



Seat No. : _____

ND-102

November-2025

B.Sc., Sem.-V

**MI-305 : Microbiology
(Environmental Microbiology)**

Time : 2:30 Hours]

[Max. Marks : 70

- Instructions :** (1) All questions are compulsory.
(2) Draw figures wherever necessary.
(3) Figures to the right indicates marks.

1. Explain structure and composition of soil in details. **14**

OR

1. (A) Discuss extremophiles on the basis of temperature requirements. **7**

1. (B) Write a note on biofilms and microbial mats. **7**

2. Explain symbiotic and non-symbiotic nitrogen fixation by microorganisms. **14**

OR

2. (A) Discuss acid mine drainage in details. **7**

2. (B) Write a note on rumen ecosystem. **7**

3. Define Xenobiotic compound. Explain the role of microorganisms in degradation of chlorinated compounds. **14**

OR

3. (A) Discuss composting as solid waste treatment and disposal technique. **7**

3. (B) Describe in detail activated sludge process. **7**

4. Discuss Microbially enhanced oil recovery. **14**

OR

4. (A) Explain bacterial pesticides. **7**

4. (B) Write an account on biodegradable plastics. **7**

5. Answer in short : (Any **seven**)

14

- (1) Define ecological niche.
 - (2) What are consortia ?
 - (3) Define Barophile.
 - (4) Name chemical ingredients of humus.
 - (5) Define Biodegradation.
 - (6) Give two examples of green house gases.
 - (7) Give two advantages of trickling filter technique.
 - (8) Name any two microorganisms used in anaerobic sludge digestion.
 - (9) What is biomagnification ?
 - (10) Give two examples of microorganisms used in bioleaching of copper.
 - (11) Define Bioremediation.
 - (12) Give two examples of ethanol producing microorganisms.
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