

**QP Code: P25B002**

**Reg. No** : .....

**Name** : .....

**ST MARY'S COLLEGE (AUTONOMOUS), THRISSUR-20**

**II SEMESTER (CBCSS-PG) DEGREE EXAMINATION, MARCH 2025**

**M Sc Botany**

**BOT2C04 : CELLBIOLOGY, MOLECULAR BIOLOGY AND BIOPHYSICS**

**2024 Admission Onwards**

**Time:3 Hours**

**Maximum Weightage:30**

**Part A**

*Short answer type questions: Answer **any four** questions. Weightage 2 for each question.  
(4x2 = 8 Weightage)*

1. Explain the significance of G<sub>0</sub> phase. [BTL3]
2. Write a note on any four types of enzymes and their uses in replication. [BTL2]
3. What is meant by lyophilisation? [BTL1]
4. Differentiate between constitutive and facultative heterochromatin. [BTL4]
5. Determine the post transcription events in protein synthesis. [BTL3]
6. What is the role of buffer solution? [BTL3]
7. What are laminin protein? [BTL1]

**Part B**

*Short essay-type questions: Answer **any four** questions. Weightage 3 for each question.  
(4x3 = 12 Weightage)*

8. What is Cancer? How does it happen? Add note on carcinogens. [BTL1]
9. Define the concepts of genes and explain one gene – one enzyme and one gene – one polypeptide concepts. [BTL1]
10. Explain agarose gel electrophoresis. [BTL2]
11. Describe in detail the structure of the synaptonemal complex. What is its significance? [BTL3]
12. Generalize deciphering of genetic code. [BTL3]
13. Explain programmed cell death. [BTL4]
14. Explain Beer Lambert's Law. Explain the technique and applications in biological and biochemical research. [BTL5]

**Turn Over**

### Part C

*Essay-type questions: Answer **any two** questions. Weightage 5 for each question.  
(2x5 = 10 Weightage)*

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| 15. Compare G $\alpha$ S and G $\alpha$ t. Explain its mechanism.                                   | [BTL4] |
| 16. Explain the principle, methods and application involved in different chromatography techniques. | [BTL3] |
| 17. Explain B-DNA with a labelled diagram.  | [BTL1] |
| 18. Classify and explain different types of induced mutations with examples.                        | [BTL4] |

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