

**2023**  
**M.Sc.**  
**Fourth Semester**  
**CORE – 12**  
**BOTANY**  
*Course Code: MBOC 4.21*  
(Ecology & Ecosystem Analysis)

*Total Mark: 70*  
*Time: 3 hours*

*Pass Mark: 28*

*Answer five questions, taking one from each unit.*

**UNIT-I**

1. Discuss the role of light in ecosystem functioning. Explain the conditions in which light can act as a limiting factor. 10+4=14
2. Describe the soil water and components of water budget equation. Discuss the critical role of atmospheric moisture for plant growth and development. 10+4=14

**UNIT-II**

3. Discuss in detail life history strategies of organisms and correlate them to survivorship curves. 7+7=14
4. Write short notes on the following: 7×2=14
  - (a) Lotka-Volterra equations
  - (b) Life table analysis

**UNIT-III**

5. Explain the popular concepts on “dominant species”. How does it differ from the concept of keystone species? 10+4=14
6. Explain the scales of diversity. Briefly discuss on diversity indices. 4+10=14

## UNIT-IV

7. Explain the methods to measure primary productivity of aquatic ecosystem. Discuss the factors affecting productivity of aquatic ecosystem. 5+9=14
8. Explain the carbon cycle. Briefly discuss the impact of climate extremes on carbon cycle. 9+5=14

## UNIT-V

9. What are the expected trends during the development of a given ecosystem? Explain with emphasis on, community energetics and community structure. 6+8=14
10. Write short notes on the following: 7×2=14
- (a) Climax concepts
  - (b) Ecosystem resistance
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