

**USBCDST-09 - Biochemistry Paper-I (Metabolism of Carbohydrates and Lipids)**

P. Pages : 2

Time : Three Hours



**GUG/W/23/13111**

Max. Marks : 50

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- Notes : 1. All questions are compulsory.  
2. All questions carry equal marks.

**1.** Describe in detail glycolysis pathway of glucose metabolism. **10**

**OR**

- a) Write a note on gluconeogenesis. **2½**
- b) Write a note on glycogen storage disorders. **2½**
- c) Discuss glyoxylate pathway. **2½**
- d) Describe the entry of galactose in to glycolysis. **2½**

**2.** Discuss in detail citric acid cycle. **10**

**OR**

- a) Describe substrate level phosphorylation with one example. **2½**
- b) Write a note on electron carriers. **2½**
- c) Give an account of inhibitors of ETC. **2½**
- d) Discuss  $F_0F_1$  ATPase. **2½**

**3.** Discuss in detail B-oxidation of unsaturated fatty acid. **10**

**OR**

- a) Write a note on mobilization of triacyl glycerols. **2½**
- b) Describe ketogenesis. **2½**
- c) Differentiate peroxisomal and mitochondrial B-oxidation. **2½**
- d) Write a note on omega oxidation of fatty acids. **2½**

4. Give a detailed account of HMP Shunt and its significance with lipid biosynthesis. **10**

**OR**

- a) Write a note on fatty acid synthase complex. **2½**
- b) Discuss Synthesis of membrane phospholipids in prokaryotes. **2½**
- c) Describe the Biosynthesis of triacylglycerol. **2½**
- d) Discuss regulation of fatty acid synthesis. **2½**

5. Solve **any ten** of following. **1x10**

- a) Why under anaerobic condition yeast consume more sugar?
- b) What is meant by glycogenolysis?
- c) Name the protein which initiate the de novo synthesis of glycogen.
- d) What is mean by Anaplerotic reaction?
- e) How many ATP synthesized from one molecule of glucose via TCA cycle?
- f) Give one example of irreversible reaction of citric acid cycle.
- g) Name the enzyme which transports fatty acid to mitochondria.
- h) Name the additional enzyme required to oxidation of unsaturated fatty acid
- i) Define Ketonuria.
- j) Write chemical structure of choline.
- k) Name the precursor of fatty acid synthesis.
- l) Draw structure of palmitic acid.

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