



Seat No. : _____

NN-124

November-2025

B.Sc., Sem.-III

DSC-C-BT-232T (Major) : Biotechnology

(Cell Culture Techniques)

Time : 2:00 Hours]

[Max. Marks : 50

1. Write a detailed account of the Isolation and cultivation of microorganisms with diagram. **10**

OR

1. (A) Write a short note on anaerobic cultivation of microorganisms. **5**
1. (B) Write the differences between Monochrome and differential staining. **5**

2. Explain in detail the various types of macronutrients and micronutrients, in a plant tissue culture media. **10**

OR

2. (A) Write the steps of surface sterilization of explants. **5**
2. (B) Write few advantages of Plant cell and tissue culture. **5**

3. Write a detailed account of Stem cell culture technology and its applications. **10**

OR

3. (A) Write the difference between Anchorage dependent and non-anchorage dependent cells. **5**
3. (B) Write a short note on the physicochemical properties of the culture medium. **5**

4. Explain in detail lytic and lysogenic cycles of bacteriophages with neat labelled diagram. **10**

OR

4. (A) Explain replication in λ phage. **5**
4. (B) Write the various characteristics of Virus. **5**

5. Answer the following : (any **ten** out of twelve)

10

- (1) What is mixed culture ? Give an example.
 - (2) Write one difference between slant and butt media.
 - (3) Name a few pure culturing techniques.
 - (4) Define subculture.
 - (5) Write the examples of cytokinins, auxins and gibberellins hormones.
 - (6) What is the use of B5 media ?
 - (7) What is a callus culture ?
 - (8) Name a few sterilization techniques used in animal tissue culture.
 - (9) Give examples of a Natural, Semi-synthetic and Synthetic medium.
 - (10) Write the full form of TMV.
 - (11) Write a difference between T4 and λ phage.
 - (12) Draw a labelled diagram of a general λ bacteriophage.
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