Exam.Code:0435
Sub. Code: 3465

2012

M. Sc. (Biotechnology), First Semester

MBIO-101: Cell Biology

Time allowed: 3 Hours Max. Marks: 80

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

x-x-x

1. Write short notes on the following:-

1. Difference between magnification and resolution with its numerical expression.
2. Define self and aided assembly with examples?
3. What are marker enzymes and how are they helpful in subcellular fractionation?
4. What are Cotransporters, Symporters, antiporters?
5. What are Cyclin-CDKs and their significance?
6. What are Autocrine, Paracrine and endocrine signaling?
7. Structure of Clatharin coated vesicles?
8. Stages of Prophase-I in meiosis?

(8x2)

UNIT-I

2.a. Discuss the evolutionary steps in the origin of cells starting from chemical evolution? 8

b. Discuss in brief the history of cell biology and how did the cell theory developed? 8

3.a. Discuss the principle, working and application of confocal microscopy in biology? 8

b. Describe the methods of sample preparation for electron microscopy? 8

UNIT-II

4. A. Mention two separation techniques for proteins from cell membranes? 8

b. Discuss the structural organization of cell wall? 8

5.a. Explain with examples the structure and functional mechanisms of ABC pumps and their role in medicine? 8

b. Explain how does cellular energy transactions takes place in mitochondria? 8

P.T.O.

UNIT-III

6.a. Discuss how phosphorylation and degradation of proteins regulate cell cycle? 8

b. Explain how check points in cell cycle work? 8

7a. What is G-protein receptors and how do they start a signal cascade? 6

b. Explain the Ras/MAPK signal transduction pathway? 4

c. Describe the molecular mechanism of movement of cilia and Flagella? 6

UNIT-IV

8. a. Discuss the retrograde and anterograde protein trafficking? 8

b. Explain how are vesicles formed and fused during protein trafficking? 8

9.a. Explain with diagram the elongation and termination stages in protein synthesis of eukaryotes? 8

b. Discuss the molecular mechanism of fertilization? 8

x-x-x