Your Roll No...............

Sr. No. of Question Paper : 2818   GC-4

Unique Paper Code   : 32531429

Name of the Paper   : Environmental Microbiology

Name of the Course   : B.Sc. (Hons.) Microbiology

Semester   : IV

Duration : 3 Hours

Maximum Marks : 75

Instructions for the Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any **five** questions in all.

3. Attempt alll parts of a question together.

4. All questions carry equal marks.

1. Differentiate between any **five** of the following :

   (i) Oligotrophic lakes and Eutrophic lakes

   (ii) Autotrophic and heterotrophic succession

   (iii) Spore dispersal in *Pilobolus* and *Sphaerobolus*

(iv) Predation and parasitism

(v) Synergism and mutualism

(vi) Neuston and pleuston   (3×5=15)

2. Write short notes on any **three** of the following :

(i) Phosphorus cycle

(ii) Activated sludge process

(iii) Sanitary landfills

(iv) Rumen Microflora   (5×3=15)

3. (a) Write the ecological significance of the following :

(i) *Zoogloea*

(ii) *Thiobacillus*

(iii) Mycorrhiza

(iv) *Dunaliella*

(v) *Arthrobotrys*   (2×5=10)

(b) How do microorganisms survive under high temperature conditions ?   (3)

(c) Why is COD greater than BOD ?   (2)

4. (a) Explain any **six** of the following terms :

(i) Bioaugmentation

(ii) Biosurfactant

(iii) Pioneer community

(iv) Rhizosheath

(v) Autochthonous microorganisms

(vi) Lotic habitat

(vii) Epilimnion   (2×6=12)

(b) Comment upon soil profile.   (3)

5. (a) Discuss cellulose degradation by microorganisms.   (4)

(b) Explain nitrate reduction in an ecosystem.   (4)

(c) What are lichens ?   (2)

(d) Comment upon the biodegradability of DDT.

6. (a) How can we detect faecal contamination in a water sample by membrane filter technique ?   (4)

P.T.O.

(b) How do bioluminescent bacteria contribute to the behaviour of certain fishes ?   (4)

(c) How does homeostasis contribute to community stability ?   (3)

(d) Write a note on Iron cycle.   (4)