

Seat No. : \_\_\_\_\_

# ML-111

May-2022

B.Sc., Sem.-V

## SE-305 : Microbiology (Environmental Microbiology)

Time : 2 Hours]

[Max. Marks : 50

- Instructions :**
- (1) All questions in Section-I carry equal marks.
  - (2) Attempt any **three** questions in Section-I.
  - (3) Section-II is compulsory.

### Section – I

1. (A) Define Biofilm. Explain formation steps for Biofilm. 7  
(B) Explain Extreme Environment as a Microbial habitat. 7
2. (A) Enlist Microbial habitats and explain soil as Microbial habitat. 7  
(B) Describe soil pores and movement of gases for Microbial activity. 7
3. (A) Explain symbiotic Nitrogen Fixation by Microorganisms. 7  
(B) Discuss the Rumen Ecosystem. 7
4. (A) Discuss role of Microorganisms in Biodegradation of Cellulose and Lignin. 7  
(B) Explain the role of Microorganisms in Acid Mine Drainage. 7
5. (A) Justify-Lichens as a Biological indicator of Air pollution. 7  
(B) Explain any one biological process used for treating Liquid waste. 7
6. (A) What are Alkyl Benzyl Sulfonates and explain their role in environmental pollution ? Discuss their Biodegradation strategies. 7  
(B) Enlist all Biological treatment methods for Solid waste management and explain any two of them. 7
7. (A) Explain MEOR. 7  
(B) Write a note on Bioleaching of Metals. 7

8. (A) Discuss the role of Microbes in Bioremediation of Petroleum Products. 7  
(B) Write a note on Microbial Pesticides. 7

### Section – II

9. Answers the following in 1-2 lines (any 8). 8
- (1) Give one example of Commensalism. 1
  - (2) Give example of Mutualism. 1
  - (3) Define Competition. 1
  - (4) Name any two bacteria involved in Geochemical cycles. 1
  - (5) What are Ruminants ? 1
  - (6) What are Algal blooms ? 1
  - (7) Define Methanotrophs. 1
  - (8) What is humus ? 1
  - (9) Name any two organisms capable of degrading Cellulose. 1
  - (10) Give any two advantages of Trickling filters. 1
  - (11) Define Bioleaching. 1
  - (12) Mention any two names of Microbial pesticides. 1
  - (13) Define Biomagnification. 1
  - (14) Give advantages of *Ex situ* Bioremediation over *in situ* Bioremediation. 1
  - (15) Name the co-factor responsible for Nitrogenase activity. 1
  - (16) Give any two advantages of Rotating Biological Contractors. 1
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