

Seat No. : _____

MH-208

May-2025

B.Sc., Sem-II

DSC-C-BT-121 (T) : Biotechnology (Major) (Cell Biology)

Time : 2:00 Hours]

[Max. Marks : 50

1. Explain the principles, techniques, and applications of biotechnology, focusing on Indian contributions. 10
- OR**
1. (A) Describe the evolution of Prokaryotic and Eukaryotic Cell. 5
(B) Describe Miller's Experiment and its importance with diagram. 5
2. Write the ultrastructure, chemistry and function of bacterial and fungal cell wall with diagram. 10
- OR**
2. (A) Write a note on the structure and function of microfilaments. 5
(B) Explain the types of vesicles and their importance in cellular transport. 5
3. Write a note on the structure and mechanism of action and function of the Golgi body in detail with a diagram. 10
- OR**
3. (A) Explain the ultrastructure and function of mitochondria. 5
(B) Describe nuclear transport by NPC. 5
4. Explain the types of tumors, their molecular basis, and developmental stages. 10
- OR**
4. (A) Explain the difference between Apoptosis and Necrosis. 5
(B) Discuss cell division by mitosis with suitable diagram. 5
5. Answer the following : (any **ten** out of **twelve**) 10
 - (1) Who Proposed cell theory ?
 - (2) Write the full form of LUCA.
 - (3) Which theory of evolution is most widely accepted ?
 - (4) Write two functions of the cell wall.
 - (5) What is the difference between active transport and passive transport ?
 - (6) What is the importance of plasmodesmata ?
 - (7) Give a diagrammatic presentation of chloroplast.
 - (8) What is the role of peroxisomes ?
 - (9) Name a few organelles specific to plant cells.
 - (10) What is senescence ?
 - (11) What is the significance of meiosis ?
 - (12) What is the G₀ phase ?