D2ABT2201 **(1 Page)** **Name.....**
Reg.No.....

SECOND SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2023
(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. Comment on Telomerase and its function.
2. Briefly explain the major types of chromosome banding techniques.
3. Describe the structure of DNA.
4. What is RNA interference?
5. Differentiate between euchromatin and heterochromatin.
6. Describe the nucleosome model of chromosome organization.
7. Differentiate between spectrophotometer and colorimeter.

(4 × 2 = 8 weightage)

Part B: Answer any *four* questions. Each carries 3 weightage.

8. Discuss the special types of chromosomes.
9. What are mutations? Describe the different types of mutations.
10. Explain PAGE. Comment on its application.
11. What is genetic code? Comment on the properties of genetic code.
12. Give an account on the pathways of programmed cell death.
13. What is the principle of centrifugation? Explain the different types of centrifugations.
14. What are operons? Describe the Lac operon in *E. coli*.

(4 × 3 = 12 weightage)

Part C: Answer any *two* questions. Each carries 5 weightage.

15. Explain eukaryotic protein synthesis. Comment on the post translational modifications.
16. Give an account on the cell cycle regulation in meiosis. Add a note on the diseases due to meiotic defects in humans.
17. Explain the different types of chromatography.
18. Describe DNA replication in eukaryotes. Add a note on the enzymes involved.

(2 × 5 = 10 weightage)