Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III (New) EXAMINATION – WINTER 2015

Subject Code:2131406 **Date:02/01/2016**

Subject Name: Food Chemistry

Time: 2:30pm to 5:00pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Give two examples each of following 1. Essential fatty acids 2. Saturated fatty acids 2. Essential amino acids	**06**
	(b)	Define following 1. Water Activity 2. Saponification Value 3. Iso-electric pH 4. Rancidity	**04**
	(c)	Draw the typical structural formula of following 1. Triglyceride 2. Amino Acid 3. Water 4. Monounsaturated Fatty Acid	**04**
Q.2	**(a)**	Write a note on types of water in food	**03**
	(b)	Describe various chemical properties of proteins	**04**
	(c)	Define and explain the different types of food preservatives.	**07**
		OR	
	(c)	Explain the criteria for safety and selection of food additives.	**07**
Q.3	**(a)**	Explain the role of maltodextrin in manufacturing of fruit powders.	**03**
	(b)	Explain the role of various gums in food products.	**04**
	(c)	Enlist the different monosaccharides and explain properties and applications of any one monosaccharide with structural formula..	**07**
		OR	
Q.3	**(a)**	Write appropriate scientific justification for the following statements. 1. Glucose is known as current carbohydrate coin of the body. 2. Potassium metabisulphite is not used as a preservative in colored food products. 3. Invert sugars are widely used in food products.	**03**
	(b)	Define antibiotics and explain the role of antibiotics in food preservation with suitable examples.	**04**
	(c)	Explain in detail about the starch gelatinization and retrogradation process.	**07**
Q.4	**(a)**	Give the biological functions of food proteins	**03**
	(b)	Write in detail about simple lipids.	**04**
	(c)	Describe the classification of food proteins.	**07**
		OR	
Q.4	**(a)**	Enlist different methods of moisture determination in foods	**03**
	(b)	Discuss methods of lipid extraction from oil seeds.	**04**
	(c)	Describe the effect of water activity on biochemical processes of foods.	**07**
Q.5	**(a)**	Differentiate between oils and fats	**03**
	(b)	Explain three dimensional network theory of gel formation	**04**
	(c)	Describe the physical properties of lipids	**07**

OR

Q.5	**(a)**	State different methods to control water activity of foods? Explain any one in detail.	**03**
	(b)	Define ‘Denaturation’ and enlist various effects of protein denaturation.	**04**
	(c)	Give the process flow diagram for preparation of refined vegetable oil and explain the refining process.	**07**

****