

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025

(Regular/Improvement/Supplementary)

BOTANY

FBOT2C04: CELL BIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS

Time: 3 Hours

Maximum Weightage: 30

Part A: Answer any *four* questions. Each carries 2 weightage.

1. Explain the significance of RIA.
2. Write the significance of G₀ stage of cell cycle.
3. Write on Cellulose acetate electrophoresis.
4. What is the concept of Colorimetry?
5. Explain RNA interference.
6. What is chromosome banding?
7. What is telomerase? Comment on its function.

(4 × 2 = 8 weightage)**Part B: Answer any *four* questions. Each carries 3 weightage.**

8. Write an account on Operon concept and its regulation.
9. Explain working of Ultracentrifuge with the principle leading to it.
10. Write on the cell cycle stages and typical events occurring in each phases.
11. Comment on the post translational modification in protein synthesis.
12. Write on karyotyping with emphasis on its application.
13. Explain genetic basis of malignant transformation.
14. What are Silencers and Enhancers? Write its role and significance.

(4 × 3 = 12 weightage)**Part C: Answer any *two* questions. Each carries 5 weightage.**

15. Explain the structure, significance and functions of special type of chromosomes.
16. Write an essay on different types of chromatographic techniques and their principles.
17. Give a detailed account of mutagens, their classification, its mode of action and how they play a role in cancer.
18. Explain the different pathways involved in Programmed cell death. Illustrate each.

(2 × 5 = 10 weightage)