

B.Sc. T. Y. (Part-III) (CBCS Pattern) Semester-VI  
**USBCDST-15 - Biochemistry DSE-III : Advanced Cell Biology**

P. Pages : 2

Time : Three Hours



**GUG/W/24/13339**

Max. Marks : 50

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- Notes : 1. All the questions are compulsory and carry equal marks.  
2. Draw well labelled diagrams wherever necessary.

**1.** Describe in detail the composition and properties of cell membrane. **10**

**OR**

- a) Write a note on structure of nuclear envelope. **2½**
- b) What are the different functions of tight junctions? **2½**
- c) Write a note on cell adhesion proteins. **2½**
- d) What are desmosomes? Write their functions. **2½**

**2.** Write a detailed note on regulation of cell division and cell growth. **10**

**OR**

- a) What are the different steps of apoptosis? **2½**
- b) What are stem cells? Why are they called multipotent? **2½**
- c) Draw a well labelled diagram of cell cycle. **2½**
- d) Write a note on hematopoiesis. **2½**

**3.** Discuss in detail the development of cancer and its causes. **10**

**OR**

- a) Write a note on oncogenes. **2½**
- b) Write a note on tumour viruses. **2½**
- c) Describe in brief the molecular approach to cancer treatment. **2½**
- d) Write a short note on genetic basis of cancer. **2½**

4. Describe the procedure of animal cell culture in detail. 10

OR

- a) Write the principle of electron microscopy. 2½
- b) Write a short note on immunohistochemistry. 2½
- c) Explain how the cells are separated by ultracentrifugation technique. 2½
- d) Write the procedure of fluorescence microscopy. 2½

5. Answer **any ten** of the following.

- a) What is totipotency of cell? 1
- b) Write any one point of difference between confocal and fluorescence microscopy. 1
- c) What is the principle of ultracentrifuge? 1
- d) What is malignant tumour? 1
- e) Tumour suppressor genes inhibit cell division. True or false? 1
- f) What are carcinogens? 1
- g) What are embryonic stem cells? 1
- h) Define necrosis. 1
- i) What is cell growth? 1
- j) Write any one function of gap junctions. 1
- k) Write the full form of CMACs. 1
- l) What is cell matrix? 1

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