

9. Write short notes on the following : 4,4,4,2

- (i) Enzymes
- (ii) Cytokines
- (iii) Hormones
- (iv) Monoclonal antibody.



No. of Printed Pages : 04

Roll No.

35002

**M. Sc. (NEP-2020)
EXAMINATION, 2025**

(Second Semester)

BIOTECHNOLOGY

M24-BTY-202

Animal Cell and Tissue Culture

Time : 3 Hours]

[Maximum Marks : 70

Before answering the question-paper, candidates must ensure that they have been supplied with correct and complete question-paper. No complaint, in this regard will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. Q. No. 1 is compulsory. All questions carry equal marks.

1. Write short notes on the following : $7 \times 2 = 14$

- (i) Advantages of Cell and Tissue Culture
- (ii) Preparation and sterilization of cell and tissue culture
- (iii) Role of serum and supplements
- (iv) Propagation and subculture in suspension
- (v) Dilution and suspension cloning
- (vi) Enzyme activity and antigen markers
- (vii) Tissue plasminogen activators.

Unit I

2. Explain aseptic area, incubation, storage and specialized equipments in requirements of cell and tissue culture. 14
3. What do you know about substrate, choice of culture vessel, treated surfaces ? 14

Unit II

4. Describe serum free media including advantages, disadvantages of serum and serum free media. What do you understand by replacement of serum ? 14
5. What are cell separation techniques ? Explain techniques of cell culture including batch, batch fed and continuous cultures. 14

Unit III

6. What is Criteria for subculture ? Explain subculture of monolayer cells, growth cycle and split ratio. 14
7. What is need for cell line characterization ? Explain DNA content, RNA content and protein expression. 14

Unit IV

8. Write short notes on the following : $2 \times 7 = 14$
- (i) Stemcell technology
 - (ii) Cryopreservation and cell banking.