

**M. Sc. (Biotechnology) Sem-IV (2012 Course)(Choice Based Credit System) : WINTER - 2018**

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

Day : Tuesday  
Date : 23/10/2018

**W-2018-1215**

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

**N. B. :**

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.** Out of remaining attempt **ANY TWO** questions from **Q. 2, 3, & 4 and Q. 6,7 & 8.**
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION – I**

- Q. 1** Attempt the following in brief: **(10)**
- a) What is senescence of cell line?
  - b) State the use of trypan blue dye in animal tissue culture
  - c) State the types and role of fibers in connective tissue.
  - d) Give the composition and significance of HAT medium.
  - e) Define plating efficiency. State the formula for evaluation of plating efficiency.
- Q. 2**
- a) Describe the types and composition of connective tissue with suitable examples. **(05)**
  - b) Describe the principle and method for enumeration and assessment of viable cells with dye uptake assay. **(05)**
- Q. 3**
- a) Describe the method for isolation of hepatocytes from rat liver. **(05)**
  - b) Write the principle of metabolic assays? Explain their advantages and applications. **(05)**
- Q. 4** Write short notes on **ANY TWO** of the following: **(10)**
- a) Monoclonal antibodies
  - b) Therapeutic proteins
  - c) Attenuated vaccines

**SECTION – II**

- Q. 5** Attempt **ANY TWO** of the following: **(10)**
- a) Give an account of significance of serum in animal tissue culture.
  - b) Explain the method of isolation and properties of embryonic stem cells.
  - c) What are adult stem cells? Explain their various types and differentiation lineages.
- Q. 6**
- a) Compare and contrast organ and organotypic cultures **(05)**
  - b) What are scaffolds? Explain the properties of scaffold. **(05)**
- Q. 7** Write short notes on **ANY TWO** of the following: **(10)**
- a) Skin equivalent
  - b) Serum free medium
  - c) Use of tissue equivalents in drug screening
- Q. 8** Answer the following with reference to stem cells: **(05)**
- a) Therapeutic applications. **(05)**
  - b) Advantages and limitations of adult and embryonic stem cells.