

M.Sc. (Micro) Semester - 3 (CBCS) Examination
OCT/NOV-2025 (AS PER SYLLABUS YEAR JUNE-2019)
Ecology and Environmental Microbiology (Elective (New))

Time: 2:30 Hours**Marks:70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

SECTION-I

- Que.1 Answer the following questions.
- A) Write a short note on biotic environmental factors. (07)
- B) Describe briefly the concept of metapopulation (07)
- OR
- Que.1 Explain in detail the types of interactions between species. (14)
- Que.2 Answer the following questions.
- A) Write a note on environmental pollution. (07)
- B) Explain the structure and function of Indian ecosystems. (07)
- OR
- Que.2 Discuss in detail bioremediation and phytoremediation. (14)
- Que.3 Do as direct (Attempt any seven out of eight questions each of one mark) (07)
- 1) What is the primary difference between r-selected and K-selected species?
- 2) Give an example of interspecific competition.
- 3) Define ecotone?
- 4) What is the key difference between a population and a community?
- 5) What is the significance of mineral cycling in an ecosystem?
- 6) Name the major components of an ecosystem.
- 7) Name two major terrestrial biomes.
- 8) What are the two primary principles of conservation?

SECTION-II

- Que.1 Discuss the treatment of any two industrial effluents. (14)
- OR
- Que.1 Answer the following questions.
- A) Write a short note on bioremediation of petroleum hydrocarbons. (07)
- B) Explain the management of agricultural solid waste. (07)
- C) OR
- Que.2 Discuss strategies to produce biomass and biofuel from waste. (14)
- OR
- Que.2 Answer the following questions.
- A) Write a note on biosurfactants (07)
- B) Explain molecular methods for pollution monitoring (07)
- Que.3 Do as direct (Attempt any seven out of eight questions - each of one mark). (07)
- 1) What is bioaugmentation?
- 2) How do microbes clean up petroleum hydrocarbons?
- 3) What are xenobiotics? Give one example.
- 4) Define vermiculture in the context of waste management.
- 5) What is the primary source for producing biogas?
- 6) Give one example of a chemical method used in pollution monitoring.
- 7) What are GMOs?
- 8) How can microbes be used as pollution indicators?
