Seat No. : _____

FB-140

February-2025

M.Sc., Sem.-I

402 : Microbiology

(Microbial Biochemistry and Enzymology)

Time : 2:30 Hours] **[Max. Marks : 70**

1. Answer the following : **14**

Discuss methanotrophs, its types and applications, citing suitable examples.

OR

1. (a) Give an overview of PHA and PHB found in microbes. **7**

(b) Write a note on Phospholipids. **7**

2. Answer the following : **14**

Describe the structure, function and regulation of nitrogenase enzyme.

OR

2. (a) Write a note on classification of amino acids. **7**

(b) Discuss the regulatory aspects of nucleotide biosynthesis. **7**

3. Answer the following : **14**

Discuss the methods for purification of enzymes based on size, solubility and polarity.

OR

3. (a) Describe the chaperon assisted protein folding with example. **7**

(b) Derive the Line Weaver-Burk, Eadie-Hofstee, Hanes_Woolf equation from Michaelis-Menton equation and draw their plots. **7**

4. Answer the following : **14**

Explain in detail the reversible enzyme inhibition. Give its significance.

OR

4. (a) Write a short note on 'covalent bonding'. **7**

(b) Discuss the role of enzymes in industrial biotechnology. Mention three examples of enzymes with their role in specific industries. **7**

5. Answer the following : (Any **Seven**) **14**

(1) What are Glycosaminoglycans (GAGs) ?

(2) What are Proteoglycans ?

(3) What do you understand by feeder pathways ?

(4) What are Oligopeptides ?

(5) Define Motif.

(6) Give role of HGPRT.

(7) Give two examples of gels with their compounds used for protein purification.

(8) What is dialysis ?

(9) What is protein denaturation ?

(10) What are the ideal characteristics of carriers used for immobilization of enzymes ?

(11) What are ribozymes ?

(12) Crosslinking of enzymes.