

Exam.Code:0909

Sub. Code: 6709

1078

**B.E. (Bio-Technology) Fifth Semester
BIO-513: Animal Cell Culture and Biotechnology**

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

- I. Write a short note on following:-
- Principle of CO₂ incubator
 - Histotypic culture
 - Characteristic features of finite cell line
 - Types of biological extracts used as culturing medium
 - Importance of feeder layer
 - Advantage of Embryonic stem cells
 - Relationship between growth cycle and split ratio used for sub culturing
 - Name two Anti-mycoplasma agents
 - Name two scale up techniques used for adherent culture
 - Rationale behind cryopreservation (10x1)

UNIT – I

- II. a) What do you understand by scaling up animal cell culture? How permeable membranes can be exploited for scaling up of animal cell culture.
- b) Enlist, different cell separation methods. Describe in detail immune based cell separation techniques. (5,5)
- III. a) What is cell cloning in ACC. How many different ways cell cloning can be carried out? Also give two methods used of physically isolating cloned cell colonies.
- b) How many ways survival of a cloned cell culture can be improved in animal cell experiments? (5,5)
- IV. a) Define cell culture medium. Give some examples of media and their specification. Also elaborate on major disadvantages associated with serum media formulations.
- b) What do you understand by primary cell culture? Shed light on different methods used for isolating primary cell culture. Differentiate between enzymatic and mechanical methods of raising primary cell culture. (5,5)

P.T.O.

(2)

UNIT - II

- V. a) Why characterization for cell line is mandatory? How this can be achieved for a newly developed cell line. Elaborate on isoenzymes.
b) Write a short note on founder animals and their importance. (7,3)
- VI. a) What are transgenic animals? How many ways transgenics can be generated? Discuss any two methods in detail.
b) Elaborate on detailed methodology to produce a mouse model of a disease (for any disease). (5,5)
- VII. a) Write a short note on embryo transfer technology and the associated advantages. Also provide small description of the TVF procedure employed.
b) What are the characteristic features of stem cells? Differentiate between adult and embryonic stem cells. (5,5)

x-x-x