

2072  
B.Sc. (Hons.) Biotechnology  
Second Semester  
BIOT- 205-T: Cell Biology

Time allowed: 3 Hours

Max. Marks: 67

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Unit.

x-x-x

I. Explain in brief the following:-

- a) Coacervates and Eobionts
- b) Cell as basic unit of life
- c) Symport and antiport
- d) Chromosome chemical composition
- e) Microtubules
- f) Lysosomes and peroxisomes
- g) Banding patterns in chromosomes
- h) Euchromatin and heterochromatin
- i) Fetal stem cell
- j) Active and passive transport

(10x1½)

**UNIT - I**

- II. a) Describe Fluid mosaic model of cell membrane with suitable diagram.  
b) Explain structure of animal cell with suitable diagram. (7,6)
- III. a) Explain the structure and functions of cell ribosome with suitable diagram.  
b) Describe with suitable diagram the structure and basic functions of mitochondria. (7,6)

**UNIT - II**

- IV. a) What is cotransport? Explain its types with suitable example of each type.  
b) Discuss entry of toxin into cell. (7,6)
- V. a) What is ATPase? Discuss Sodium-Potassium exchange pump and how it helps in maintaining positive charge outside of the cell membrane?  
b) Explain receptor mediated endocytosis by cell membrane. (7,6)

P.T.O.

(2)

**UNIT - III**

- VI. a) What are giant chromosomes? Explain the structure of lampbrush chromosomes.  
b) Explain structural organization of nucleosome with suitable diagram. (7,6)
- VII. a) What are chromatids? Classify chromosomes on the basis of their morphology.  
b) Explain mechanism of flagellar locomotion. (7,6)

**UNIT - IV**

- VIII. a) What are the types of adult stem cells? Discuss key advantages and weaknesses of adult stem cells.  
b) Classify stem-cells on the basis of their differentiation potential and their origin. (7,6)
- IX. a) Elaborate ethical issues related to stem cell technology.  
b) Discuss applications of stem cell in medicines. (7,6)

x-x-x