Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (New) EXAMINATION – WINTER 2019

Subject Code: 3130403 **Date: 26/11/2019**

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.**

			Marks
Q.1	**(a)**	Write down the reaction for formation of acetyl Co A from pyruvate	**03**
	(b)	Draw structure of Ribose, Glucose, Arabinose and Fructose	**04**
	(c)	Draw TCA cycle showing appropriate components and give its importance.	**07**
Q.2	**(a)**	Write the net biochemical equation for the metabolism of a molecule of glucose by glycolysis and the citric acid cycle, including all cofactors.	**03**
	(b)	Draw glyoxylate cycle with related .	**04**
	(c)	Explain Gluconeogenesis pathway with its significance	**07**
		OR	
	(c)	What are various metabolic disorders and what can be done about it ? discuss	**07**
Q.3	**(a)**	Why peptide bond has planer configuration?	**03**
	(b)	Write a short note on fate of pyruvate after glycolysis	**04**
	(c)	What do you mean by domain and motif? Explain super secondary structural elements with drawings.	**07**
		OR	
Q.3	**(a)**	Enlist and explain functions of carbohydrate in biological system.	**03**
	(b)	Soy sauce is pre- pared by fermenting a salted mixture of soybeans and wheat with several microorganisms, including yeast, over a period of 8 to 12 months. The resulting sauce (after solids are removed) is rich in lactate and ethanol. How are these two compounds produced? To prevent the soy sauce from having a strong vin- egary taste (vinegar is dilute acetic acid), oxygen must be kept out of the fermentation tank. Why?	**04**

	(c)	Describe the secondary structures of proteins and features with hydrogen bonding patterns.	**07**
Q.4	**(a)**	What do you mean by nucleotides? Give examples and importance.	**03**
	(b)	How can you decide the secondary structure from Ramachandran map?	**04**
	(c)	Explain the process of digestion in stomach.	**07**

OR

Q.4	**(a)**	What would happen if you decrease the pH of any amino acid solution?	**03**
	(b)	What are weak acids and weak base? What is significance of Ka and Kb values?	**04**
	(c)	Explain the process of oxidation of saturated C-16 fatty acid.	**07**
Q.5	**(a)**	Explain about carnitine shuttle pathway.	**03**
	(b)	Explain beer lamberts law and its importance.	**04**
	(c)	Why do buffers buffer at specific pH for example citrate buffer has the highest buffering capacity at pH 6.2?	**07**

OR

Q.5	**(a)**	Nomenclature of Lipids.	**03**
	(b)	Explain about importance of vitamin B and vitamin K	**04**
	(c)	Explain in detail the Urea cycle and it relation with water regulation in mammals	**07**

****