

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

P. Pages : 2

Time : Three Hours



GUG/S/23/13111

Max. Marks : 50

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

1. Discuss in detail feeder pathway of glycolysis. 10

OR

- a) Discuss the substrate level phosphorylation steps of glycolysis. 2½
b) Write a note on glycogen storage disorders. 2½
c) Discuss glyoxylate pathway. 2½
d) Describe the bypass reactions of gluconeogenesis. 2½

2. Discuss structure of mitochondria. Discuss oxidative phosphorylation. 10

OR

- a) Describe uncouplers of oxidative phosphorylation. 2½
b) Write a note on oxidative steps of citric acid cycle. 2½
c) Give an account of inhibitors of ETC. 2½
d) Discuss F_0F_1 ATPase 2½

3. Discuss in details mobilization of triacylglycerols and transport of fatty acids to mitochondria. 10

OR

- a) Write a note on ketoacidosis. 2½
b) Describe oxidation of odd carbon fatty acid. 2½
c) Discuss the peroxisomal oxidation of fatty acids. 2½
d) Write energetics of β oxidation of palmitic acid. 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. 10

- a) Name the enzyme which convert PEP to Pyruvate.
- b) What is glycogenolysis?
- c) Name the protein which initiate the de novo synthesis of glycogen?
- d) What is mean by anaplerotic reactions?
- e) How many ATP synthesized from one molecule of glucose via TCA cycle?
- f) Give an example of substrate level phosphorylation reaction of citric acid cycle.
- g) Name the enzyme which transports fatty acid to mitochondria.
- h) Name the additional enzyme required for oxidation of unsaturated fatty acid.
- i) Define ketonuria.
- j) How HMP pathway help nucleotide biosynthesis?
- k) Name the alcohol required in sphingolipid biosynthesis.
- l) Draw structure of plasmalogen.
