

**4 SEM TDC ZOOH (CBCS) C 10**

**2 0 2 2**

( June/July )

**ZOOLOGY**

( Core )

Paper : C-10

**( Biochemistry of Metabolic Process )**

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 of the following : 1×5=5

(a) The net gain of ATP during the conversion of one glucose molecule to pyruvate is \_\_\_\_ ATP molecules.

(b) The breakdown of \_\_\_\_ is often coupled with the metabolic reactions of biosynthesis and breakdown.

(c) \_\_\_\_ nos. of ATPs are formed during complete oxidation of a palmitate molecule.

( 2 )

- (d) The process of conversion of amino acids to alpha-keto acids is called \_\_\_\_.
- (e) In electron transport, electrons ultimately pass to \_\_\_\_.
2. Explain precisely on any *two* of the following :  $4 \times 2 = 8$
- (a) Definition of coupled reaction with example
- (b) Pyruvate dehydrogenase complex
- (c) ATP as energy currency of cell
- (d) Inhibitors of respiratory chain
3. Write short notes on any *two* of the following :  $4 \times 2 = 8$
- (a) Malate—aspertate shuttle
- (b) Gluconeogenesis
- (c) Oxidative deamination
- (d) ATP synthase
4. What is TCA cycle? Describe briefly the reactions of TCA cycle with its energetics.  $1 + 7 = 8$

Or

Describe the pentose phosphate pathway of carbohydrate metabolism and write its significance.  $6 + 2 = 8$

( 3 )

5. What is Beta oxidation? Describe the mechanism of Beta oxidation of fatty acid.  $2 + 6 = 8$

Or

What is ketogenesis? Describe the reaction pathway of ketogenesis.  $2 + 6 = 8$

6. Describe the process of urea biosynthesis and write the significance of the urea cycle. How is urea cycle linked with TCA cycle?  $4 + 2 + 2 = 8$

Or

What is transamination? Describe the mechanism of transamination and its significance.  $2 + 6 = 8$

7. What is ETC? Explain the structural components ETC in mitochondria.  $2 + 6 = 8$

Or

Distinguish oxidative phosphorylation and substrate-level phosphorylation. Write about the Chemi-osmotic theory.  $3 + 5 = 8$

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