

- (c) Explain the advantages and disadvantages in embryo transplant. 5
- (d) Explain the criteria used to improve reproductive efficiency of superior germplasm. 5

OR

- (p) Differentiate between the selective and cross - breeding. 5
- (q) What are the specific steps in embryo freezing ? 5
- (r) Discuss In - Vitro fertilization of embryo culture. 5
- (s) Advantages and disadvantages of adult cell cloning. 5



Third Semester M. Sc. Examination

BIOTECHNOLOGY

Paper - IX (3 BTB 1)

Animal Cell Science and Technology

P. Pages : 4

Time : Three Hours]

[Max. Marks : 100

- Note :** (1) All questions are compulsory and carry equal marks.
(2) Draw suitable diagrams wherever necessary.

1. Attempt the following :—

- (a) Give the merits of animal cell/tissue culture. 5
- (b) Describe the general characteristics of organotypic culture. 5
- (c) Describe the organization of animal cell in brief. 5
- (d) Role of primary cell lines. 5

OR

- (p) Explain the Biology of cell line with suitable examples. 5

- (q) Distinguish between primary cell culture and established cell line. 5
- (r) Describe the characteristics of histotypic culture. 5
- (s) Explain the organ culture technique. 5

2. Describe the equipments and infrastructure required for the animal cell culture laboratory with the special reference to cryogenic storage.

OR

Describe the media components, selection and screening of appropriate medium for animal cell culture. 20

3. Describe the following :—

- (a) Basic diversity and selection of cell culture. 5
- (b) Methods of cell synchronization. 5
- (c) Maintenance and characterization of the Adherent and non – adherent cells. 5
- (d) Apoptosis assay. 5

OR

- (p) Nomenclature and authentication of cell line. 5
- (q) Cell counting tools. 5
- (r) Assay system for cytotoxicity. 5
- (s) Importance of risks and safety in the animal cell culture. 5

4. Define tissue engineering ? Describe the design principle, building blocks, scientific challenges and strategies for the 3 D artificial tissue.

OR

What are stem cells, and why are they important in animal cell culture ? Also explain the similarities and differences between embryonic and adult stem cells in detail. 20

5. Attempt the following :—

- (a) Represent diagrammatically the system of animal breeding. 5
- (b) In-vitro maturation of Oocytes. 5