

This question paper contains 4 printed pages]

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S. No. of Question Paper : 5006

Unique Paper Code : 2494002002

Name of the Paper : Nutrition and Food Science

Name of the Course : B.Sc. (Hons) ~~Biochemistry~~

Semester : VIII

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are 6 questions.

Attempt four questions in all.

All questions carry equal marks.

Question No. 1 is compulsory.

1. (a) Define the following terms with examples (any five) :

(i) Nutritional status

(ii) Physical activity level

(iii) Energy allowance

(iv) RMR

P.T.O.

(v) Food emulsifiers

(vi) Omega 6 fatty acids

(vii) Food supplementation.

(b) Justify the following statements :

(i) Energy requirements ~~vary across~~ age groups and activity levels.

(ii) Botulism is a food borne disease

(iii) Food spoilage can occur due to microbial, enzymatic and environmental factors

(iv) Vitamin D has a hormone-like role in the body

(v) Two individuals of the same age and gender may have different BMR. 5,10.

2. (a) Explain the physiological fuel values of macronutrients. Why fats provide more physiological energy compared to carbohydrates and proteins ?

(b) Explain the concept of balanced and fad diets. What would be short-term and long-term consequences of a fad diet of high protein with strict restrictions on carbohydrates and fats ?

(c) "Food can act as medicine," justify the statement with reference to functional foods such as garlic and turmeric. 5,6,4

3. Differentiate between :
- (i) Glycemic index and glycemic load
  - (ii) Soluble and insoluble fibre
  - (iii) Prebiotics and probiotics
  - (iv) Natural and synthetic foods colors. 5,4,3,3
4. (a) Deficiency and excess of minerals like iron and calcium are harmful. Explain its statement.
- (b) Explain the effect of dietary fiber on the following :
- (i) Blood cholesterol
  - (ii) Colon health
  - (iii) Gut microbiome.
- (c) Define trace minerals. Discuss functions of copper in the body. 6,6,3
5. (a) Discuss the concept of protein quality using the following indices :
- (i) PER
  - (ii) BV
  - (iii) NPU
  - (iv) PDCAAS.
- (b) Explain amino acid complementation and supplementation with examples.
- (c) Discuss the anti-nutritional factors affecting protein bioavailability. 6,5,4

6. Discuss the sources, functions and deficiency diseases of the following :

(i) Folic acid

(ii) Vitamin B12

(iii) Vitamin C

(iv) Vitamin A.

4,4,3,4