

2025

M.Sc. 1st Semester Examination

BOTANY

Paper : BOTC401X0

(Microbiology and Virology)

Full Marks : 50

Time : Two Hours

The figures in the margin indicate full marks.

*Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *four* questions : $2 \times 4 = 8$

1. What is the evolutionary significance of the Three Domain concept?
2. What is meant by diauxic growth?
3. What is a prion?
4. What is biofilm?
5. Define lysogeny.
6. Mention two applications of plasmids.

P.T.O.

(2)

Group - B

Answer any *four* questions : $4 \times 4 = 16$

7. Discuss the criteria used in modern bacterial taxonomy.
8. Describe the ultrastructure and function of bacterial endospore.
9. Write a short note on monoclonal antibodies and their applications.
10. Compare ELISA and RIA.
11. Write down the beer production process.
12. Write a short note on antibiotic resistance mechanisms.

Group - C

Answer any *two* questions : $8 \times 2 = 16$

13. Describe CRISPR-Cas system : evolutionary significance, mechanism of action and applications in biotechnology.
14. Describe the molecular mechanism of bacterial conjugation, including conjugation mapping.
15. Critically discuss positive and negative regulation of gene expression with reference to lac and trp operons.
16. Give a detailed account of virus-induced oncogenesis and the role of oncogenes.

Internal Assessment : 10 marks
