

**M. SC. (BIOTECHNOLOGY) SEM-IV (2012 COURSE)(CHOICE  
BASED CREDIT SYSTEM) : WINTER - 2017**  
**SUBJECT : SPECIALIZATION : b) ANIMAL CELL CULTURE APPLICATIONS**

Day : Wednesday  
Date : 01/11/2017

Time 02.00 PM TO 05.00 PM  
Max. Marks : 60

**W-2017-0976**

**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 importance of CO<sub>2</sub> incubator in Animal Tissue culture.
  - b) Define i) Cell line ii) Cell strain.
  - c) State the role of serum in tissue culture medium.
  - d) How heat sensitive reagents are sterilized?
  - e) Why it is important to record generation number during culture of normal diploid cell line?
  - f) What are pluripotent cells?
- Q.2** a) Define organ culture. State the advantages and limitations of organ culture. **(05)**  
b) How will you characterize the given cell line by using karyotype analysis? **(05)**
- Q.3** a) Explain any one method for preparation of primary culture. Add a note on its advantages and limitations. **(05)**  
b) Describe metabolic assay for determination of cytotoxicity. **(05)**
- Q.4** Write short notes on Any **TWO**: **(10)**
- a) Viable counting
  - b) Epithelial tissue
  - c) Suspension culture

**SECTION – II**

- Q.5** Attempt any **TWO** of the following: **(10)**
- a) Describe the design and advantages of hollow fibre reactor.
  - b) What are stem cells? Explain the types and properties of stem cells.
  - c) State various types of vaccines giving examples of each.
- Q.6** a) What is tissue engineering? State its applications. **(05)**  
b) Why it is important to use scaffolds for tissue constructs? State the properties of Scaffolds.
- Q.7** a) What is FACS analysis? State its significance in stem cell culture. **(05)**  
b) Comment on nutritional medium used for culture of stem cells. **(05)**
- Q.8** Write short notes on any **TWO**: **(10)**
- a) Skin bioconstruct
  - b) Therapeutic proteins
  - c) Adult stem cells

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