

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

December 2023 Supplementary Examinations

Programme: B.E.

Branch: Biotechnology

Course Code: 22BT3PCBBM

Course: Basics of Biomolecules

Semester: III

Duration: 3 hrs.

Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

- 1 a) Derive Hendrson-Hasselbach equation and add a note its significance. **07**
b) Explain with example DL, and RS system of nomenclature of chiral compounds. **08**
c) Differentiate between geometric and optical isomerism with examples. **05**

OR

- 2 Write short notes on the following **20**
a) Classification of monosaccharides
b) Anomers and Epimers
c) Fischer and Haworth formula
d) Glycoproteins

UNIT - II

- 3 a) Write the structure of any four phospholipids. **10**
b) What are steroids? Write the structure and function of any two steroids. **06**
c) Write structure of any essential and nonessential fatty acid. **04**

UNIT - III

- 4 a) How do you classify the amino acids based on the R group? Write the structure of any one amino acid under each class. **10**
b) Explain the role of any two biologically important peptides. **05**
c) What is Edman reagent? How do use this reagent in determining the primary structure of a protein. **05**

UNIT - IV

- 5 a) What is secondary structure of a protein? Give a detailed account on the allowed secondary structures of a protein using Ramachandran Map. **10**
b) Explain the thermodynamic aspects of protein folding and protein kinetics. **10**

OR

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

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|---|----|--|-----------|
| 6 | a) | What is Scatchard plot? How do you use this plot in determining the protein-ligand interactions? | 07 |
| | b) | Explain the α -helical and β -pleated sheet structure of a protein. | 07 |
| | c) | Write the Hill equation and explain the significance of Hill plot and Hill coefficient. | 06 |

UNIT – V

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|---|----|--|-----------|
| 7 | a) | Explain the structural features of various forms of DNA. | 10 |
| | b) | Write explanatory note on tertiary structure of t-RNA. | 05 |
| | c) | Write in brief the thermodynamics of melting of DNA. | 05 |

SUPPLEMENTARY EXAMS 2023