

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV • EXAMINATION – WINTER • 2014

Subject Code: 141401

Date: 19-12-2014

Subject Name: Food Nutrition and Biochemistry

Time: 02:30 pm - 05:30 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) Discuss the classification of food on the basis of physiological role in nutrition. **07**
- (b) Explain the functions of protein in human nutrition. **07**
- Q.2** (a) Explain glycolysis. Write reaction steps and number of ATP generated at applicable steps. **07**
- (b) Calculate the calorific value of meal consisting of 3 chapati (125 g each), pulse (50 g), rice (75 g), vegetable (50 g) and 2 banana (50 g each). Composition of each commodity is given below. **07**

Food Product	Protein (%)	Carbohydrate (%)	Fat (%)
Chapati	9	65	1.5
Pulse	20	40	2
Rice	8	70	1.8
Vegetable	4	10	0
Banana	3	60	1.2

OR

- (b) Discuss the effect of heat processing on protein and fat. **07**
- Q.3** (a) Explain the functions of vitamin C, requirement and deficiency symptoms in human nutrition. **07**
- (b) Differentiate between the followings. **04**
- i) Active transport and passive transport of nutrients
 - ii) Bile and Gastric secretion
- (c) Enlist the general functions of mineral in nutrition. **03**

OR

- Q.3** (a) What is Food Guide Pyramid? Draw a schematic representation showing different food groups along with recommended serving sizes. **07**
- (b) State the vitamin deficiency in the following diseases/ disorders. **04**
- i) Hemorrhage
 - ii) Glossitis
 - iii) Ricket
 - iv) Pallegra
- (c) What do you understand by Balanced diet? **03**
- Q.4** (a) Explain the digestion process of carbohydrate in human being. **07**
- (b) Define RDA. Enlist the factors affecting RDA. **04**

- (c) Introduce the terms briefly. 03
i) Fortification ii) Supplementation of nutrients iii) Omega-3 fatty acid

OR

- Q.4** (a) Discuss the functions and excessive consumption consequences of fat. 07
(b) Briefly explain the absorption process of protein. 04
(c) What is Quetlet Index? Calculate Quetlet index of a person having weight of 68 kg and height of 1.68 m. Comment on his obesity status. 03
- Q.5** (a) What are the conditions to be maintained for recording enzyme kinetic data and discuss effect of substrate on enzymatic reaction. 07
(b) Enlist general characteristics of enzymes as biocatalyst. 04
(c) Name any three hormone names with their secretion site in the human body. 03
- Q.5** (a) Derive Michaelis Menten equation for enzyme kinetics. Explain competitive and non-competitive inhibition. 07
(b) Briefly explain the classification and nomenclature of enzymes. 04
(c) What are most common applications of enzymes in food processing industry? 03
