

1129

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. 1 which is compulsory and selecting one question from each Unit.

X-X-X

I. Write short notes on the following:-

- a) Fixatives
- b) Function of nucleolus
- c) F class pumps
- d) Marker enzymes
- e) Resolving power of a microscope
- f) Autocrine signalling
- g) Cyclin CDKs
- h) Objective lens

(8x2)

UNIT – I

- II. a) Explain the development of cell theory. State its postulates and shortcomings.
- b) Describe the principle, working and any three applications of fluorescence microscope. (6,10)
- III. a) Explain the mechanism of assembly and chemical evolution.
- b) Explain the working of differential interference microscope. (2x8)

UNIT – II

- IV. a) Write a note on FACS.
- b) What are P- class ATPases? Explain with example. (2x8)
- V. a) Explain fluid mosaic model.
- b) Describe the role of mitochondria in cellular energy transactions. (2x8)

UNIT – III

- VI. a) How is cell cycle regulated in mammals?
- b) Describe the structure of cilia. (2x8)

(2)

- VII. a) What is signal transduction? Explain the mechanism of signal transduction in JAK-STAT.
- b) With the help of a diagram explain the molecular events and regulation occurring during cell cycle. (2x8)

UNIT – IV

- VIII. a) Explain the process of translation in eukaryotes.
- b) Describe the structure of lysosomes. (12,4)
- IX. a) Explain the process of gametogenesis.
- b) Describe the role of endoplasmic reticulum and golgi apparatus in intercellular protein trafficking.

x-x-x