

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5818

J

Unique Paper Code : 2182011203

Name of the Paper : Ecology and Ecosystems

Name of the Course : **B.Sc. Environmental Sciences / Environmental Sciences – DSE-6**

Semester : II

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **four** questions.
3. **All** questions carry equal marks.

1. (a) What are the roles of habitat heterogeneity and landscape connectivity in ecosystem resilience? (8)
(b) How would you define eco-zones, and what are their defining characteristics? (7)
2. Write short notes on the following : (3½×4=15)
 - (a) Shelford's Law of Tolerance
 - (b) Population density and Dispersion patterns
 - (c) Species associations in communities
 - (d) Detritus-based energy flow pathways

P.T.O.

3. Differentiate the following (**any three**) : (5×3=15)
- (a) Eltonian niche vs. Hutchinsonian niche
 - (b) Geometric vs. Logistic population growth
 - (c) Mutualism vs. Protocooperation
 - (d) Primary productivity vs. Secondary productivity
4. (a) Explain the climax community concept and the major models associated with it. (8)
- (b) Discuss the steps for determining ecological efficiency using energy pyramids. (7)
5. (a) Elaborate on the mechanisms by which invasive species alter community structure. (8)
- (b) Discuss nutrient conservation strategies adopted by plants in nutrient-poor environments. (7)
6. Describe different steps to undertake restoration of degraded or contaminated ecosystems. (15)