

CARMEL COLLEGE OF ARTS, SCIENCE AND COMMERCE, NUVEM – GOA

POST GRADUATE DEGREE STUDIES (AFFILIATED TO GOA UNIVERSITY)

M.Sc. (I) Food Technology (Semester I) Examination, February 2022

FTC 101: FOOD BIOCHEMISTRY AND NUTRITION

Duration: 2 hours

Date: 16 February 2022

Max. Marks: 45

INSTRUCTIONS:

1. **Section I** is compulsory.
2. Answer **any 3** questions from **Section II**.
3. Figures on the right indicate maximum marks assigned to the question.

SECTION I

Q1. A. Justify any 5 of the following statements with appropriate examples: (5 x 2 marks = 10 marks)

- a. A vegan diet can result in a qualitatively deficient protein intake.
- b. The food choices we make are a combination of physiological and psychological needs of the human body.
- c. Removal of the pancreas can affect the digestion of nutrients.
- d. Organ functionality is a must for adequate assimilation of 1, 25 dihydroxycholecalciferol in the human body.
- e. Multi-nutrient deficiencies can result in anemia.
- f. A protein isolate differs from a protein concentrate.
- g. Ketogenesis results in a drop in blood pH.

Q1. B. Elaborate on any 1 of the following with the help of explanatory reactions: 5 marks

- a. Energetics of Aerobic Glycolysis
- b. Transamination and Deamination

SECTION II

Q2. Answer any 5 of the following:

(5 x 2 marks = 10 marks)

- a. What is an emulsion?
- b. Define the terms 'anomer' and 'epimer', providing structural examples of each.
- c. Explain the deficiency associated with each of the following, giving an example of two foods that can overcome it:
 - (i) Vitamin K
 - (ii) Zinc
 - (iii) Calcium
 - (iv) Niacin
- d. "Decarboxylation of amino acids results in the production of important compounds" - Discuss
- e. Draw a link between rancidity of fats and antioxidants.
- f. Explain the difference between a dietary fibre and a resistant starch.
- g. Explain the Nutrition Rainbow.
- h. What are 'Stress' and 'Anti-Freeze' Proteins?

Q3. Elaborate upon any 1 of the following:

10 marks

- a. Glycogenesis
- b. Urea Cycle

Q4. Write short notes on any 2 of the following:

(2 x 5 marks = 10 marks)

- a. Types of Dietary Fats
- b. Sensory tests used to determine food acceptability
- c. Methods of dietary carbohydrate absorption
- d. Browning reactions in foods
- e. Importance of Trace Minerals to Human Health

Q5. Discuss, in detail, any 1 of the following:

10 marks

- a. Gluconeogenesis
- b. Fatty Acid Oxidation

Q6. Briefly discuss any 2 of the following:

(2 x 5 marks = 10 marks)

- a. Plant chemicals related to health
- b. Food factors affecting nutrient bioavailability
- c. Qualitative evaluation of dietary protein
- d. Carbohydrate reactions that result in acid formation
- e. Classification of Fats
