[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1145 **I**

Unique Paper Code : 2232012302

Name of the Paper : Biochemistry of Metabolic Processes

Name of the Course : **B.Sc. (H) Zoology, NEP**

Semester : III

Duration : 2 Hours Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **FOUR** QUESTIONS in all, question no. **1** is COMPULSORY.

1. (a) Define the following (**Any Four**) : (1×4=4)

   (i) Anaplerotic reaction

   (ii) Shuttle system

   (iii) Ketosis

P.T.O.

(iv) Fermentation

(v) Oxidative phosphorylation

(b) Differentiate between the following (Any **three**) : (2×3=6)

(i) Substrate level phosphorylation and Oxidative Phosphorylation.

(ii) Transamination and Deamination.

(iii) Hexokinase and Glucokinase.

(iv) Acyl CoA and Acetyl CoA.

(c) Expand the following terms (**Any Four**) : (½×4=2)

(i) PFK

(ii) PLP

(iii) UDP Glucose

(iv) HMG CoA

(v) EMP

(vi) PEP

(d) Name the cofactor/coenzyme required for the following enzymes : (1×3=3)

(i) Pyruvate dehydrogenase Complex

(ii) Hexokinase

(ii) Cytochrome oxidase

2. (a) With the help of chemical structures describe Tricarboxylic Acid Cycle. And write its energetics involved per cycle. (10)

(b) What are ketone bodies? Add a note on it. (5)

3. (a) Explain the sequence of reactions involved when one molecule of C-16 fatty acid is to be oxidized. (10)

(b) Comment upon chemiosmotic hypothesis. (5)

4. (a) Explain the reactions and significance of the Pentose Phosphate Pathway. Describe it role in NADPH generation. (10)

(b) "Gluconeogenesis is not just the reversal of glycolysis", justify the statement. (5)

5. (a) Give a detailed explanation of the Urea cycle with structural formulae, highlighting the events that occur in the mitochondria and cytosol. (10)

(b) Give a detailed account of oxidative deamination with examples. (5)

6. Write short notes on **Any Three** : (5×3=15)

(i) Malate aspartate shuttle

(ii) Glycogenolysis

(iii) Cascade of metabolic events in fasting and starvation

(iv) Complexes of Electron Transport Chain

(v) ω-oxidation of fatty acid