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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)

2. Write short notes on (any two) : $4 \times 2 = 8$

- (a) Substrate level phosphorylation
- (b) Malate-Aspartate shuttle
- (c) Reducing equivalents
- (d) Transamination

3. Write and complete reactions catalysed by the following : $2 \times 5 = 10$

- (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. $7+3=10$

(3)

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? $8+2=10$
