Total No. of Printed Pages—3

4 SEM TDC ZOOH (CBCS) C 10

2025

(May/June)

ZOOLOGY

(Core)

Paper : C–10

(Biochemistry of Metabolic Processes)

Full Marks : 53

Pass Marks : 21

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Fill in the blanks : 1×5=5

(a) The catalytic activity of many enzymes depends on the presence of small organic molecules or metal ions termed as _____.

(b) Anaerobic breakdown of pyruvate yields _____.

(c) Fatty acid oxidation occurs in the _____.

(d) Enzymatic transfer of an amino group from an α-amino acid to an α-keto acid is called _____.

(e) The electron transport chain is located in the _____.

2. Write short notes on (any *two*) : 4×2=8

(a) Redox reactions

(b) Stages of catabolism

(c) Urea cycle

(d) Inhibitors of ETC

3. Write the complete reactions catalysed by the following : 2×5=10

(a) Phosphofructokinase–I

(b) Pyruvate kinase

(c) Alanine aminotransferase

(d) Isocitrate dehydrogenase

(e) Arginase

Or

What are shuttle systems? Write briefly about two important shuttle systems in metabolism. 3+7=10

4. Distinguish between Glycogenesis and Glycogenolysis. Write the reactions of glycolytic pathway. 2+8=10

Or

Describe the steps involved in citric acid cycle mentioning the enzymes involved. Calculate the energetics of citric acid cycle. 7+3=10

5. What do you mean by β-oxidation of fatty acid? Explain the process of oxidation of a C-16 saturated fatty acid. 2+8=10

Or

Describe the biosynthetic pathway of palmitic acid. How is β-oxidation different from ω-oxidation of saturated fatty acids? 7+3=10

6. Define deamination. Write a reaction to illustrate the process of deamination. What happens to the C-skeleton of ketogenic amino acids? 2+4+4=10

Or

What do you mean by oxidative phosphorylation? Explain the chemiosmotic hypothesis with suitable diagram. 3+5+2=10

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