

This question paper contains 4 printed pages]

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S. No. of Question Paper : **5685**

Unique Paper Code : **2493012005**

Name of the Paper : **Nutritional Biochemistry**

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

Semester : **IV**

Duration : **2 Hours**

Maximum Marks : **60**

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

There are *six* questions.

Attempt any *four* questions.

All questions carry equal marks.

Question No. **1** is compulsory.

1. (A) Explain the following terms (any *five*) :

(i) Amino acid imbalance

(ii) RDA

(iii) UL of nutrients

(iv) Calorific value of food

(v) Lipotropic factors

(vi) Artificial sweeteners.

P.T.O.

(B) Give reasons for the following (any *five*) :

- (i) Alcohol isn't a nutrient
- (ii) Vitamin B12 deficiency leads to folic acid deficiency
- (iii) Vitamin E has anti-atherosclerotic properties.
- (iv) It is always advised to take rice along with pulses.
- (v) 'During convalescence from illness the body has positive nitrogen balance.
- (vi) Respiratory quotient falls in diabetes mellitus. 5,10

2. (A) What is the role of dietary fiber in the following ;

- (i) Colon function
- (ii) Gastric emptying
- (iii) Gut microbiota.

(B) Mention *four* important indices that can be used to assess the quality of protein. Which one is better and why ?

(C) Why is consumption of hydrogenated and reheated oils considered harmful ? What are the recommended proportions of different fatty acids in the diet ? 6,5,4

3. Differentiate the following (any *five*) :

- (A) Lactose intolerance and gluten intolerance
- (B) Positive nitrogen balance and negative nitrogen balance
- (C) Wet Beri-beri and Dry Beri-beri
- (D) Macrocytic anemia and Megaloblastic anemia
- (E) Essential fatty acid and Non-essential fatty acid
- (F) Prebiotics and Probiotics.

3×5=15

4. (A) Discuss the factors affecting the bio-availability and absorption of calcium in the gastrointestinal tract. What would be the effects of having excess calcium in the diet ?

(B) A chocolate has a glycemic index of 62 and the carbohydrate content is 40 gm whereas watermelon has a glycemic index of 80 and contains about 7 gm carbohydrate. Calculate and compare the glycemic load of the two food items. Also discuss the utility of GI and GL in dietary management of diabetics.

(C) Discuss the consequences of the following :

- (i) Low protein diet
- (ii) High protein diet
- (iii) Vegan diet.

6,3,6

P.T.O.

5. (A) Define BMR. Discuss the various factors affecting the BMR.
- (B) Discuss the deficiency and clinical signs in the following cases :
- (i) Marasmus
 - (ii) Pellagra
 - (iii) Wilson's diseases
 - (iv) Rickets
 - (v) Keshan disease. 5,10
6. (A) Mention the significance of the following reactions inside the body :
- (i) Gamma-carboxylation by Vitamin K
 - (ii) Post-translation modification of proteins by vitamin C
 - (iii) One-carbon metabolism by folic acid.
- (B) Discuss the Muscosal Block theory for regulation of iron absorption.
- (C) What do you mean by thermogenic effect of food (TEF) ? How does the meal composition influence the TEF ? 6,6,3