Exam.Code:0437
Sub. Code: 3479

2021

M.Sc. (Biotechnology), Third Semester

MBIO-301: Animal Cell Science and Technology

Time allowed: 3 Hours Max. Marks: 80

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

x-x-x

I. Attempt the following:-

a) What is immortalization?

b) What is feeder layer and its use?

c) What is the role of CO_2 incubators in animal cell culture?

d) Give two applications of transgenic fish.

e) What is therapeutic cloning?

f) Give two methods of cell line characterization.

g) Enlist growth factors affecting cell proliferation and differentiation.

h) What are scaffolds and their use in tissue engineering? (8x2)

UNIT – I

II. a) Discuss role of endoplasmic reticulum and mitochondria in animal cell.

b) What are various physiological and physicochemical parameters affecting growth of animal cells *in vitro*. (2x8)

III. Write note on:-

a) Serum free media and its components

b) Cytotoxicity assays and their significance (2x8)

UNIT – II

IV. a) How primary cultures can be established using explants?

b) What are stem cells? Give their applications in tissue engineering. (2x8)

V. a) Give methodology for the production of monoclonal antibodies using hybridoma technology.

b) Discuss various bioreactors used in scale up of animal cells. (2x8)

P.T.O.

UNIT – III

VI. a) Which methods can used to construct transgenic mice? Discuss important applications of transgenic mice.

b) How animal biotechnology can be used in pest control? (10,6)

VII. a) Discuss vector based methods of transgene transfer in animal cells.

b) Write note on:-

i) Biotechnology in Sericulture

ii) Transgenic cattle (2x8)

UNIT – IV

VIII. a) What is reproductive cloning and its ethical concerns?

b) What is *in vitro* fertilization? How it is performed? (2x8)

IX. a) How does cryopreservation helps in biodiversity conservation? Explain with examples.

b) Write notes on following:-

i) Applications of therapeutic cloning

ii) Methods of embryo transfer (2x8)

x-x-x