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.

(Turn Over)

(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 : 4×2=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 : 4×2=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

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

★★★