



QP CODE: 25050607



Reg No :

Name :

MSc DEGREE (CSS) EXAMINATION DECEMBER 2025

First Semester

M Sc BIOCHEMISTRY

Core Courses - BC010103 - CELL BIOLOGY AND GENETICS

2019 Admission Onwards

BC4B2AEC

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Describe the structural peculiarities of prokaryotic cellular organization.
2. What is the cytoskeleton? How is it important inside the cell?
3. What is Brush Border? Explain significance in membrane transport.
4. Write short notes on proton pumps with suitable examples.
5. Discuss the role of Ca^{2+} as second messenger.
6. Define ion channel linked receptors with examples.
7. Define programmed cell death. What are the major events involved?
8. What is the significance of NF κ B pathway in apoptosis?
9. Explain Codominance with relevant examples.
10. What are chromosomal aberrations?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Comment on the statement – Telophase is the reverse of prophase.
12. Explain in detail on cell-matrix interactions and the proteins involved.
13. Write about gap junctions and tight junctions with suitable figures.
14. Compare and contrast receptor tyrosine kinase with non-receptor protein tyrosine kinase.
15. Illustrate in detail an example for phospholipid mediated signalling,





16. Discuss on proteins involved in the apoptotic pathway.
17. Explain how tumor viruses induce tumorigenesis in a normal cell.
18. Illustrate the law of Independent Assortment with a suitable example.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Give an account of the phases of cell cycle and the regulation of cell cycle by cyclins.
20. Write about the composition of the plasma membrane and explain the fluid mosaic model. What were the other theories that were proposed?
21. Distinguish between kinases and phosphatase in signal transduction with the help of examples.
22. Elaborate on the different types and functions of proteins encoded by the proto-oncogenes.

(2×5=10 weightage)

