

[This question paper contains 4 printed pages.]

1453

Your Roll No. ....

**B.Sc. (Hons.) / II**

**A**

**MICROBIOLOGY – Paper IX**

**(MICROBIAL ECOLOGY)**

**(Admissions of 2004 & onwards)**

*Time : 3 Hours*

*Maximum Marks : 60*

*(Write your Roll No. on the top immediately  
on receipt of this question paper.)*

*Attempt Five questions in all, selecting  
at least two questions from each Section.*

*Attempt Section A and B on separate answer-books.*

*All questions carry equal marks.*

**SECTION – A**

1. Write the ecological significance of the following microorganisms, with examples :
  - (a) Nematophagous fungi
  - (b) Bioluminescent bacteria
  - (c) Ectomycorrhizal fungi
  - (d) Normal microbial flora present on human skin

**P.T.O.**

(e)  $N_2$  fixing cyanobacteria

(f) Rumen bacteria (2×6=12)

2. (a) Write short notes on the following :

(i) Amensalism

(ii) Oxidative phase of S-cycle (4×2=8)

(b) Explain the following terms :-

(i) Ecological pyramids

(ii) Eutrophication (2×2=4)

3. (a) Fill in the blanks :

(i) The black zone present in Winogradsky column represents the growth of \_\_\_\_\_ bacteria.

(ii) \_\_\_\_\_ is a part of normal microbial flora of phyllosphere.

(iii) \_\_\_\_\_ is an example of VAM fungi.

(iv) In soil profile, zone of leaching is also called \_\_\_\_\_.

(v) \_\_\_\_\_ bacteria shows hyperparasitism.

(vi) \_\_\_\_\_ and \_\_\_\_\_ are examples of white rot fungi. (1×6=6)

- (b) Discuss with the help of examples, "The study of microbial ecology helps in the understanding of other fields of microbiology and their application." (6)

### SECTION - B

4. Write short notes on any three of the following :-
- (a) Sanitary Landfills
  - (b) Septic tank
  - (c) Activated sludge process
  - (d) Biodeterioration of leather (4×3=12)
5. (a) Define the following terms :-
- (i) Bioaugmentation
  - (ii) Biostimulation
  - (iii) Biomagnification
  - (iv) B.O.D. (1×4=4)
- (b) What is film-mulching technique? (2)
- (c) Why does foaming of water bodies occur? How can it be controlled? (3)
- (d) What are man-holes? What is their function in the sewerage system? (3)

6. (a) Comment upon the biodegradability of propanil in the environment. (4)
- (b) What is the fate of an oil spill in marine ecosystems? (4)
- (c) What is sewage? What is its microbial composition? (4)