

Roll No. ....

Total Pages : 03

**CMDE/D-23**

**6550**

NUTRITIONAL BIOCHEMISTRY

BCH-304A

Time : Three Hours]

[Maximum Marks : 80

**Note** : Attempt *Five* questions in all, selecting *one* question from each Section. Q. No. 1 is compulsory. All questions carry equal marks.

**(Compulsory Question)**

1. Discuss the following in brief : **8×2=16**

- (a) Glycemic index
- (b) Deficiency symptoms of thiamine
- (c) Dietary fibres
- (d) Functions of vitamin C
- (e) Essential fatty acids
- (f) Deficiency symptoms of Chromium
- (g) Agricultural residue
- (h) Lipoproteins.

**Section A**

2. (a) Give a detailed account of the measurement of energy expenditure (direct and indirect calorimetry) of a food. **8**

- (b) What do you mean by positive and negative nitrogen balance ? Enlist the factors that influence nitrogen balance. **5**
- (c) What do you mean by respiratory quotient ? Write the respiratory quotient of different food stuffs. **3**
- 3. (a) What is BMR ? How can it be measured ? Write the significance and the factors affecting BMR. **8**
- (b) How will you assess the nutritive value of proteins ? Discuss in detail. **8**

#### **Section B**

- 4. What are fat soluble vitamins ? Discuss the dietary sources, physiological functions, deficiency symptoms and toxicity symptoms of all the fat soluble vitamins. **16**
- 5. (a) Write the nutritional significance, dietary sources, deficiency symptoms and toxicity symptoms of selenium and iron. **10**
- (b) Enlist any *four* major minerals. Also write the main functions of any *two* major minerals. **6**

#### **Section C**

- 6. (a) What do you mean by food safety and what is its importance ? Discuss in detail the different types of microbial contamination of food along with suitable examples. **8**

- (b) Write a note on phytochemicals. **5**
- (c) Differentiate between functional foods and nutraceuticals. **3**
- 7. (a) What are antinutrients ? What are the side effects of antinutrients ? Describe the different types of antinutrients. **8**
- (b) Discuss in detail the different types of additives, their attributes and related health concerns. **8**

#### **Section D**

- 8. (a) What do you mean by protein energy malnutrition ? Discuss the etiology, clinical features, metabolic disorders and management of Marasmus disease. **8**
- (b) Discuss in detail the associations between nutritional factors and common cancer sites. **8**
- 9. Discuss in detail the applications of the following enzymes in food industry : **4×4=16**
  - (i) Lactase
  - (ii) Asparaginase
  - (iii) Xylanase
  - (iv) Cellulase.