

This question paper contains **3** printed pages]

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S. No. of Question Paper : **2046**

Unique Paper Code : **2492011202**

Name of the Paper : **Metabolism of Carbohydrates**

Name of the Course : **B.Sc. (Hons.) Biochemistry (NEP)**

Semester : **II**

Duration : **2 Hours**

Maximum Marks : **60**

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are **6** questions.

Attempt *four* questions in all.

All questions carry equal marks.

Question No. **1** is compulsory.

1. (A) Define the following terms :

- (a) Heterotrophs
- (b) Amphibolic pathway
- (c) Lactose intolerance
- (d) Substrate level phosphorylation
- (e) Glycogenin
- (f) Pasteur effect.

P.T.O.

(B) Give reasons for the following :

- (a) Arsenate inhibits ATP generation in Glycolysis
- (b) Galactosemia is associated with cataract.
- (c) Hemolysis occurs in patients with Glucose-6-P-dehydrogenase deficiency. 9,6

2. Give the biochemical role of the following :

- (a) TPP in Pyruvate dehydrogenase reaction
- (b) Biotin in Pyruvate carboxylase reaction
- (c) Malate dehydrogenase enzyme in Gluconeogenesis
- (d) Aldolase B in fructose metabolism
- (e) Glucokinase in liver. 5×3

3. (a) Explain how the key regulatory enzyme phospho-fructokinase-I is regulated.

(b) Give the diagrammatic representation of oxidative decarboxylation of pyruvate to generate Acetyl CoA by Pyruvate dehydrogenase complex.

(c) Gluconeogenesis is not reversal of glycolysis. Justify the statement. 3×5

4. Differentiate between the following :

(a) Lactic acid fermentation and Alcohol fermentation

(b) Branching enzyme and Debranching enzyme

(c) Transketolase and Transaldolase. 3×5

5. (A) Give the following biochemical reactions in the TCA cycle :
- (a) Oxidative decarboxylation reactions
 - (b) Dehydrogenase reactions
 - (c) Hydration and dehydration reactions.
- (B) Explain how do the following molecules impact carbohydrate metabolism :
- (a) Arsenic
 - (b) Sodium fluoride
 - (c) Malonate. 9,6
6. Give short notes on the following : 5×3
- (a) Anaplerotic reactions
 - (b) Von Gierke disease
 - (c) Metabolic adaptation during starvation
 - (d) Cori cycle
 - (e) McArdle disease.