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

Question Paper Code:R3B05

B.E./B.Tech. DEGREE EXAMINATION, APRIL 2024

First Semester

Biomedical Engineering

R21UBM105– FUNDAMENTALS OF BIOCHEMISTRY

(Regulations R2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (10x 2 = 20 Marks)

1.	Define Enzymes.	CO1- U
2.	Quote the zeroth law of Thermodynamics?	CO1- U
3.	Explain monosaccharides with example.	CO1- U
4.	Define the term solubility.	CO1- U
5.	Draw the structure of RNA.	CO1- U
6	Comparative analysis of secondary and quaternary structure of protein.	CO1- U
7	Explain oxidoreductase reaction with example.	CO1- U
8	List the structural classification of enzymes.	CO1- U
9	What is Biological Nitrogen fixation(BNF)?	CO1- U
10	Write the application of gel electrophoresis in protein studies.	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)	Review the laws of thermodynamics and examine their application with some examples.	CO1 -U	(16)
12.	(a)	Analyze the branching and unbranching of glycogen pathways in various glycogen metabolisms, including glycogenesis and glycogenolysis, and their hormonal regulation with a neat diagram.	CO3- An	(16)

OR

	(b)	Analyse the different pathways of carbohydrate metabolism and the role of transporters for glucose entry into the cell and examine glycolysis and its outcomes in healthy cells.	CO3-An	(16)
13.	(a)	Summarize different types of proteins based on their structure. Investigate the transamination and deamination of amino acids with an example.	CO1 -U	(16)

OR

	(b)	Why DNA or RNA function as genetic material. How do you analyze the structure of DNA using the Watson and Crick model with a neat diagram?	CO1 -U	(16)
14.	(a)	Illustrate Enzyme, classification and investigate its factors affecting enzyme activity.	CO1 -U	(16)

OR

	(b)	Elaborate in brief about factors affecting enzyme activity and its applications.	CO1- U	(16)
15.	(a)	Summarize the mechanism of carbon fixing in plant from carbon dioxide and apply nitrogen cycle and nucleotides cycle to fix nitrogen in the environment.	CO2-Ap	(16)

OR

	(b)	Review the working principles of various types of electrophoresis and apply gel electrophoresis concepts and their mechanism to study protein.	CO2-Ap	(16)