

Roll No. : .....

Total No. of Questions : 16 ]

[ Total No. of Printed Pages : 3

# SMIC-320

M.Sc. (IIIrd Semester) Examination, 2021

## MICROBIOLOGY

Paper - MB-301

(Microbial Ecology and Environmental Biotechnology)

Time : 1½ Hours ]

[ Maximum Marks : 40

### Section-A

(Marks : 1 × 10 = 10)

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

### Section-B

(Marks : 3 × 5 = 15)

**Note :-** Answer all *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 each

1. (i) Name *two* Water Borne Diseases.
- (ii) What do you mean by Salt Pan ?

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- (iii) What is Andersen Bioaerosol Sampler ?
- (iv) Define a Droplet Nuclei.
- (v) Write an example of synergism in Microbid World.
- (vi) Write names of different parts of Rumen Stomach.
- (vii) What type of interaction is found among members of Lichen ?
- (viii) What are Subterranean Microbes ?
- (ix) What are Trickling Filters.
- (x) What is Biological Oxidation Demand ?

**Section-B**

3 each

**Unit-I**

- 2. Write a note on Droplet Nuclei and their significance.
- 3. Write a note on methods of Water Quality Assessment.
- 4. Discuss Fresh Water Ecosystem.

**Unit-II**

- 5. Explain Oxidative Transformation of Iron.
- 6. Write short note on Parasitism and Antagonism in Microbial World.
- 7. Explain development of Microbial Communities.

**Unit-III**

- 8. Write a note on organic wastes present in Water.
- 9. Write a note on Physical, Chemical and Biological characteristics of Waste Water.
- 10. What do you mean by Biodeterioration ? Explain with examples.

**Section-C**

5 each

**Unit-I**

11. Write detailed notes on the following :
  - (a) Methods of Air Sampling
  - (b) Methods of enumeration of Air Microorganisms
12. Write a detailed note on water borne diseases caused by Bacteria and Viruses.

**Unit-II**

13. Write an explanatory note on Rumen Microbiology.
14. Explain the following :
  - (a) Gause and Hardin's principle of competition
  - (b) Ammonia Oxidation

**Unit-III**

15. Explain aerobic and anaerobic waste water treatment methods.
16. Write notes on the following :
  - (a) Biodegradation of Paper
  - (b) Microbial degradation of pesticides