

1059

B.Sc. (Hons.) Biotechnology
Second Semester
BIOT- Sem-II-V-T: Cell Biology

Time allowed: 3 Hours

Max. Marks: 67

NOTE: Attempt five questions in all, including Question No. IX (Unit-III) which is compulsory and selecting two questions each from Unit I - II. Draw diagrams wherever necessary.

x-x-x

UNIT - I

- I. a) Mention the ultra structure of PPLOs, Bacteria and Eukaryotic microbes?
b) Write in brief the major biochemical composition of cells? (6,7)
- II. a) Discuss the structure and function of Endoplasmic Reticulum?
b) Describe the ultra structure of mitochondria and its functions? (6,7)
- III. a) Define active and passive transport? Describe the sodium potassium pump?
b) What is endocytosis and exocytosis? Discuss how viruses and toxins enter into cells? (6,7)
- IV. a) What are ATPases? Discuss the working of the calcium pumps and in which types of cells they are present?
b) Discuss with example what is ATP dependent proton pump? (7,6)

UNIT - II

- V. a) Discuss the flagellar and ciliary movement and mention which cells locomote with the help of cilia and flagella?
b) Write notes on:-
i) Centromere
ii) Telomere (7,6)
- VI. a) Describe the structural organization of chromatin and chromatids?
b) Discuss the structure and function of polytene chromosome? (7,6)

UNIT - IV

- VII. a) Define stem cells? Discuss how cells differentiate and renew in multicellular organisms?
b) Differentiate between Totipotent, Pleuripotent and Multipotent cells? (7,6)

(2)

VIII. a) How are fetal stem cells different from umbilical stem cells? Give the application of umbilical stem cells?

b) Discuss the ethical issues related to stem cells? (7,6)

UNIT - III

IX. Attempt the following:-

a) What is primordial soup? (2)

b) What is peripheral and integral protein in plasma membrane? (2)

c) Define tissue? (2)

d) Role of vacuoles in plants cells (2)

e) What are symporters and antiporters? (2)

f) What is nucleosome? (2)

g) What are cord stem cells? (2)

h) What is C-banding? (1)

x-x-x