(i) Printed Pages : 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 2 5 9 4 6

Exam. Code : 0 4 3 7

M.Sc. Bio-Technology 3rd Semester

(2124)

ANIMAL CELL SCIENCE AND TECHNOLOGY

Paper : MBIO-301

Time Allowed : Three Hours] **[Maximum Marks : 80**

Note :— Attempt **five** questions in all. Q. No. **1** is compulsory. Attempt **one** question from each unit. All questions carry equal marks.

1. Short answers :

   (a) Enlist features of continuous cell lines.

   (b) How buffering in animal culture medium is achieved ?

   (c) What is contact inhibition of cells ?

   (d) Give two applications of transgenic mice.

   (e) What are ethical implications of reproductive cloning ?

   (f) What are scaffolds and their use in tissue engineering ?

   (g) What is protein free media ?

   (h) What is immortalization of cells ? 2×8=16

UNIT—I

2. (a) Discuss use of CO_2 incubator and laminar air flow in animal cell culture laboratory. 8

   (b) What is a growth medium ? Give its components and their roles in animal cell growth. 8

3. (a) Give various methods to evaluate cell viability. What is the role of viability assays in cytotoxicity determination ? 8

   (b) What is serum free media and its advantages ? How cells can adapt to serum free media ? 8

UNIT—II

4. (a) Discuss the use of trypsin and collagenase in tissue disaggregation. 8

   (b) Explain hybridoma technology and humanized antibodies. 8

5. (a) Discuss the applications of stem cells in tissue engineering with suitable examples. 8

   (b) Write notes on :

   (i) Cell adhesion molecules.

   (ii) Monolayer scale up. 8

UNIT—III

6. (a) Give in detail methods for the production of transgenic animals. 8

(b) How animal biotechnology can be used in pest control ? 8

7. (a) Discuss the applications of transgenic fish and cattle. 8

(b) What role does biotechnology play in sericulture and aquaculture ? 8

UNIT—IV

8. (a) What is therapeutic cloning ? Give its applications. 8

(b) What is *in vitro* fertilization ? Explain methodology. 8

9. (a) How cryopreservation aids in biodiversity conservation ? 8

(b) Explain in detail embryo transfer techniques. 8