

25048072



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Reg. No.....

Name.....

**M.Sc. (BIOCHEMISTRY) DEGREE [C.S.S.] EXAMINATION, OCTOBER 2025**

**First Semester**

BC1M001PC4—CELL BIOLOGY AND GENETICS

(2018 and 2015 Admissions—Mercy Chance)

Time : Three Hours

Maximum Weight : 30

**Part A (Short Answer questions)**

*Answer briefly on any **five** questions.*

*1 weight each.*

1. Write a note on the tumour suppressor gene.
2. Write about Homeobox.
3. Explain cytoplasmic inheritance
4. Can you explain the importance of ubiquitin.
5. Write about transposable elements.
6. Give an account of active transport.
7. Explain heritability and genetic advance.
8. Pont out the importance of Lysosomes.

(5 × 1 = 5)

**Part B (Short Essay questions)**

*Answer any **five** questions.*

*2 weights each.*

9. Explain Hardy-Weinberg principle and its deviations.
10. What are the principles of Inheritance ? Write about the importance of linkage in inheritance.
11. Write an account on the structure of chromosomes.





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12. Illustrate and explain the lytic cycle.
13. Explain Apoptosis, mentioning different stages.
14. Write about types of membranes.
15. How can you explain nutrient and water transport across membranes.
16. Explain the stages of cancer development.

(5 × 2 = 10)

**Part C (Long Answer questions)**

*Answer any **three** questions.*

*5 weight each.*

17. Describe the structure and functions of Mitochondria and Chloroplasts.
18. Write an account on membrane receptors, explaining the types and functions.
19. Explain how genes can be mapped in bacteria.
20. Explain the cell cycle, mentioning checkpoints and cell cycle control.
21. Describe polygenic inheritance with examples.
22. Explain the process of aging, theories, and the Telomere problem associated with aging.

(3 × 5 = 15)

