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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

(1000)

[This question paper contains 4 printed pages.]

27, 12, 2024 (M)
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**):
($\frac{1}{2} \times 4 = 2$)

(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 its role in NADPH generation. (10)
- (b) "Gluconeogenesis is not just the reversal of glycolysis", justify the statement. (5)