

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2018****Subject Code: 2141401****Date: 22/11/2018****Subject Name: Food Nutrition & Biochemistry****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.

**Q.1 (a) Introduce the following terms briefly. 03**

- 1 Trans fat
- 2 Nutrient Enrichment
- 3  $\beta$  oxidation of fatty acids

**Q.1 (b) Do as directed. 04**

- 1 Oils and fat are placed at an apex of food guide pyramid. Justify.
- 2 Economic status affects on the nutritional status of human being. Justify.
- 3 State two pro-vitamins for Vitamin D.
- 4 Enlist any four enzyme name used in food processing.

**Q.1 (c) Define Nutrition. Explain the factors affecting human nutrition. 07****Q.2 (a) Calculate Quetlet Index for a person whose weight and height are 65 kg and 5 feet 6 inches respectively. Comment on the obesity grade. 03****(b) Enlist the classification groups of enzymes depending on the role in a catalyzed reaction. 04****(c) Define balanced diet. Briefly explain the classification of balanced diet on the basis of production cost. Enlist ICMR (Indian Council of Medical Research) recommendations for formulating balanced diet. 07****OR****(c) Potato stuffed paratha (240g) was prepared from wheat flour and potato in the ratio 2:1. The prepared paratha was shallow fried with 20 g butter. Calculate the energy or calorific value of fried paratha. 07**

Nutrient composition of ingredients as follows.

Parameter	Potato	Wheat flour	Water	Butter
Carbohydrate, %	20	65	Nil	Nil
Protein, %	2	10	Nil	Nil
Fat, %	0.1	2	Nil	80

**Q.3 (a) Enlist the daily requirement for the following vitamins 03**  
i) Thiamin

- ii) Vitamin E  
iii) Vitamin B<sub>3</sub>
- (b) State WHO/FAO guidelines for food fortification. 04  
(c) Explain the functions of protein in human nutrition. 07
- OR**
- Q.3** (a) Differentiate between active and passive transport of nutrients in human. 03  
(b) State the significance of the followings in human nutrition. 04  
i) Gastric secretion  
ii) Bile secretion  
(c) Define Glycolysis. Discuss the steps including substrate, enzyme and energy consumed or liberated. 07
- Q.4** (a) What do you understand by induced fit model for enzyme catalyzed reactions? 03  
(b) What impact can be observed on protein after heat processing? 04  
(c) What do you mean by Food Guide Pyramid? Draw a diagrammatic representation depicting food groups and recommended serving sizes. Also highlight on the significance of each food group. 07
- OR**
- Q.4** (a) Calculate the calorific requirement of a moderately working woman whose weight is 55 kg. 03  
(b) Draw a nutrient wheel constituting nutrients recommended consumption sizes. 04  
(c) Explain the properties, functions and deficiency symptoms of vitamin C. 07
- Q.5** (a) Highlight on the effect of processing on carbohydrate. 03  
(b) Differentiate between soluble fiber and insoluble fiber. 04  
(c) Discuss the protein digestion process in human being. 07
- OR**
- Q.5** (a) Highlight on omega-3 and omega-6 fatty acids with respect to human health. 03  
(b) What are general functions of mineral in human body? 04  
(c) Tri carboxylic acid cycle is energy releasing mechanism in human being. Justify the statement. 07

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