

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

P. Pages : 2

Time : Three Hours



**GUG/S/25/13111**

Max. Marks : 50

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

**1.** Give a detail account of gluconeogenesis pathway. **10**

**OR**

- a) Give the various steps of glycolysis. **2½**  
b) Describe glycogenolysis in muscles. **2½**  
c) Discuss the entry of galactose in to glycolysis. **2½**  
d) Describe glyoxylate pathway. **2½**

**2.** Discuss in detail TCA cycle. **10**

**OR**

Write a note on-

- a) Electron acceptors in oxidative phosphorylation. **2½**  
b) Four complexes in oxidative phosphorylation. **2½**  
c) Describe the anaplerotic of TCA cycle. **2½**  
d) Structure of ATP synthase. **2½**

**3.** Give an detail account of  $\beta$ -oxidation of palmitic acid. **10**

**OR**

- a) Write as note on mobilization of triacylglycerol. **2½**  
b) Discuss peroxisomal oxidation. **2½**  
c) Describe ketogenesis. **2½**  
d) Discuss the  $\beta$ -oxidation of odd chain fatty acid. **2½**

**4.** Give an detailed account of fatty acid synthesis. **10**

**OR**

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| a) Draw HMP shunt pathway.                                     | 2½ |
| b) Describe the Biosynthesis of sphingolipid.                  | 2½ |
| c) Discuss regulation of fatty acid synthesis.                 | 2½ |
| d) Discuss Synthesis of membrane phospholipids in prokaryotes. | 2½ |

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

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| a) Name two glycogen storage disorder.   | 1 |
| b) Name the protein needed for de novo synthesis of glycogen.                    | 1 |
| c) Name the enzyme needed to convert glucose 1 phosphate to Glucose 6 phosphate. | 1 |
| d) What is mean by amphibolic pathway.   | 1 |
| e) Give example of substrate level phosphorylation in reaction in TCA cycle.     | 1 |
| f) Give one example of regulatory enzyme of TCA cycle.                           | 1 |
| g) Name the additional enzyme required to oxidation of unsaturated fatty acid.   | 1 |
| h) Define Ketouria.  | 1 |
| i) Brain only used glucose and ketone bodies for energy need... true or false.   | 1 |
| j) Name the precursor of fatty acid synthesis.                                   | 1 |
| k) Name any one enzyme used in plasmalogens synthesis.                           | 1 |
| l) Name the key component for regulation of fatty acid synthesis.                | 1 |

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