Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III EXAMINATION – SUMMER 2025

Subject Code:3130403 Date:13-06-2025

Subject Name: Basic Biochemistry and Calculations

Time:02:30 PM TO 05:00 PM Total Marks:70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Simple and non-programmable scientific calculators are allowed.**

			Marks
Q.1	**(a)**	Explain properties of water and its importance for life on earth.	**03**
	(b)	What are disaccharides? Give few examples and also describe the bond formation in it.	**04**
	(c)	Compare Glycolysis and Gluconeogenesis.	**07**
Q.2	**(a)**	What are glycoconjugates? Give few examples.	**03**
	(b)	Explain heteropolysaccharides with example.	**04**
	(c)	Explain glycogen breakdown pathway with diagram.	**07**
		OR	
	(c)	Explain tri carboxylic acid cycle with diagram.	**07**
Q.3	**(a)**	Explain Ramchandran plot in brief.	**03**
	(b)	Explain classification of amino acids based on its functional groups.	**04**
	(c)	Explain primary to higher order structures of protein.	**07**
		OR	
Q.3	**(a)**	Give properties of amino acids.	**03**
	(b)	Compare motifs and domain.	**04**
	(c)	Explain urea cycle with a neat diagram.	**07**
Q.4	**(a)**	Explain structure of a nucleotide.	**03**
	(b)	Explain 3 variant forms of DNA helical structure.	**04**
	(c)	Explain Denovo purine synthesis pathway from PRPP	**07**
		OR	
Q.4	**(a)**	Explain types of RNA in brief.	**03**
	(b)	Explain degradation of Thymine.	**04**
	(c)	Explain Denovo pyrimdine synthesis pathway from Aspartate.	**07**
Q.5	**(a)**	Explain structure of triglyceride.	**03**
	(b)	Write a note on ketone bodies.	**04**
	(c)	Explain transportation of fats by Carnitine Shuttle pathway.	**07**
		OR	
Q.5	**(a)**	Write a note on cholesterol	**03**
	(b)	Compare Glycerophospholipids and sphingo lipids.	**04**
	(c)	Explain oxidation of any saturated C16 fatty acid.	**07**

****