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SARDAR PATEL UNIVERSITY**T.Y.B. Sc. (Biochemistry) – Fifth Semester Examination (CBCS)****Monday, 18th November 2013****10:30 a.m. to 1:30 p.m.****US05CBCH03: Metabolism - I****Total Marks: 70**

Note: (1) Figures to the right indicate marks.
 (2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [10]

- i. Which one of the following catalyzes irreversible reaction during glycolysis?
 (a) Hexokinase (b) Enolase (c) Aldolase (d) Phosphotriose isomerase
- ii. Cori's cycle is also known as _____.
 (a) Glucose alanine cycle (b) Lactic acid cycle (c) Citric acid cycle (d) TCA cycle
- iii. How many ATP molecules are generated per molecules of glucose under aerobic conditions in glycolysis?
 (a) 10 (b) 8 (c) 4 (d) 2
- iv. β (beta) oxidation of fatty acid take place in _____.
 (a) Cytosol (b) Mitochondria (c) Endoplasmic reticulum (d) None of the above
- v. Cholesterol contain _____ carbons.
 (a) Thirty seven (b) Twenty seven (c) Fifty Seven (d) Seventeen
- vi. Which of the following catalyzes irreversible and rate limiting reaction during cholesterol biosynthesis?
 (a) HMG CoA reductase (b) Decarboxylase (c) Isomerase (d) HMG CoA synthase
- vii. Glucose 6 phosphatase enzyme deficiency causes _____ disease.
 (a) Cori's (b) Pompe's (c) Hers's (d) Mc Ardle's
- viii. Branching enzyme deficient in _____ disease.
 (a) Andersen's (b) Amylopectinosis (c) Both (a) and (b) (d) Forbe's
- ix. Niemann Pick's disease arise due to accumulation of _____.
 (a) Sphingol (b) Sphingomyelin (c) Glucocerebroside (d) Ganglioside
- x. The most important phosphosphingolipid is _____.
 (a) Sphingomyelin (b) Choline (c) Ganglioside (d) Ceramide

Q.2 Answer any TEN from the following: [20]

- i. Write names of enzymes associated with TCA cycle.
- ii. What is substrate level phosphorylation? Write at least 1 such reaction.
- iii. Differentiate between glucokinase and hexokinase.

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- iv. What is PUFA. Write additional enzymes used for the Oxidation of PUFA.
- v. Differentiate between alpha and omega oxidation.
- vi. Give diagrammatic representation of carnitine shuttle.
- vii. Define pentosuria.
- viii. What is Cori's disease.
- ix. Explain amylopectinosis.
- x. What is kerasin? Where it is present?
- xi. What is Tay Sach's disease?
- xii. Write salient features of Niemann Pick's disease.

Q.3 Explain the following in detail:

- (a) Gluconeogenesis [5]
- (b) PDH complex [5]

OR

Q.3 Describe the following:

- (a) Significance of HMP shunt pathway [5]
- (b) Regulation of glycolysis [5]

- Q.4** (a) Discuss the role of adipose tissues in lipid metabolism. [5]
- (b) Explain oxidation of odd chain fatty acids. [5]

OR

Q.4 Write a detail notes on the following:

- (a) Fatty acid synthase complex [5]
- (b) Energetics and regulation of β (beta) oxidation [5]

Q.5 Write detail notes on the following (ANY TWO): [10]

- (a) Pompe's disease
- (b) Galactosaemia
- (c) Limit dextrinosis
- (d) Glycosuria

Q. 6 Discuss Refsum's disease and Gaucher's disease. [10]

OR

Q. 6 What is ketosis. Discuss carnitine / carnitine acyl transferase deficiency. [10]
