

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

WINTER - 2017

SUBJECT : INTRODUCTION TO ANIMAL TISSUE CULTURE (ATC)

Day : **Thursday**

Date : **09/11/2017**

Time **2.00 PM TO 05.00 PM**

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 applications.
 - 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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