

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

# MD-203

May-2025

B.Sc., Sem.-II (Repeater)

MI-103 : Microbiology

(Basic Bacteriology)

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. Give a descriptive note on structural complexities of bacterial cell wall of eubacteria and archaebacteria. 14

**OR**

1. (A) Describe the ultrastructure of bacterial flagella and comment on its arrangement. 7  
(B) Explain the principle and mechanism of Gram staining. 7

2. Elaborate the structural features of a bacterial endospore and comment on its formation and germination. 14

**OR**

2. (A) Differentiate between eubacteria and archaebacteria. 7  
(B) Give an explanatory note on the structural and functional properties of bacterial cell membrane. 7

3. Describe the nutritional classification of bacteria based on the source of energy, electron donor and carbon. 14

**OR**

3. (A) Discuss the nutritional requirements for the growth of bacteria. 7  
(B) Explain the techniques for cultivation of anaerobic bacteria. 7

4. Describe different selective methods to obtain pure culture of desired bacteria. **14**

**OR**

4. (A) Describe various cultural characteristics of bacteria on solid media. **7**

(B) Explain the methods used for maintenance and preservation of pure cultures. **7**

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

(1) What are Acid-fast bacteria ?

(2) Define : spheroplasts

(3) Name the primary stain and counter stain used in Gram staining.

(4) Define plasmid.

(5) What is the function of mesosomes ?

(6) What type of ribosomes are found in eubacteria ?

(7) What are lithotrophs ? Give suitable example.

(8) Give any two examples of carbon sources used by heterotrophs.

(9) Name any two anaerobic bacteria.

(10) Name any two culture collection centres.

(11) What is a pure culture ?

(12) Enlist various methods used for isolation of bacteria on solid media.

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