Reg. No. : | | | | | | | | | | | | |

Question Paper Code:R1B05

B.E./B.Tech. DEGREE EXAMINATION, DEC 2025

First Semester

R21UBM105- FUNDAMENTALS OF BIOCHEMISTRY

Biomedical Engineering

(Regulations R2021)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Define Proteins.	CO1- U
2.	Explain the zeroth law of Thermodynamics.	CO1- U
3.	Define the enzyme glucokinase and its role in glycolysis.	CO1- U
4.	Define solubility.	CO1- U
5.	Review Chargaff's rule with formula.	CO1- U
6.	Define the structure of RNA with a neat diagram.	CO1- U
7.	Explain cofactors and coenzymes.	CO1- U
8.	Write any two properties of lipids.	CO1- U
9.	Explain Biological Nitrogen fixation(BNF).	CO1- U
10.	Explain – ELISA test.	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	Give a brief reference to bioorganic molecules. Examine five important biomolecules.	CO1- U	(16)
		Or		
	(b)	Write a brief note on thermodynamics. Investigate the four laws of thermodynamics and their application in society.	CO1- U	(16)

12.	(a)	Write a detailed note on Biological Functions of Carbohydrates.	CO1- U	(16)
		Or		
	(b)	Classify and define the biological function of carbohydrates using an example and provide an overview of the chemical properties of carbohydrates.	CO1- U	(16)
13.	(a)	Describe in detail the classification of Proteins based on their structure, function, source and Amino acid composition.	CO1- U	(16)
		Or		
	(b)	Discuss in detail about the synthesis and degradation of fatty acids.	CO1- U	(16)
14.	(a)	Elaborate in brief about factors affecting enzyme activity and its applications.	CO1-U	(16)
		Or		
	(b)	Give a note on Synthesis and Degradation of Fatty acids.	CO1-U	(16)
15.	(a)	Summarize the mechanism of carbon fixing in plant from carbon dioxide and nitrogen cycle and nucleotides cycle to fix nitrogen in the environment.	CO1- U	(16)
		Or		
	(b)	Discuss in detail about how the following are influencing in the living organism in the Environment. i. Atmospheric Change ii. Pollution	CO1- U	(16)