

MODEL QUESTIONN PAPER					
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)					
B.E. in Biotechnology					
Course Name: BIOCHEMISTRY + LAB			Course code: BBT303		
Third Semester BE Degree Examination Jan/Feb 2024					
Time : 3 hours			Max marks: 100		
Note : answer any FIVE full questions, choosing ONE full questions from each module					
<u>Module-1</u>					
1	a.	List different types of chemical reactions. Explain any two of them in detail with an example	CO1	L1	10
	b.	Derive Henderson-Hasselbalch equation. Explain the mechanism of action of buffer with an example.	CO1	L2	10
or					
2	a.	Relate different types of carbohydrates.	CO1	L1	10
	b.	Classify different levels of protein structure and explain the relationship between them	CO1	L2	10
<u>Module-2</u>					
3	a.	What is the chemical basis for large negative free energy for ATP?	CO2	L1	10
	b.	Explain the Z-scheme of Photosynthesis	CO2	L2	10
or					
4	a.	What electron transport chain and oxidative phosphorylation?	CO2	L1	10
	b.	Illustrate the importance of coupling reactions in biological systems.	CO2	L2	10
<u>Module-3</u>					
5	a.	Illustrate glycolysis in detail	CO2	L2	10
	b.	Build the condition of galactosemia	CO3	L3	10
or					
6	a.	Demonstrate that TCA cycle is amphibolic in nature.	CO3	L2	10
	b.	Make use of schematic diagram to explain glycogenolysis	CO3	L3	10
<u>Module-4</u>					
7	a.	Explain digestion, mobilization and transport of fats	CO3	L2	10
	b.	Develop treatment measures to sphingolipidoses.	CO4	L3	10
or					
8	a.	Develop β - oxidation of fatty acid taking palmitic acid as an example	CO3	L3	10
	b.	Classify lipoproteins and discuss them in detail.	CO3	L2	10
<u>Module-5</u>					
9	a.	Construct schematic representation urea cycle that removes toxic NH_3 from human body with its regulation	CO3	L3	10
	b.	Analyse Phynylketonuria under i) enzyme defect ii) manifestation iii) symptoms iv) diagnostic tests	CO4	L4	10
or					
10	a.	Make use of schematic diagram to illustrate the denovo synthesis of pyrimidines.	CO3	L3	10
	b.	Infer the clinical disorder, cause and treatment of gout.	CO4	L4	10

CO1: Apply the knowledge of organic compounds, functional groups and their properties to study the types of reactions, , pH ,buffers and biomolecules

CO2: Assess the concepts of thermodynamics to study the high energy compounds, their properties, Photosynthesis, ETC and analyze them

CO3: Illustrate the metabolic pathways of biomolecules and analyse their regulations

CO4: Establish the Biochemistry pathophysiology associated with various disorders of metabolism and analyze them