

Roll No. : .....

Total No. of Questions : 11 ]

[ Total No. of Printed Pages : 3

# **BFMS-432**

**M.Sc. (Final) Examination, 2023**

**MICROBIOLOGY**

Paper - VI

**(Microbial Ecology and Environmental Biotechnology)**

*Time : 3 Hours ]*

*[ Maximum Marks : 75*

**Section-A**

**(Marks : 2 × 10 = 20)**

*Note :-* Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

**Section-B**

**(Marks : 5 × 5 = 25)**

*Note :-* Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

**Section-C**

**(Marks : 10 × 3 = 30)**

*Note :-* Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

**Section-A**

1. (i) Differentiate between droplets and aerosols.
- (ii) Name *four* major water borne bacterial diseases.
- (iii) What do you mean by Symbiosis ? Give *two* examples from microbial world.

**BRI-336**

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**BFMS-432** P.T.O.

- (iv) What is Biofilm ? Why is it Important ?
- (v) What do you mean by Microbial Detoxification ?
- (vi) What type of photosynthesis is found in phototrophic purple bacteria and green sulfur bacteria ?
- (vii) What is Solids Retention Time ?
- (viii) What is Saccharification ? Why is it important ?
- (ix) Define Biodeterioration.
- (x) What does xenobiotic mean ?

**Section-B**

2. What is Eutrophication ? Discuss its causes, types and effects.

*Or*

What are droplet nuclei and aerosols ? Add a note on methods used for assessment of air quality.

3. Write a note on the principle of competitive exclusion.

*Or*

Explain the defence mechanisms employed by the bacteria.

4. Explain the process of development of Microbial Communities.

*Or*

Give a brief account of the oxygenic photosynthetic bacteria.

5. Write a note on composting from solid waste.

*Or*

What do you mean by Subterranean Microbes ? Discuss their environment.

6. Write an explanatory note on Microbial Degradation of Wood and Paper.

*Or*

How are genetically modified microorganisms important for bioremediation ?

### Section-C

7. What do you mean by Potability of Water ? Explain methods to assess the microbiological quality of water.
8. Write an explanatory note on microbial interactions taking place in rumens.
9. Write a detailed note on oxidative transformation of iron and sulfur.
10. Write and explain various methods of wastewater treatment.
11. (a) Differentiate between Biodegradation, Bioremediation and Biodeterioration.  
(b) Write a note on microbial degradation of Leather.