

**T. Y. B. Sc. (Biotechnology) SEM – V (2010 COURSE) : WINTER -  
2018**

**SUBJECT : INTRODUCTION TO ANIMAL TISSUE CULTURE (ATC)**

Day : Friday  
Date : 26/10/2018

**W-2018-1199**

Time : 10.00 AM TO 01.00 PM  
Max. Marks : 80

**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)** Describe enzymatic disaggregation method for preparation of primary culture.
  - b)** Give an account on various techniques used for maintaining sterile conditions in ATC laboratory.
- B)** Attempt **ANY TWO** of the following: **(10)**
- a)** Explain the role of CO<sub>2</sub> incubator in tissue culture laboratory.
  - b)** Why tissue culture medium is supplemented with serum?
  - c)** What are anchorage dependent and independent cells? State the differences in the culture of these two types of cells.
- Q.2**      Attempt **ANY FOUR** of the following: **(16)**
- a)** What is continuous cell line? State its important characteristics.
  - b)** Define organ culture. State its advantages and limitations.
  - c)** Explain the sterilization of heat sensitive reagents.
  - d)** Describe the steps involved in sub-culturing of cell line.
  - e)** Define i) passage number and ii) generation number. Why it is important to record generation number in maintenance of normal diploid cell cultures?

**SECTION - II**

- Q.3**      **A)** Attempt **ANY ONE** of the following: **(06)**
- a)** Describe the principle and method of MTT assay.
  - b)** What is cryopreservation? Explain different stages of freezing of cells.
- B)** Attempt **ANY TWO** of the following: **(10)**
- a)** Explain the principle and application of plating efficiency test.
  - b)** Define explant culture. How it is prepared?
  - c)** Explain any one method for determination of cytotoxicity.
- Q.4**      Attempt **ANY FOUR** of the following: **(16)**
- a)** Describe the method for scale up of adherent cells.
  - b)** Why only normal diploid cells are used for production of vaccines?
  - c)** Explain the mechanism and application of fluidized bed bioreactor.
  - d)** What are monoclonal antibodies? What are their applications?
  - e)** What is a HAT medium? What is its use in animal tissue culture?
- Q.5**      Attempt **ANY ONE** of the following **(16)**
- a)** What are stem cells? Give an account of their classification. Explain their properties and applications.
  - b)** Define vaccine. State different types of vaccines. Give an account on applications of animal tissue culture in vaccine production.

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