

Roll No. :

Total No. of Questions : 16]

[Total No. of Printed Pages : 3

SEM-3020

M.Sc. (IIIrd Semester) Examination, 2022

MICROBIOLOGY

Paper - MBCC-301

(Microbial Ecology and Environmental Biotechnology)

Time : 3 Hours]

[Maximum Marks : 40

Section-A

(Marks : 1 × 10 = 10)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries 1 mark.

Section-B

(Marks : 3 × 5 = 15)

Note :- Answer any *five* questions by selecting at least *one* question from each Unit (Answer limit **200** words). Each question carries **3** marks.

Section-C

(Marks : 5 × 3 = 15)

Note :- Answer any *three* questions by selecting *one* question from each Unit (Answer limit **500** words). Each question carries **5** marks.

Section-A

1. (i) Define Saltpans.

(ii) What do you mean by Estuary ?

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- (iii) Differentiate between droplets and aerosols.
- (iv) Name four major water borne bacterial diseases.
- (v) Write major functions of Omasum.
- (vi) Very briefly explain the interaction found in lichens.
- (vii) What do you mean by microbial detoxification ?
- (viii) Define biodeterioration.
- (ix) What is solids retention time ?
- (x) What does Xenobiotic mean ?

Section–B

Unit–I

- 2. Discuss methods of air quality assessment.
- 3. Explain the importance of droplet nuclei and aerosols.
- 4. Write a note on mangrove ecosystem.

Unit–II

- 5. What do you mean by Synergism ? Explain with examples.
- 6. Give a brief account of the process of development of microbial communities.
- 7. Explain Gause and Hardin's principle of competition.

Unit–III

- 8. What do you mean by subterranean microbes ? Discuss their environment.
- 9. Write an explanatory note on types of wastes and their characterization.
- 10. What do you mean by trickling filters ? Write a note on principle and applications of trickling filters.

Section-C

Unit-I

11. Write an explanatory note on waterborne diseases.
12. What do you mean by potability of water ? Explain methods to assess the microbiological quality of water.

Unit-II

13. Write a detailed note on oxidative transformation of iron and ammonia.
14. Write an explanatory note on microbial interactions taking place in rumens.

Unit-III

15. Write and explain various methods of wastewater treatment.
16. (a) Differentiate between biodegradation, Bioremediation and Biodeterioration.
(a) Write a note on microbial degradation of leather.