

[SZ - S 136B]

M.Sc. DEGREE EXAMINATION

Zoology

First Semester

MOLECULAR CELL BIOLOGY

(Effective from the admitted batch of 2022-2023)

Time : 3 Hours

Max. Marks: 70

*Answer ONE questions from each Unit.
All question carry equal marks.*

UNIT - I

1. (a) Describe the different types of cytoskeleton elements and their function.

(b) Write notes on Kinesin and dynein.

*Intermediate filaments
microtubules
actin filaments*

(OR)

2. (a) Explain the structure, organization and dynamics of microtubules

(b) Write notes on intracellular transport.

UNIT - II

3. (a) Explain active transport across cell membrane with suitable examples.

(b) Write notes on ion channels.

(OR)

4. (a) Describe the process of receptor mediated endocytosis.

(b) Write an account on intracellular trafficking.

(P.T.O.)

[SZ - S 136B]

UNIT - III

5. (a) Explain the molecular mechanism of neurotransmitter secretion.
(b) Describe the structure and functional significance of plasmodesmate.

(OR)

6. ~~(a)~~ Give an overview of various cellular signaling cascades with examples such as Notch and Wnt/Wingless.
(b) Write short notes on regulation of signaling pathways.

UNIT - IV

7. (a) Explain chromosome labeling and cell cycle analysis.
(b) Write notes on genetic control of meiosis.

(OR)

8. ~~(a)~~ Discuss the different types of cell cycle checkpoints and their significance.
~~(b)~~ Describe the role of cyclins in cell cycle regulation.

UNIT - V

9. (a) Give an account on the morphological and functional elements of eukaryotic chromosomes.
(b) Write notes on unique and repetitive DNA.

(OR)

10. ~~(a)~~ Explain the interaction of cancer cells with normal cells.
~~(b)~~ Describe the therapeutic interventions of uncontrolled cell growth. (apoptosis)

* * *