Total No. of Printed Pages—3

4 SEM TDC ZOOH (CBCS) C 10

2024

(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) Glycolysis occurs in _____.

(b) The process of breaking down glycogen into glucose units is called _____.

(c) The complete oxidation of glucose yields _____ ATP.

(d) _____ is a coenzyme of citric acid cycle.

(e) Urea cycle takes place in _____.

2. Write short notes on (any *two*) : 4×2=8
   (a) Substrate level phosphorylation
   (b) Malate-Aspartate shuttle
   (c) Reducing equivalents
   (d) Transamination

3. Write and complete reactions catalysed by the following : 2×5=10
   (a) Hexokinase
   (b) α-ketoglutarate dehydrogenase
   (c) Carbamoyl phosphate synthetase I (CPSI)
   (d) Lactate dehydrogenase
   (e) Arginase

Or

Distinguish between catabolism and anabolism. Write about the various stages of catabolism. 3+7=10

4. What is gluconeogenesis? Describe the steps and enzymes involved in gluconeogenesis. 2+8=10

Or

Explain the process of glycogen synthesis mentioning enzymes and cofactors involved. Write how it differs from glycogenolysis. 7+3=10

5. Explain the process of beta-oxidation of saturated fatty acids. Mention the steps and enzymes involved. Include a diagram of the β-oxidation cycle. 8+2=10

Or

Describe the steps and enzymes involved in the omega oxidation of saturated fatty acids. What are the products and the significance of this pathway? 8+2=10

6. Describe the urea cycle with steps and enzymes involved. Write about the fate of C-skeleton of glucogenic amino acids. 6+4=10

Or

Describe the mitochondrial electron transport chain with suitable illustrations. How does the mitochondrial electron transport chain generate a proton gradient? 8+2=10

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