

2012

B.A./B.Sc. (General) Third Semester

Biochemistry

Paper - A: Carbohydrates and Lipid Metabolism

Time allowed: 3 Hours

Max. Marks: 45

**NOTE:** Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Section.

X-X-X

- I
- Name the enzymes specific to glyoxylate pathway. 2,1,2,1,1,2
  - Why is it important that gluconeogenesis is not the exact reversal of glycolysis?
  - Name the enzymes that require TPP as cofactor.
  - Name the enzyme required for conversion of palmitic acid to steric acid.
  - Why primates are not able to synthesize ascorbic acid?
  - Write two major functions of prostaglandins.

## Section A

- II
- Discuss the sequence of reactions involved in glycolysis. 6,3
  - Describe the role of fructose 2,6 bisphosphate in regulation of glycolysis.
- III
- How carbohydrates are absorbed in GIT? 4,3,2
  - Discuss the oxidative reactions of the pentose phosphate pathway.
  - Write reaction and cofactors involved in the conversion of pyruvate to acetyl CoA.

## Section B

- IV
- How glyoxylate pathway differs from TCA cycle? 5,4
  - How pyruvate is converted back to phosphoenolpyruvate?
- V
- Describe the process of glycogen synthesis. 6,3
  - Enlist the different glycogen storage diseases in humans and the enzyme affected.

## Section C

- VI
- How fatty acids enter into mitochondria before their oxidation? 3,6
  - Write the steps for the oxidation of oleic acid.
- VII
- Write down the reactions involved in fatty acid synthesis. 6,3
  - What are elongases and desaturases? How do they accomplish their action?

## Section D

- VIII
- Write down the reactions involved in formation of mevalonate from acetyl CoA. 3,3,3
  - Discuss the metabolic fates of cholesterol.
  - Write down the synthesis of phosphatidic acid.
- IX
- Describe the steps involved in glyceroneogenesis from pyruvate in adipose tissue. 3,3,3
  - What are lipooxines? Discuss their significance.
  - Enlist some properties of various types of lipoproteins.

X-X-X