

2021

BIOCHEMISTRY — HONOURS

Paper : DSE-A-1

(Nutritional Biochemistry)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer *any five* questions:

2×5

- (a) What is RDA?
- (b) Define nutrients.
- (c) When 1g of carbohydrate is completely oxidised, what amount of heat is produced?
- (d) What do you mean by the term BMR?
- (e) In what condition energy requirements are increased?
- (f) Define protein caloric malnutrition.
- (g) What is pernicious anemia?
- (h) Define hypervitaminosis.
- (i) What are non-starch polysaccharides?
- (j) What percentage of kilocalories should come from carbohydrates?

2. Answer *any two* questions:

- (a) What is dietary fibre? Describe the role of dietary fibre in lipid metabolism. 2+3
- (b) What are the factors that affect the total energy input of an individual? Discuss them. 2+3
- (c) What are nutraceuticals? Explain their importance. 2+3
- (d) What are direct and indirect calorimetry? Describe the factors affecting thermogenesis. 2+3

3. Answer *any three* questions:

- (a) (i) Differentiate between the terms Recommended Nutrient Intakes (RNI) and Recommended Dietary allowances.
- (ii) What are physiological energy value of foods? Write these values for carbohydrates, fats and proteins. 5+(2+3)

Please Turn Over

- (b) (i) Describe the hormonal regulation of blood glucose.
(ii) What are the physiological effects of dietary fibre? Explain the role of fibre in human nutrition. 5+(3+2)
- (c) (i) Differentiate between absorption of dietary lipids and carbohydrate through GI tract.
(ii) What is the recommended ratio of omega 3 : omega 6 polyunsaturated fatty acids in diet? Describe its significance.
(iii) $n3$ fatty acids exerts reverse effects on arterogenesis and thrombus formation. — Explain. 3+(2+2)+3
- (d) (i) Describe the role of EFA as bactericidal agents.
(ii) Describe the classical effects of dietary fibre in the following conditions:
1. Colon function
2. Lipid metabolism
3. Blood glucose level
4. GI tract function. 2+(2×4)
- (e) (i) Differentiate between biological value and nitrogen balance of dietary proteins.
(ii) How is ammonia incorporated into biomolecules?
(iii) Explain the significance of nitrogen cycle. 4+3+3
- (f) (i) Discuss the extra-skeletal role of vitamin D and its effect on bone physiology.
(ii) Folic acid deficiency is common during pregnancy. — Explain why.
(iii) Increased susceptibility to infection occurs in vitamin A deficiency. — Explain. (2+2)+3+3
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