Seat No. : _____

DS-102

December-2025

B.Sc., Sem.-III

MI-202 : Microbiology

(Soil & Water Microbiology) (New)

Time : 2:30 Hours] **[Max. Marks : 70**

Instructions : (1) **All** questions are compulsory.
(2) Figures on the right indicate marks.
(3) Mention correct question number against the answer.
(4) Draw figures wherever necessary.

1. Describe different methods used to study soil micro flora. **14**

OR

1. (A) Write briefly with suitable microbial examples : Antagonism and Parasitism. **7**
(B) Write a note on Mycorrhizae and its significance. **7**

2. Explain Nitrogen Cycle. **14**

OR

2. (A) Write a note on role of micro-organisms in increasing soil fertility. **7**
(B) Describe Carbon cycle. **7**

3. Discuss operation of drinking water purification plant along with flow diagram. **14**

OR

3. (A) Write a note on nuisance microorganisms in water. **7**
(B) Discuss water borne diseases. **7**

4. Explain anaerobic sludge digestion and composting for solid waste processing. **14**

OR

4. (A) Draw overall installation and cross section of septic tank. Explain how it works. **7**
(B) Describe Trickling filter as a method for waste water treatment. **7**

5. Give short and specific answers in **1-2** lines only (Any **seven**) : **14**

(1) Define : Rhizosphere.

(2) Write full form of PGPR and VAM.

(3) Define Synergism with one example.

(4) Write two names of Lignolytic microorganisms.

(5) What is Anammox reaction ?

(6) Write two examples of bacteria involved in iron cycle.

(7) Write two examples of pollution indicator bacteria other than coliforms.

(8) What is P-A test ?

(9) Write two problems associated with disposal of untreated waste.

(10) Define : COD and TOD.

(11) What is composting ?

(12) Give two disadvantages of oxidation ponds.