2025

(CBCS)

(6th Semester)

BIOCHEMISTRY

TENTH PAPER

(Nutritional Biochemistry)

(Revised)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. Which of the following have the highest SDA?

(a) Carbohydrates ( ) *(b)* Proteins ( )

(c) Fats ( ) *(d)* Vitamins ( )

2. Intracellular storage form of iron is

(a) transferrin ( ) *(b)* ceruloplasmin ( )

(c) ferritin ( ) *(d)* haemoglobin ( )

3. Which of the following enzymes is found in stomach of infants involved in the curdling of milk?

(a) Renin ( ) *(b)* Trypsin ( )

(c) Chymotrypsin ( ) *(d)* Elastase ( )

4. Which of the following is true for trans-fatty acids?

(a) It does not possess double bonds ( )

(b) It increases HDL ( )

(c) It decreases LDL ( )

(d) Is is used in food industry due to long shelf-life ( )

5. The functionally active form of vitamin D is

(a) cholecalciferol ( )

(b) ergocalciferol ( )

(c) dehydrocholesterol ( )

(d) calcitriol ( )

6. The vitamin that is synthesized by microbes in the gut is

(a) vitamin A ( ) *(b)* vitamin B_1 ( )

(c) vitamin E ( ) *(d)* vitamin K ( )

7. Which of the following minerals is required for wound healing?

(a) Sodium ( ) *(b)* Potassium ( )

(c) Zinc ( ) *(d)* Magnesium ( )

8. The Prevention of Food Adulteration (PFA) Act was formulated in the year

(a) 1954 ( ) (b) 1955 ( )

(c) 1991 ( ) *(d)* 2001 ( )

9. Pellagra is a condition resulting from the deficiency of

(a) folic acid ( ) *(b)* niacin ( )

(c) cobalamin ( ) *(d)* pantothenic acid ( )

10. What is the BMI range of obesity?

(a) BMI 25 kg/m^2 ( )

(b) BMI 25 kg/m^2 ( )

(c) BMI 25 29 9 kg/m^2 ( )

(d) BMI 30 kg/m^2 ( )

(SECTION : B—SHORT ANSWERS)

(*Marks* : 15)

Write short notes on the following : 3×5=15

1. Balanced diet

OR

Respiratory quotient (RQ)

2. Nutritional importance of water

OR

Glycemic index

3. Biochemical functions of thiamine

OR

Role of vitamin C in collagen formation and iron absorption

4. Dietary sources and RDA of magnesium

OR

Dietary sources and RDA of potassium

5. Causes of rickets

OR

Symptoms and risk factors for goitre

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer the following questions : 10×5=50

1. How is energy content of food calculated? Mention its significance. Discuss on the energy requirement during adolescent and lactation. 1+2+7=10

OR

Write brief notes on the following : 5+5=10

(a) Factors affecting BMR

(b) Types of food adulteration

2. Explain in detail the digestion and absorption of carbohydrates. 6+4=10

OR

What are the nutritional importance of lipids? What is the role of bile salts in the absorption of lipids? 5+5=10

3. Write in detail the role of vitamin A in the visual cycle. Add a note on the mechanism of colour vision. 6+4=10

OR

Write a brief note on the biochemical functions of vitamin E. What is RDA for vitamin E? 8+2=10

4. What is the most abundant mineral in the body? Add a note on its biochemical functions, dietary sources and its RDA. 2+5+3=10

OR

Write brief notes on the following : 5+5=10

(a) Biochemical functions of sodium

(b) Biochemical functions of phosphorus

5. What is protein-energy malnutrition? Explain the symptoms and causes of the two types of protein-energy malnutrition diseases. 2+8=10

OR

Write brief notes on the causes and symptoms of the following : 5+5=10

(a) Xerophthalmia

(b) Beriberi

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