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

(ii) Questions : 9 Sub. Code : 1 7 9 7 5

Exam. Code : 0 0 3 5

B.Sc. (Hons.) Biotechnology 3rd Semester

(2124)

ANIMAL CELL CULTURE

Paper : BIOT-305-T

Time Allowed : Three Hours] **[Maximum Marks : 67**

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

1. (a) What are proliferation and differentiation factors ?

(b) What are paracrine signals and their role in animal cell development ?

(c) What is protein free media ?

(d) Give features of transformed animal cells.

(e) What is the role of CO_2 incubators ?

(f) What is cell viability ? Enlist two methods of viability assessment.

(g) What are cryoprotectants and their use ?

(h) What are ethical issues in animal biotechnology ?

(i) What is ECM and its functions ?

(j) What is the importance of cell line authentication ?

1.5×10

UNIT—I

2. (a) Discuss major historical events in the development of animal cell cultures. 7

   (b) What is cell adhesion ? Give various types of cell adhesion molecules. 6

3. (a) Give roles of the following lab equipments-inverted microscope, laminar flow, autoclave, culture vessels. 6

   (b) How natural conditions can be stimulated for animal cell growth *in vitro ?* 7

UNIT—II

4. (a) Explain simple growth medium and its components. 7

   (b) Discuss enzymatic disaggregation of tissues. 6

5. (a) What is a secondary culture ? How subculture of monolayer is performed ? 7

   (b) Differentiate between finite and infinite cell lines. 6

UNIT—III

6. (a) What are cytotoxicity assays ? Give its applications. 7

   (b) What is cell differentiation and its significance ? Which parameters control cell differentiation *in vitro* ? 6

7. (a) Enlist six commonly used animal cell lines, give their origin and characteristics. 7

   (b) What is growth ? How it can be measured in lab ? 6

UNIT—IV

8. (a) Give techniques for cell line characterization and identification. 7

   (b) What is cell transformation ? How is animal cell immortalized in *vitro* ? 6

9. (a) What is cell fusion ? Give methodology of production of monoclonal antibodies. 7

   (b) Write notes on :

   (i) Biosafety.

   (ii) Cryopreservation. 6