

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV(NEW) – EXAMINATION – SUMMER 2019****Subject Code:2141401****Date:09/05/2019****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) Justify the following statements. 03**

- i) Thiamin requirement is correlated with calorific intake of an individual.
- ii) Vitamin B<sub>12</sub> deficiency is prevalent in vegetarian population.
- iii) Raw egg consumption for prolonged time leads to egg white injury.

**(b) Draw a Food Guide Pyramid along with food groups and recommended serving sizes. 04****(c) Derive Michaelis - Menten equation for enzyme kinetics. State the significance of Lineweaver – Burk plot. 07****Q.2 (a) Introduce the following terms briefly. 03**

- i) Protein Efficiency Ratio
- ii) Net Protein utilization
- iii) Enrichment of nutrients

**(b) Shriman is a moderately working person having 145 pounds weight and 5 feet 7 inches height. Calculate BMI and comment on his obesity grade. What will be his daily calorific requirement? 04****(c) What do you understand by omega-3 fatty acid, omega-6 fatty acid and trans fat? Name three omega-3 fatty acids. What are consumption benefits of omega-3 fatty acids in human nutrition? 07****OR****(c) Discuss the functions, deficiency symptoms and excessive consumption consequences of carbohydrate in human body. 07****Q.3 (a) Food fortification is a population based approach. Justify the statement. 03****(b) Differentiate between fat soluble and water soluble vitamins. 04****(c) Define absorption of nutrients. Classify and discuss different mechanisms for nutrient absorption. 07****OR****Q.3 (a) Differentiate between soluble fiber and insoluble fiber. 03****(b) What are general functions of minerals in human body? 04****(c) Discuss the properties, functions and deficiency symptoms of vitamin folic acid in human nutrition. 07**

- Q.4 (a)** State the deficient vitamin in the following diseases/ disorders. **03**
- i) Xero-ophthalmia
  - ii) Hemorrhagic condition
  - iii) Megaloblastic anemia
  - iv) Pernicious anemia
  - v) Scurvy
  - vi) Dry beri beri
- (b)** Highlight on the digestion of carbohydrate in human body. **04**
- (c)** Explain the changes occurring during cooking practices in protein and fat. **07**

**OR**

- Q.4 (a)** What does E.C. 1.1.1.42 designates? **03**
- (b)** Enlist the recommendations given by ICMR for designing Balanced Diet. **04**
- (c)** A snack item weighing 120 g was prepared from the combination of refined wheat flour and potato in the ratio of 1:3 and then fried in additional 30 g edible oil. Calculate the total energy value of two snack items. The compositions of ingredients used are as follows. **07**

Ingredients	Carbohydrate,%	Protein,%	Fat, %	Moisture, %
Refined wheat flour	70	6	2	14
Potato	30	1	2	60
Edible oil	Nil	Nil	99	1

- Q.5 (a)** Write the first priming and second priming reaction occurring in Glycolysis. **03**
- (b)** What do you understand by  $\beta$ -oxidation of fatty acids? **04**
- (c)** Explain advantages and limitations of vegetarian diet. Suggest remedies to overcome the limitations of vegetarian diet. **07**

**OR**

- Q.5 (a)** Highlight on the absorption of cyanocobalamin in human body. **03**
- (b)** Briefly explain the digestion of protein in human body. **04**
- (c)** Draw a schematic representation of citric acid cycle along with substrate, enzyme and energy released. Give an account of energy released in the cycle. **07**

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