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**SARDAR PATEL UNIVERSITY****B. Sc. (Bioinformatics) – Fourth Semester Examination (CBCS)****Wednesday, 11<sup>th</sup> April 2018****10:00 a.m. to 1:00 p.m.****US04CBNF02 : Biochemistry****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. Maltose composed of .....

(a) Glucose and sucrose (b) Glucose and galactose

(c) Glucose and fructose (d) Fructose and galactose

ii. Which of the following known as cane sugar?

(a) Galactose (b) Fructose (c) Sucrose (d) Maltose

iii. .... is an epimer of glucose.

(a) Ribose (b) Galactose (c) Mannose (d) Fructose

iv. NADPH are produced in ..... pathway.

(a) Pentose phosphate (b) Tricarboxylic acid (c) Glycolysis (d) Gluconeogenesis.

v. Which of the following intermediate involved in gluconeogenesis but not in glycolysis?

(a) Acetyl CoA (b) Fructose 6 Phosphate (c) Pyruvate (d) Oxaloacetate

vi. Oils and fats are .....

(a) Proteins (b) Carbohydrates (c) Lipids (d) Nucleic acids

vii. Triacyl glycerol is stored in.....

(a) Adipose tissue (b) Liver (c) Muscle (d) All of these

viii. Which of the following fatty acid is not synthesized in our body?

(a) Palmitic acid (b) Lauric acid (c) Linolenic acid (d) Stearic acid

ix. How many turns of the fatty acid spiral are needed to process a C14 fatty acid during beta( $\beta$ ) oxidation?

(a) Six (b) Seven (c) Twelve (d) Fourteen

x. Carnitine molecule is involved during ..... metabolism

(a) Proteins (b) Carbohydrates (c) fatty acids (d) Nucleic acids

P.T.O.

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

- i. Enlist pentose sugars. Write their importance.
- ii. Differentiate between reducing sugar and Non reducing sugar.
- iii. Write names of disaccharides.
- iv. Differentiate between glycogenolysis and glycogenesis.
- v. Differentiate between hexokinase and glucokinase.
- vi. Why TCA operates only in aerobic conditions?
- vii. Differentiate between saturated and unsaturated fatty acids.
- viii. How fatty acids are activated for beta ( $\beta$ ) oxidation?
- ix. Explain hydrolysis of triacylglycerol.
- x. Explain fate of glycerol.
- xi. Name fatty acid oxidations other than beta oxidation.
- xii. Elaborate the basic steps for fatty acid synthesis.

Q.3 (a) Discuss structure, properties and importance of glucose. [06]

(b) Write osazone formation by sugars. [04]

OR

Q.3 (a) Write difference between hetero and homo polysaccharides. [04]

(b) Describe mucopolysaccharides [06]

Q.4 (a) Describe reactions of glycolysis. [7]

(b) Write importance of pentose phosphate pathway. [3]

OR

Q.4 (a) Draw the Kreb's cycle with all the enzyme and coenzyme details. [7]

(b) Write enzymes and coenzymes found in Pyruvate dehydrogenase complex. [3]

Q.5 (a) Write detailed note on glycolipids. [6]

(b) Write biological importance of lipids. [4]

OR

Q.5 (a) Write detailed note on Phospholipids. [6]

(b) What are the rules for the nomenclature of fatty acids. [4]

Q.6 Discuss biosynthesis of ketone bodies. [10]

OR

Q.6 Give detail account of  $\beta$ -oxidation. [10]

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