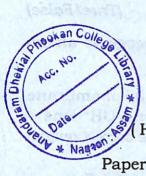
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3 (Sem-4/CBCS) ZOO HC 3

2024

ZOOLOGY

Honours Core)

Paper: ZOO-HC-4036

(Biochemistry of Metabolic Processes)

Full Marks: 60

Time: Three hours

The figures in the margin indicate full marks for the questions.

- 1. Answer the following questions: 1×7=7
 - (a) What are aquaporins?
 - (b) Which shuttle mechanism is used in the cells of skeletal muscle and brain?
 - (e) ATP is a coenzyme/isozyme/apoenzme. (Choose the correct option)
 - (d) The major site of gluconeogenesis is (Fill in the blank)

- (e) Palmitic acid is straight chain saturated fatty acid. (True/False)
- (f) Give an example of glucogenic amino acid.
- (g) The inner mitochondrial membrane is impermeable to H⁺ ions/OH⁺ ions / K⁺ ions. (Choose the correct option)
- 2. Answer the following questions briefly:

 $2 \times 4 = 8$

- (a) Differentiate between anabolism and catabolism.
- (b) Define substrate level phosphorylation with example.
- (c) Write the significance of urea cycle.
- (d) Why is acetyl-CoA called as a key metabolite precursor?
- 3. Answer the following questions: (any three) 5×3=15
 - (a) What is shuttle system? Describe the malate aspartate shuttle system.
 - (b) Give an account of ketogenesis and its regulation.

- (c) Write elaborately about inhibitors of electron transport system.
- (d) Describe briefly the pathways of formation of glycogen.
- (e) "ATP is the energy currency of the cell." Justify the statement.
 - Describe elaborately the process of glycolysis. Add a note on its regulation. 8+2=10

Or

- (b) Describe the pentose phosphate pathway of carbohydrate metabolism.

 Mention its significance. 8+2=10
- 5. (a) Give an account of various steps of Krebs cycle. Why this cycle is called an amphibolic pathway? 8+2=10

Or

(b) What are various complexes of Electron Transport System (ETS)? Describe the flow of electron through the complexes with illustration. 4+6=10

6. (a) Describe the process of β -oxidation of saturated fatty acid with even number of carbon atoms along with its energetics. 8+2=10

Or

(b) What is transamination? Describe the mechanism and significance of transamination. How does it differ from deamination? 1+6+2+1=10

