[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 4154 **H**

Unique Paper Code : 2182011203

Name of the Paper : Ecology and Ecosystems

Name of the Course : **B.Sc. Hons. Environmental Sciences - Core**

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. Answer any **four** questions. **All** Questions carry equal marks.

1. Briefly explain the following : (3×5=15)
   (a) Metapopulation
   (b) Phosphorous Cycle
   (c) Primary Productivity
   (d) Keystone Species
   (e) Ecosystem Stability

2. Write short notes on the following : (3½×4=15)
   (a) Biological Invasion
   (b) Commensalism Amensalism
   (c) Ecological amplitude Role of mycorrhizae
   (d) Nitrogen cycle and its significance Wetlands

P.T.O.

3. Differentiate between the following (**any three**) : (5×3=15)

   (a) Primary succession and Secondary succession.

   (b) Y-shaped Energy Flow Model and Universal Model.

   (c) Fundamental niche and Realized niche.

   (d) *r*-selected species and *k*-selected species.

4. (a) Discuss the concept of ecotypes and their role in adaptation. (5)

   (b) Provide a brief overview of population characteristics and explain different models for Metapopulation (after Harrison 1991). (10)

5. (a) Explore the notion of nutrient use efficiency within ecosystems, and examine the strategies employed for nutrient conservation. (7)

   (b) Elucidate the difference between natural and man-managed ecosystems. Discuss how biodiversity determines ecosystem structure and functions and impacts the human community? (10)

6. Using the concept of ecological succession, explain the natural recovery process of a forest after a wildfire. How does this process illustrate the resilience and dynamics of ecosystems? (8+7)