Exam.Code:1032
Sub. Code: 7868

1128
M. E. (Bio-Technology)
First Semester
Elective – I
ME-BIO-105: Cell and Cell Technology

Time allowed: 3 Hours **Max. Marks: 50**

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

x-x-x

I. Write short note on following:-

a) Importance of cryopreservation
b) Features of organotypic culture
c) Type of extracellular matrix
d) Biology of cultured cells
e) Benefit of cell extracts
f) Application of holding media
g) Potential of xenotransplantation
h) Advantage of multiplex PCR
i) Detection of mycoplasma contamination
j) Use of therapeutic cloning (10x1)

UNIT – I

II. a) What do you mean by serum free medium? What advantages this media has? Also elaborate on methodology to formulate serum free media.

b) Give description of methods used for isolating primary cell culture. Also give advantages of warm methods of trypsinization over other methods used for isolating primary ceil culture. (5,5)

III. a) Give detailed account of intercellular junctions in an animal cell culture. What characteristic feature cell-culture acquire due to these junction. How junctions are manipulated during experimental procedures.

b) Enlist various equipments and facilities a large scale laboratory have. Draw layout diagram of small and large scale laboratory. (5,5)

P.T.O.

IV. a) What are the characteristic features of primary cell culture? How many ways primary cell culture isolation can be achieved depending upon type of tissue and time interval available?

b) What is conditioned medium? How this is prepared. What is its application? (5,5)

UNIT – II

V. a) How many ways cell culture can be transfected? Describe one method in detail. How transfection process differ from transformation.

b) What is Factor-VIII? Why and how mammalian cell cultures has been exploited for Factor-VIII production. (5,5)

VI. a) What factors to be considered while scaling up adherent and suspension cell culture? Give a detailed account of scaling up techniques used for adherent cultures.

b) What do you understand by reproductive cloning? How it differs from therapeutic cloning. Give account of ethical issue related with these cloning types. (5,5)

VII. a) What different types of contaminations can occur in animal cell culture? How many different ways microscopy can be exploited for detection of contaminations in cell culture?

b) What do you mean by disease model? How these are generated. Also give an account of gene therapy applications in medical field. (5,5)

x-x-x