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

Autonomous Institute Affiliated to VTU

December 2023 Supplementary Examinations

Programme: B.E.

Semester: III

Branch: Biotechnology

Duration: 3 hrs.

Course Code: 22BT3PCBBM

Max Marks: 100

Course: Basics of Biomolecules

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

\08Important 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.

UNIT - I

1	a) Derive Henderson-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	a) 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

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

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