

Shivaji College
B.Sc (Hons.) Biochemistry, Semester-II
Assignment
Metabolism of Carbohydrates

Max. marks-30

1. Write down the reactions catalysed by following enzymes:

Triose Phosphate Isomerase
Phosphoglycerate Kinase
Galactokinase
Pyruvate Dehydrogenase Complex
Pyruvate Carboxylase
UDP-Glucose pyrophosphorylase.

2. Differentiate between the following:
- Alcoholic and Lactic Acid fermentation
 - Glycogen Synthesis and Breakdown
 - Preparatory and Payoff phase of Glycolysis
3. Explain how Isocitrate dehydrogenase Links the TCA cycle and Electron Transport Chain.
4. What is Leloir pathway? Discuss the role of enzymes of Leloir pathway.
5. Fluoroacetate is an extremely poisonous agent that blocks the TCA cycle. Explain.
6. Discuss the regulatory mechanism of Citrate Synthase.
7. What are Anaplerotic Reactions. Explain with example.
8. Discuss the Biochemical basis and physiological manifestation of the following disorders of metabolism:
- Lactose Intolerance
 - Pompe
 - Von Gierke
9. Explain with reactions how metabolites of pentose phosphate pathway can be shuttled into glycolysis.
10. Discuss the regulation of Glycogen Synthase by Covalent Modification.



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Attempt Any Four Questions:

1. Acetyl CoA is a connecting link between Glycolysis and TCA cycle. Explain with illustrations.
2. Discuss the cycling of NADH and NAD⁺ in glycolysis and the related fermentation reactions.
3. Discuss the Cori Cycle along with its importance.
4. List the reactions of Glycolysis that are energy yielding under standard state conditions.
5. Write the reactions for the entry of Sucrose in glycolysis.

