

2025

M.Sc. 1st Semester Examination

MICROBIOLOGY

Paper : MCBC402X1

(Fundamental Biochemistry and Biophysics)

Full Marks : 25

Time : One Hour

*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 *two* questions : $2 \times 2 = 4$

1. What are the characteristics of an allosteric enzyme?
2. State the characteristics of hydrogen bond.
3. Draw the structure of aspartic acid with it's ionic and zwitterionic form.
4. Give examples of Omega 3 and Omega 6 fatty acid.

Group - B

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

5. State the effect of competitive inhibitors on K_m and V_{max} .

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(2)

6. Why water is considered as an excellent solvent for polar molecule? State the alteration of the quantity of hydrogen bonds during its liquid and solid state.
7. Describe storage polysaccharide in both plants and animals.
8. Describe the phosphotransferase system (PTS) of bacteria.

Group - C

Answer any *one* question : 8×1=8

9. Write the components of electron transport chain. How electrons are transported through electron transport chain? 3+5
10. Compare alpha helix and beta sheet of proteins structure. State the importance of Ramachandran plot. 4+4

Internal Assessment : 5 marks
