647510 **MSC3MicE316B** **Seat No :_____**

M.Sc. (Micro) Semester - 3 (*CBCS*) Examination
OCT/NOV-2024 (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 the different levels of species diversity and the significance of their measurement. **(07)**

(B) Describe interspecific competition. **(07)**

OR

Que-1 Explain in detail the interplay between biotic and abiotic factors. **(14)**

Que-2 **Answer the following questions.**

(A) Write a note on the biogeographical zones of India. **(07)**

(B) Explain key drivers of global environmental change. **(07)**

OR

Que-2 Discuss the structure and function of the aquatic ecosystems of India. **(14)**

Que-3 **Do as direct (Attempt any seven out of eight questions each of one mark)** **(07)**

(1) Define r-selected species and provide two examples.
(2) Define a deme.
(3) What is metapopulations?
(4) Define symbiosis.
(5) What is phytoremediation?
(6) Differentiate between in-situ and ex-situ bioremediation.
(7) What is the significance of buffer zones in biosphere reserves?
(8) Enlist key components of ecosystem structure.

SECTION-II

Que-1 Discuss the bioremediation of xenobiotics, and petroleum hydrocarbons. **(14)**

OR

Que-1 **Answer the following questions.**

(A) Write a short note on solid waste management in agriculture. **(07)**

(B) Explain common treatment methods used for pharmaceutical industry effluents. **(07)**

Que-2 Discuss the production of biogas and biofuel from waste. **(14)**

OR

Que-2 **Answer the following questions.**

(A) Write a note on GMOs and biosafety. **(07)**

(B) Explain molecular methods used 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) What is biosorption?
(3) What are the primary nutrients used for biostimulation?
(4) Enlist the human health implications of pesticide overuse.
(5) What are the benefits of using biofertilizers in agriculture?
(6) What are the primary goals of an environmental impact assessment (EIA)?
(7) What is composting?
(8) Enlist primary pollutants monitored using chemical methods.

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