

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous), Rajkot
Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION NOVEMBER 2018

B.Sc. Biochemistry

16UBCCC18 – NUTRITIONAL BIOCHEMISTRY (SELF STUDY)

Duration of Exam – 3 hrs

Semester – V

Max. Marks – 70

Part A (10x1= 10 marks)

Answer **ALL** questions

1. Which organization recommends RDA for the Indian population?
2. Why the use of iodized salt has been made mandatory in India?
3. Carbohydrates are stored in what form and in which two main organs inside the human body?
4. Describe unsaturated fatty acids and write examples of mono and poly unsaturated fatty acids.
5. Briefly mention daily protein requirements for Adults and Children.
6. Why edema is observed in children suffering from Kwashiorkor?
7. Name the fat soluble vitamin that is involved in blood coagulation and its deficiency causes prolonged bleeding after severe injury or surgery?
8. Coenzyme A plays a vital role in fatty acid oxidation. Which vitamin is a precursor for synthesis of Coenzyme A?
9. Name the vitamin that is essential for absorption of calcium and phosphorous from GIT.
10. Write name of the trace element that is an important constituent of Vitamin B₁₂.

Part B (5x5= 25 marks)

Answer **ALL** questions

- 11a. What do you understand by food tables? Write an overview of the macro nutrients, micronutrients and trace elements listed in the food tables.
- OR**
- 11b. Write short note on Eating disorders: Anorexia nervosa and Bulimia.
- 12a. Define glycemic index, discuss how it is determined and write two examples each for high glycemic foods and low glycemic foods.
- OR**
- 12b. Name the organs in the human body where fat is stored. Why the major energy storage form in humans is fat and not carbohydrates?
- 13a. Write a brief note on different tests to study protein quality.
- OR**
- 13b. Describe the different strategies used to improve quality of proteins in a vegetarian diet giving suitable examples.
- 14a. Why historically scurvy was very common among sailors who performed longer sea voyages? Write two rich sources of Vitamin C and describe important functions of Vitamin C.

OR

14b. Write the names of coenzymes of any five of the following vitamins: Vitamin B₁, B₂, B₃, B₅, B₆ and B₁₂. Give at least one example each for the enzymes requiring these coenzymes for their action.

15a. Write two rich dietary sources of iron from the diet of plants and animal origin. Discuss factors that increase or decrease the iron absorption.

OR

15b. Write biochemical functions of Calcium. Why RDA for calcium is higher in pregnant and lactating women?

Part C (5X7= 35 marks)

Answer **ALL** questions

16a. Discuss giving diagram instrumentation and working of the Bomb Calorimeter. Write applications of Bomb Calorimeter in nutritional biochemistry.

OR

16b. Define BMR and discuss in detail the factors that affect basal metabolic rate.

17a. Define dietary fibers, write their types and discuss in detail, the important health benefits of dietary fibers.

OR

17b. Discuss properties of different types of lipoproteins and their functions.

18a. Discuss at least seven different important functions of proteins in human body.

OR

18b. Explain the causes, clinical symptoms, prevention and treatment of kwashiorkor.

19a. Name different biochemical forms of Vitamin A. Write a detailed note on important functions of Vitamin A.

OR

19b. Explain the causes, clinical symptoms, treatment and prevention of Rickets in children.

20a. Define trace elements. Write a detailed note on the following trace elements and their important functions in human health: Zinc, Magnesium, Copper and Chromium.

OR

20b. Write dietary sources of fluoride, its biochemical functions, deficiency symptoms and its toxicity.
