

B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING

SECOND YEAR FIRST SEMESTER - 2019

SUBJECT: BIOCHEMISTRY & NUTRITION- II

Time: Three Hours

Full Marks: 100

Part –II (Marks- 50)

Use Separate Answer scripts for part I & part II

1. Answer any seven questions:

(2×7 = 14)

- a. What is nutraceutical?
- b. Write the full form of PAL and ICMR.
- c. What is the role of protein in water balance regulation?
- d. Draw the food pyramid.
- e. Give the definition of health.
- f. What are the characteristics of a 'Reference Woman'?
- g. What is Parkinson's disease?
- h. How excess fibre acts as an anti-nutrient?
- i. What is free radical?
- j. What is braising?

2. Write short note on any four of the following:

(5×4 = 20)

- a. Fortification
- b. Pediatric Food
- c. Glycemic Index
- d. Recommended dietary allowance
- e. Complications related to over nutrition
- f. Basal metabolic rate

- 3. a. Calculate the carbohydrate, protein and fat requirements for the following subject: Age- 25 years, Gender- Male, Height- 5'6", Weight- 70 kg, Type of activity- Moderate.**
- b. Write six differences between Kwashiorkor and Marasmus.**
- c. What are the roles of fat in the diet?**

(10+3+3=16)

Or,

- 4. a. i) Why carbohydrate is essential for complete β -oxidation of fat? ii) What is the difference between fast food and junk food?**
- b. i) Define glycemic load. ii) Calculate the glycemic load of a potato based on the following information: Glycemic index-5, Carbohydrate per serve- 14 g.**
- c. i) What is functional food? ii) Write name of one antioxidant compound present in each of the following samples: Coffee, tomato, turmeric and soyabean. iii) What is isotopic labelling?**

[(2+2)+(2+2)+(2+4+2)=16]

[Turn over

B.E. FOOD TECHNOLOGY AND BIO-CHEMICAL ENGINEERING
SECOND YEAR FIRST SEMESTER EXAM 2019
Biochemistry and Nutrition -II

Time: 3 hrs.

Full Marks : 100

Part – II

Answer Question No. 1 and any four from the rest:

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| (1) | a. What is allosteric site? | 1 |
| | b. Distinguish between metal activated enzyme and metalloenzyme. | 2 |
| | c. What is the difference between nucleoside and nucleotide? | 1 |
| | d. How vitamin D regulates the plasma levels of calcium? | 3 |
| | e. Describe the role of iodine in synthesis of thyroxine. | 3 |
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| (2) | a. How temperature affects enzyme activity? | 3 |
| | b. Describe the role of thiamin in decarboxylation. Give structures. | 3+3 |
| | c. Why copper deficiency leads to hypopigmentation? | 1 |
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| (3) | a. What is double reciprocal plot? Why is it necessary? | 2+2 |
| | b. Give the structures of the coenzyme forms of vitamin B ₂ . | 2 |
| | c. What are the factors that promote calcium absorption? | 4 |
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| (4) | a. How V _{max} is affected in presence of competitive, non competitive and uncompetitive inhibitors? | 2+2+2 |
| | b. Name the condition caused by niacin deficiency. What are its three characteristics? | 2 |
| | c. How can the iodine intake of populations in goitrous regions be increased? | 2 |
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| (5) | a. What is suicide inhibition? | 2 |
| | b. Give the structures of active forms of vitamin B ₆ and vitamin D. | 2 |
| | c. Give example of an enzyme that acts only on the trans isomer of the substrate. | 2 |
| | d. What is ceruloplasmin? What is its function? | 2+2 |
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| (6) | a. What do you understand by katal? | 2 |
| | b. Explain the heterotropic allosteric inhibition using direct sequential model. | 4 |
| | c. What are the significances of K _m ? | 4 |