

**M. SC. (BIOTECHNOLOGY) SEM-IV (2012  
COURSE)(CHOICE BASED CREDIT SYSTEM) : SUMMER -  
2018**

**SUBJECT : SPECIALIZATION : b) ANIMAL CELL CULTURE APPLICATIONS**

Day : **Tuesday**  
Date : **10/04/2018**

**S-2018-1091**

Time : **02.00 PM TO 05.00 PM**  
Max. Marks : 60

**N.B.**

- 1) Q.1 and Q.5 are **COMPULSORY**. Out of the remaining questions attempt any **TWO** questions from Section – I and Section – II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer Section – I and Section – II on **SEPARATE** answer book.

**SECTION – I**

- Q.1** Answer the following questions in brief: **(10)**
- a) State the significance of inverted microscope in animal tissue culture.
  - b) Define anchorage dependent and independent cell lines giving examples of each.
  - c) State the principle and advantages of vertical laminar flow hood.
  - d) Why EDTA is required in enzymatic disaggregation of tissue?
  - e) What are totipotent cells? Give one example.
  - f) State the role of trypan blue in tissue culture.
- Q.2** a) Explain in detail design, layout and maintenance of Animal Tissue Culture Laboratory. **(05)**  
b) Explain the advantages and limitation of serum in tissue culture medium. **(05)**
- Q.3** a) How will you determine cytotoxicity of a compound on cell line? **(05)**  
b) Define primary culture and cell line. Compare the growth characteristics of cells in primary culture and cell line. **(05)**
- Q.4** Write short notes on Any Two: **(10)**
- a) Plating efficiency test
  - b) Nervous tissue
  - c) Explant culture

**SECTION – II**

- Q.5** Attempt any **TWO** of the following: **(10)**
- a) Describe methods used for scale up of adherent cells.
  - b) Give an account on mechanism and applications of fluidized bed bioreactor.
  - c) Describe applications of cell culture in production of various vaccines.
- Q.6** a) State the types of stem cells and compare their properties. **(05)**  
b) Comment on the specific requirements with reference to substrate, cells and nutritional medium for preparation of tissue bioconstruct.
- Q.7** a) What is stem cell therapy? Comment on its benefits and limitations. **(05)**  
b) Explain the method of isolation and culture of embryonic stem cells. **(05)**
- Q.8** Write short notes on any **TWO** **(10)**
- a) Skin equivalents
  - b) Recombinant vaccines
  - c) HAT medium

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