

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 1837

C

Roll No.....

Unique Paper Code : 253403

Name of the Paper : MIHT-407 : Microbial Ecology

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

Semester : IV

Duration : 3 Hours

Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions in all.
3. **All** questions carry equal marks.

1. (a) Mention the important contributions of the following scientists :

(i) Beijerinck

(ii) A.J. Kluyver

(iii) Selman A. Waksman

(2×3=6)

- (b) Discuss briefly :

(i) Soil triangle

(ii) Bioleaching

(iii) Spore dispersal in *Sphaerobolus*

(3×3=9)

2. Differentiate between the following (**any five**) :

(i) Ammonification and nitrification

(ii) Predation and parasitism

(iii) Ectomycorrhiza and endomycorrhiza

(iv) Euphotic and aphotic zone

(v) Rhizosphere and root free soil

(vi) BOD and COD

(3×5=15)

P.T.O.

3. Write short notes on the following :
- (i) Syntrophism
 - (ii) Amensalism
 - (iii) Hemicellulose degradation
 - (iv) Rumen microflora
 - (v) Nitrate pollution
- (3×5=15)
4. (a) Give the ecological significance of the following (**any six**) :
- (i) Brown rot fungi
 - (ii) *Azotobacter*
 - (iii) VAM fungi
 - (iv) Halophiles
 - (v) *Bdellovibrio*
 - (vi) Psychrophiles
 - (vii) *Arthrobotrys*
- (2×6=12)
- (b) Give a brief account of biodeterioration of textiles. (3)
5. (a) What is the role of pioneer organisms in establishing climax community? (3)
- (b) Why is carbon cycling restricted in bogs? (3)
- (c) Explain the use of rotating biological contractor in sewage treatment. (3)
- (d) List different methods of disposal of solid wastes. Describe any one of these methods in detail. (5)
- (e) What is pleuston? (1)
6. (a) Discuss nitrogen fixation by actinobacteria? (3)
- (b) Discuss the different zones observed in Winogradsky column. (4)
- (c) Why is lignin biodegradation difficult? (3)
- (d) Define the following terms :
- (i) Compensation depth
 - (ii) Benthos
 - (iii) Epilimnion
 - (iv) Swamps
 - (v) Hypolimnion
- (1×5=5)