

BIOTECHNOLOGY[Major]**[NEP]****B.Sc. First Semester End Examination 2024****PAPER-BIOT MJ101T****Full Marks: 40****Time: 02 Hrs.***The figures in the right hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.**Illustrate the answers wherever necessary.***Group A**

- 1) Answer any FIVE questions of the following: **5x2= 10**
- a) Differentiate between 'Fibrous' and 'Globular' Proteins. 2
 - b) Mention the biological functions of cholesterol. 2
 - c) What are co-enzymes and cofactors? 2
 - d) What is activation energy? 2
 - e) What is phospholipid? Mention its importance. 1+1
 - f) What are glycoproteins? 2
 - g) Differentiate between nucleoside & nucleotide. 2
 - h) What are the different types of RNA found in cells? What is the function of rRNA? 1+1
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Group B

- 2) Answer any FOUR questions of the following: **4x5 = 20**
- a) Classify the enzyme. What is the transition state of an enzyme catalyzed reaction? 3+2
- b) What is peptide bond why it has partial double bond character? Why anti parallel beta-sheets are more stable than parallel beta-sheets? 3+2
- c) Draw and explain the structure of bacterial cell wall. Distinguish between the structure and function of starch and cellulose. 2½ + 2½
- d) State the biological function of lipid. Write a short note on glycosides. 2+3
- e) Differentiate between A, B & Z form of DNA. 5
- f) What is Tm? What do you mean by de-naturation & re-naturation of DNA? 2+3

Group C

- 3) Answer any ONE question of the following: **1x10 = 10**
- a) Who Proposed DNA double helical structure? Briefly describe with schematic representation of DNA double helical structure. What are the forces that stabilize DNA Structure? 1+6+3

- b) What is voltage gated ion channel? Give example. The Physico-chemical properties and three dimensional structure of a protein largely depend upon the nature of constituent amino acids and their sequence – Explain this statement. How would you disrupt different bonds present in the tertiary structure of a protein?

2+1+5+2
