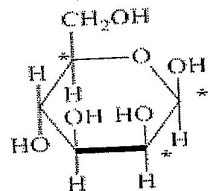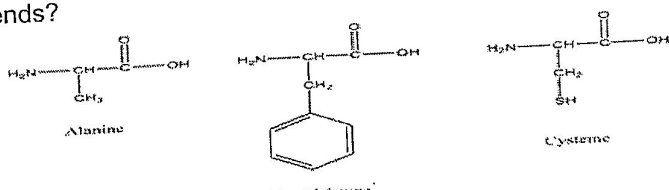RollNo. ☐☐☐☐☐☐☐☐☐☐☐

ANNA UNIVERSITY (UNIVERSITY DEPARTMENTS)
B.E. /B.Tech / B. Arch (Full Time) - END SEMESTER EXAMINATIONS, DECEMBER 2024
BE BIOMEDICAL ENGINEERING
III SEMSTER
BM23301 FUNDAMENTALS OF BIOCHEMISTRY
(Regulation2023)

Max. Marks: 100

Time: 3hrs

CO1	Understand the structure and functions of biomolecules in living systems
CO2	Assess the significance of biomolecules in biological systems.
CO3	Acquire a broad knowledge in integrating biological aspects and chemical functioning of biomolecules with special emphasis on human health. Ability to separate and analyze lipid molecules in body fluids.
CO4	Understand the mechanisms of inter and intracellular communication from biochemical perception and able to interpret the clinical inference. Ability to separate and analyze protein molecules in body fluids.
CO5	Develop skills to consolidate, integrate and apply biochemical information in their area of interest.

PART- A(10x2=20Marks)
(Answer all Questions)

Q. No	Questions	Marks	CO	BL
1	What is the pH of a 6.50×10^{-3} M KOH solution?	2	2	3
2	What happens to the cell placed in hypertonic and hypotonic solution?	2	5	3
3	Find the given structure below, do the numbering and mention the significance of the asterisk markings?	2	3	4
4	What is the role of iron in ETC complex?	2	4	3
5	Find the hormone used in TGL hydrolysis in adipose tissues? Give reasons.	2	3	4
6	A triglyceride contains lauric acid (12:0), linoleic acid (18:2), and palmitoleic acid (16:1). How many hydrogen atoms are required to completely hydrogenate this triglyceride?	2	2	4
7	Draw tripeptide using aminoacids given below, indicate N & C ends?	2	2	3

		Marks	CO	BL
8	Sketch the complementary strand for –A-G-T-T-C-- in RNA?	2	3	3
9	Differentiate coenzyme and cofactor?	2	2	3
10	How enzymes play a significant role in clinical sciences?	2	3	4

PART- B(5x 13=65Marks)

Q.No	Questions	Marks	CO	BL
11 (a)	Explain Henderson-Hasselbalch equation?	13	5	2
	OR			
11 (b)	Describe the role of biological buffers?	13	5	2
12 (a)	How cell generate ATP in the absence of oxygen?	13	3	4
	OR			
12 (b)	Evaluate the significance of ETC in ATP production?	13	3	4
13 (a)	What happens to palmitic acid exposed to β-oxidation?	13	4	3
	OR			
13 (b)	Why plasma membrane is said to be asymmetric in nature?	13	4	3
14 (a)	Explain the double helical structure of DNA?	13	1	2
	OR			
14 (b)	Describe the structural hierarchy of protein?	13	1	2
15 (a)	Describe M.M equation?	13	2	2
	OR			
15 (b)	Explain competitive inhibition and its applications.	13	2	2

PART- C(1x 15=15Marks)
(Q.No.16 is compulsory)

Q.No	Questions	Marks	CO	BL
16.	How do you separate mixture of proteins based on its molecular weight and electrophoretic mobility?	15	3	5