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(CBCS)

(5th Semester)

ZOOLOGY

SEVENTH PAPER

(Biochemistry)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(*Marks* : 10)

Tick (✓) the correct answer in the brackets provided : 1×10=10

1. Waxes are esters of fatty acids and

(a) glycerol ( ) *(b)* alcohol ( )

(c) steroids ( ) *(d)* phosphates ( )

2. Which one of the following is essential fatty acid?

(a) Linoleic acid ( )

(b) Palmitic acid ( )

(c) Oleic acid ( )

(d) Stearic acid ( )

3. Which of the following is not a prosthetic group?

(a) NAD ( ) *(b)* Fe+++ ( )

(c) ATP ( ) *(d)* Coenzyme A ( )

4. Rickets is a disease due to the deficiency of vitamin

(a) A ( )

(b) B ( )

(c) C ( )

(d) D ( )

5. Which of the following is glycogen storing organ?

(a) Liver ( ) *(b)* Kidney ( )

(c) Intestine ( ) *(d)* Erythrocyte ( )

6. Glucose is the sole source of metabolic energy in

(a) renal cortex ( ) *(b)* skeletal muscle ( )

(c) WBC ( ) *(d)* RBC ( )

7. The final electron acceptor in mitochondrial electron transport system is

(a) cytochrome C ( )

(b) ubiquinone ( )

(c) ubiquinol ( )

(d) molecular oxygen ( )

8. During which process $FADH_2$ is produced?

(a) Krebs cycle ( )

(b) Electron transport chain ( )

(c) Glycolysis ( )

(d) HMP shunt ( )

9. On complete oxidation, one molecule of palmitic acid would produce

(a) 6 molecules of acetyl conenzyme A ( )

(b) 7 molecules of acetyl conenzyme A ( )

(c) 8 molecules of acetyl conenzyme A ( )

(d) 10 molecules of acetyl conenzyme A ( )

10. The two basic amino acids, not found in the protein structure are

(a) arginine and aspartate ( )

(b) lysine and leucine ( )

(c) thiokinase and thiolase ( )

(d) ornithine and citrulline ( )

(SECTION : B—SHORT ANSWER)

(*Marks* : 15)

Write short notes on the following : 3×5=15

UNIT—I

1. Structure of amino acids

OR

2. Significance of lipids

UNIT—II

3. Fat soluble vitamins

OR

4. Ribozymes

UNIT—III

5. Glycogenolysis

OR

6. Glycogen synthase

UNIT—IV

7. Oxidative phosphorylation

OR

8. Complex I of mitochondrial electron transport system

UNIT—V

9. Lipogenesis

OR

10. Urea cycle

(SECTION : C—DESCRIPTIVE)

(*Marks* : 50)

Answer the following : 10×5=50

UNIT—I

1. Give a brief account of different types of carbohydrates. Add a note on their significance. 6+4=10

OR

2. Write the structure and properties of peptides. 6+4=10

UNIT—II

3. Derive Michaelis-Menten equation. Discuss its significance. 8+2=10

OR

4. Write the different types of enzymes. Add a note on enzymes inhibitions. 6+4=10

UNIT—III

5. Describe the various steps of glycolysis. Add a note on its significance. 8+2=10

OR

6. What is gluconeogenesis? Explain the three bypass reactions in gluconeogenesis. Add a note on significance of gluconeogenesis. 1+6+3=10

UNIT—IV

7. What is TCA cycle? Describe the various steps of TCA cycle. 1+9=10

OR

8. Describe the structure of mitochondrial ATP synthase complex. Discuss the mechanism of ATP synthesis. 5+5=10

UNIT—V

9. What are ketone bodies? Describe the various steps in ketogenesis. Add a note on importance of ketogenesis. 2+6+2=10

OR

10. What do you mean by -oxidation? Describe the various steps in -oxidation of saturated fatty acids. 2+8=10

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