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21819

3 Hours / 80 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:**

20

- a) Define the terms:
- (i) Marker enzymes
 - (ii) Isoenzymes
 - (iii) Metal contactor
 - (iv) Zwitterion
- b) Name four important organelles of animal cell and write one function of each.
- c) Write short note on:
- (i) Essential fatty acids.
 - (ii) Nutritional edema
- d) Define and classify lipids.
- e) Explain the terms and treatment of:
- (i) Hyponatremia
 - (ii) Hypothyroidism

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- f) Write short note on:
- (i) Oxidative phosphorylation
 - (ii) Transamination
- g) Explain the terms:
- (i) Purpura
 - (ii) Polycythemia.

2. Attempt any THREE of the following:

12

- a) Define the terms:
- (i) Biochemistry
 - (ii) Pathology
 - (iii) Catabolism
 - (iv) Anabolism
- b) Write a note on:
- (i) Acrolein formation
 - (ii) Denaturation of proteins
- c) What is vitamin C? Explain its biochemical role. Mention deficiency condition and its symptoms.
- d) Explain the identification test for:
- (i) Carbohydrates
 - (ii) Proteins
- e) Define unit of enzyme activity. Mention four important factors that affect enzyme activity. Explain effect of temperature.

3. Attempt any THREE of the following: 12

- a) Write structure of:
 - (i) Nicotinamide
 - (ii) Alanine
 - (iii) D-fructose
 - (iv) Lactose
- b) Define proteins. Explain the role of proteins in human body.
- c) Explain oxidation of glucose with different oxidizing agents with reactions.
- d) Explain biochemical role of potassium and chlorine in our body.
- e) What are oils? Explain the role of antioxidant in preservation of oil.

4. Attempt any THREE of the following: 12

- a) Define the term 'Enzyme'. Explain binding of substrate with an enzyme at the active site.
- b) Explain secondary structure of proteins.
- c) What is pathological urine? Mention abnormal constituents of urine and their significance.
- d) Explain the importance of water in our body. Mention the routes of excretion of water from the body.
- e) What are coenzymes? Give full names of six vitamins and their respective coenzymes.

5. Attempt any THREE of the following: 12

- a) Discuss in brief the reactions involved in β -oxidation of fatty acids.
- b) Explain in short:
 - (i) Acid value
 - (ii) Acetyl number
 - (iii) Phospholipids
 - (iv) Iodine number.
- c) Explain biochemical role of calcium. Mention its deficiency manifestations and remedy.
- d) Write short note on:
 - (i) Arteriosclerosis
 - (ii) Hyperammonemia
- e) What is enzyme inhibition? Explain competitive inhibition with one example.

6. Attempt any TWO of the following: 12

- a) Explain glycolysis cycle.
 - b) Explain:
 - (i) Phenylketonuria
 - (ii) Ketosis
 - c) Give schematic representation of classification of carbohydrates. Explain each class with examples.
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