation
 - (b) Global climate change and its mitigation
 - (c) Temperature as a limiting factor
 - (d) Vertical stratification in an aquatic ecosystem
 - (e) Raunkaier's life forms (4,4,4)