

## Biochemistry

M.M. : 90

Time : 3 Hours

### SECTION - A

All questions are compulsory. Answer to each question upto 5 lines in length. Each question carries 2 Marks. [20]

1. What is an asymmetric carbon.
2. List the essential fatty acids. Are they saturated or unsaturated.
3. What are Zymogens? Give two examples.
4. What is the normal reference range for fasting blood glucose and for postprandial blood glucose.
5. Write the names of two compounds acting as second messengers.
6. What are uncouplers? Give two examples.
7. Write the reaction catalyzed by a typical transaminase and indicate the coenzyme required by this enzyme.
8. Define pH.
9. What are aromatic amino acids? Name them.
10. What is Tetany? How is it caused.

### Section - B

Attempt any 8 questions. Answer to each question upto 2 pages in length. Each question carries 5 Marks. [40]

1. What are Mitochondria. Explain their structure and list their functions.
2. Classify Carbohydrates giving the functions and uses of each class.
3. What are Glycolipids. How do they differ from phospholipids? Explain with suitable examples.
4. Describe with the help of a labelled diagram the salient features of the Watson and Crick model of DNA.
5. What are amino acids. Classify them according to the nature of their side chain.
6. What are the biological functions of Calcium in the body. Discuss the homeostasis of Calcium.
7. Describe the Cori's cycle.
8. Differentiate between Coenzymes and Isoenzymes giving suitable examples each.
9. What is Atherosclerosis? Explain the initiation of atherosclerosis with reference to metabolism of LDL.
10. What is RNA. List the various types. Describe the features and functions of tRNA.
11. Give an account of the energy requirement with respect to the extent of physical activity of an individual. What is a balanced diet.
12. Describe in detail  $\beta$ -oxidation of palmitic acid with energetics.

### SECTION - C

*Attempt any 2 questions. Answer to each question upto 5 pages in length. Each question carries 15 Marks.* [30]

1. What is Glycolysis and what is its significance. Describe this pathway in detail. How does it differ from Gluconeogenesis.
  2. Describe the various types of enzyme inhibition in detail.
  3. Describe the chemical nature and metabolic role of Vitamin D. Discuss diseases caused due to its deficiency. What are the symptoms of Vitamin hypervitaminosis.?
  4. What are inborn errors of metabolism? Describe the causes of the following diseases?
    - a. Phenylketonuria.
    - b. Alkaptonuria.
    - c. Maple syrup urine disease.
    - d. Hartnup disease.
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