

Unique Paper Code : **32181301**  
Name of Paper : **Ecology and Ecosystems (Core)**  
Name of Course : **B.Sc. (Hons) Environmental Sciences**  
Semester : **III**

Duration: **3 hours**

Maximum marks: **75**

*Attempt **any four** questions. All questions carry **equal** marks.*

1. What are the limiting factors in an ecosystem, and explain how these factors affect the carrying capacity of an ecosystem? What is Liebig's Law of Minimum and discuss how it differs from Shelford's Law of Tolerance in the distribution of organisms in a given environmental condition using appropriate diagrams and graphs.
2. What are the significant attributes necessary to study the population of a species in relation to its environment? Use graphs and equations wherever required.
3. Elucidate the concept of ecological succession in detail with the help of a Lithosere or Hydrosere succession. Discuss the models for succession given by Connell and Slatyer (1977).
4. Differentiate between the structural and functional components of a pond and marine ecosystem using appropriate examples. What is ecosystem productivity, and how does it differ in different ecosystems?
5. What are biogeochemical cycles and their types? Explain the working of the Nitrogen cycle or Phosphorous cycle with a labelled diagram and the impact of human activities on any of the above cycles.
6. What is the difference between alien and invasive species? Discuss with examples the impacts of invasive species on community structure and ecosystem services.