

4345 28/12/23 CM

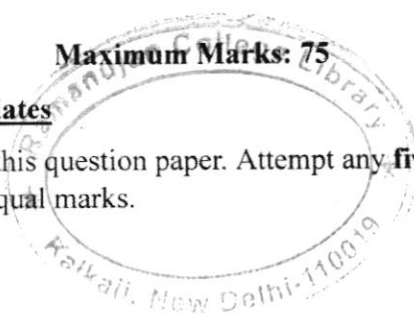
Unique Paper Code: 32181301
Name of the Paper: Ecology and Ecosystems
Name of the Course: **B.Sc. (H) Environmental Sciences-Core (CBCS-LOCF)**
Semester: **III**

Duration: **3 Hours**

Maximum Marks: **75**

Instructions for Candidates

Write your Roll No. on top immediately upon receipt of this question paper. Attempt any **five** questions. **All** questions carry equal marks.



1. (A) Write the definition of the following (Any five): (2×5=10)
 - (i) Ecosystem Stability
 - (ii) Shelford's Law of Tolerance
 - (iii) Keystone Species
 - (iv) Carbon Cycle
 - (v) Phenotypic Plasticity
 - (vi) Primary Succession

- (B) Fill in the blanks: (1×5=5)
 - (i). A ____ is a specific role or position of a species within an ecological community.
 - (ii). The ____ represents the maximum and minimum limits of environmental factors within which an organism can survive.
 - (iii). In ____, plants and animals adapt to their environment genetically over time.
 - (iv). (iv) ____ is a type of interspecies interaction where one species benefits and the other is neither helped nor harmed.
 - (v). An ecosystem's ____ refers to its ability to maintain its structure and function over time despite disturbances.

2. Write short notes on the following: (5×3=15)
 - (i) Ecological Niche
 - (ii) Trophic Efficiency
 - (iii) Mutualism

3. Write down the difference between the following: (5×3=15)
 - (i) Fundamental Niche and Realized Niche
 - (ii) Exponential Growth and Logistic Growth in Populations
 - (iii) Primary Production and Secondary Production

4. Critically evaluate the role of mycorrhizae and soil microbes in nutrient cycling. (15)

5. (A) How do invasive species affect ecosystem dynamics? Illustrate with examples. (8)
(B) Discuss the significance of ecotones in community ecology. (7)
6. (A) Analyze the importance of adaptations in plants and animals in ecosystems. (10)
(B) What is the significance of ecological pyramids? (5)
7. Evaluate the effectiveness of nutrient conservation strategies in conservation. (15)
8. Discuss the ecological implications and challenges of urbanization on natural ecosystems. (15)