Se	at No.	: Enrolment No	
GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV (OLD) - EXAMINATION - SUMMER 2017 Subject Code: 141401 Date: 30/05/ Subject Name: Food Nutrition & Biochemistry Time: 10:30 AM to 01:00 PM Instructions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.			
Q.1		Explain the concept of un-competitive enzyme inhibition with an example. Derive Michaelis-Menten equation for un-competitive enzyme inhibition. Answer the following: i) Define nutrient and state its functions in human body. ii) What do you understand by malnutrition? iii) Fats and oils should be consumed sparingly. Justify. iv) Highlight on physiological functions of food. v) Write provitamins of Vitamin D. vi) What is Niacin equivalent? vii) State the applications of RDA.	07 07
Q.2		Draw a schematic representation of TCA cycle. Comment on the energy generated with one molecule of pyruvate Abhijeet and Aditya are 23 and 28 years in age, 51 kg and 72 kg in weight, 5 feet 6 inch and 5 feet 8 inch in height respectively. Comment on their obesity grade by determining Quetlet Index. Calculate the daily energy requirement for both.	07 07
	(b)	An enzymatic assay was carried under two different sets of conditions. The results are tabulated as below. Plot a lineweaver-Burke plot and calculate Vm and Km for both conditions. Also comment on the kind of inhibition displayed. $S\left(\mu Mol\right) Vo-A \qquad Vo-B \\ 0.100 \qquad 2.246 \qquad 5.130 \\ 0.033 \qquad 1.667 \qquad 3.700 \\ 0.020 \qquad 1.342 \qquad 2.941 \\ 0.010 \qquad 0.901 \qquad 1.890 \\ 0.005 \qquad 0.540 \qquad 1.110$	07
Q.3	(a)	Discuss the nutritional classification of protein. Explain the functions of protein in human nutrition.	07
	(b)	Describe the enzyme classification system. Which enzyme is indicated as E.C. 1.1.1.1 OR	07
Q.3	(a)	Discuss the classification of food groups. Draw a neat and well labeled sketch	07
	(b)	of Food Guide Pyramid. a) State the deficient vitamin for following diseases /disorders. i) Beri Beri ii) Night blindness iii) Scurvy	04

(c) Draw a flowchart to depict the types of mechanism (inhibition and regulation)

iv) Rickets

Q.4 (a) Discuss the effect of heat processing on carbohydrate.

of enzyme action.

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	(b)	Describe the classification of food on the basis of physiological functions in	07
		human.	
		OR	
Q.4	(a)	Define Mineral. Discuss functions, deficiency symptoms and food sources of calcium	07
	(b)	Describe how proteins can be purified by changing the ionic strength using salt. Explain the concept of salting-in and salting-out. Give an example of a salt used for this purpose.	07
Q.5	(a)	Describe the enzyme classification system of IUPAC nomenclature of enzyme. Suggest what is indicated by 1 st , 2 nd , and 3 rd digit of enzyme name. Give an example of enzyme along with its IUPAC name.	07
	(b)	What is balanced diet? Highlight on the nutritional requirement of an infant and adult.	07
		OR	
Q.5	(a)	Explain the glycolytic pathway of carbohydrate metabolism.	07
	(b)	Draw a diagram to depict the structure of pancreas and hormones released by it. State the roles of glucagon, insulin, Somatostatin. What is insulin independent diabetes?	07
