T. Y. B. SC. (BIOTECHNOLOGY) SEM – V (2010 COURSE) :

WINTER - 2017

SUBJECT : INTRODUCTION TO ANIMAL TISSUE CULTURE (ATC)

Day : **Thursday** Time **2.00 PM TO 05.00 PM**

Date : **09/11/2017** Max. Marks : 80

W-2017-0960

N.B. :

1) All questions are **COMPULSORY**.
2) Figures to the **RIGHT** indicate full marks.
3) Draw diagrams **WHEREVER** necessary.

SECTION - I

Q.1 **A)** Attempt **ANY ONE** of the following: **(06)**

a) Define animal tissue culture. Explain three important systems of animal tissue culture.

b) Describe the layout and requirements of cell culture laboratory.

B) Attempt **ANY TWO** of the following: **(10)**

a) What are different types of laminar flow hoods? State the principle of each.

b) What is membrane filtration? State its significance in animal tissue culture.

c) Define medium. What is growth medium and conditioned medium in animal tissue culture?

Q.2 Attempt **ANY FOUR** of the following: **(16)**

a) Describe the method of sterilization of glass pipettes and storage vials.

b) What is senescence of a cell line?

c) Define contact inhibition and density dependent inhibition of mitosis.

d) Describe the design of flask and method of culture of suspension culture.

e) What are anchorage dependent cells? Explain the molecular basis of cell adhesion.

SECTION - II

Q.3 **A)** Attempt **ANY ONE** of the following: **(06)**

a) Enlist various balanced salt solutions. Explain their role in tissue culture medium.

b) What are dye exclusion and dye inclusion assays?

B) Attempt **ANY TWO** of the following: **(10)**

a) Why it is important to preserve cell lines? How are they preserved?

b) What are embryonic stem cells? Explain their aplications.

c) What is organ culture? How it differs from cell culture?

Q.4 Attempt **ANY FOUR** of the following: **(16)**

a) Define anchorage independent cells. Explain the design of bioreactor used for their scale up.

b) Describe the use of hollow fibers in animal tissue culture.

c) What is continuous culture? Explain the method for maintaining cells in continuous culture.

d) Explain the sources and properties of adult stem cells.

e) Enlist various recombinant proteins. State their use.

Q.5 Attempt **ANY ONE** of the following. **(16)**

a) What are monoclonal antibodies? How are they synthesized? What are their applications?

b) Give an account of applications of animal tissue culture in research and biotechnology.

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