

SC

[24, A-26]

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**SARDAR PATEL UNIVERSITY**  
**M. Sc. Semester- I (Under CBCS) Examination – BIOTECHNOLOGY**  
**Monday, 27<sup>th</sup> April 2015**  
**Time- 10:30am to 1:30pm**  
**PS01EBIT01 Biochemistry**

**MARKS: 70**

Q.1

Mark the right answer of following questions.

[08]

1. The main reason for hydrophobic bond formation in aqueous medium is-
  - a. Decrease in entropy
  - b. Increase in entropy
  - c. Increase in potential energy
  - d. None of the above
2. Which of the following is NOT a high energy molecule?
  - a. PEP
  - b. Phosphocreatine
  - c. DNA
  - d. None of the above
3. When is pyruvate converted into acetyl-acid?
  - a. All the time
  - b. When O<sub>2</sub> is plentiful and energy is required
  - c. In anaerobic conditions
  - d. When O<sub>2</sub> is low and energy is required
4. As the proportion of lipid to protein in lipoprotein increases, its density,
  - a. Decreases
  - b. Increases
  - c. Doesn't change
  - d. Depends on blood glucose level
5. Fatty acid synthesis takes place in-
  - a. Mitochondria
  - b. Peroxisome
  - c. Cytoplasm
  - d. Plasma Membrane
6. Which of the following enzymes liberates amino group from glutamate in the liver?
  - a. Transaminase
  - b. Glutaminase
  - c. Glutamate dehydrogenase
  - d. Amino transferase
7. Which enzyme is defective in Phenylketonuria patients?
  - a. Phenylalanine hydroxylase
  - b. Carbamoyl phosphate synthase I
  - c. A Ketoacid dehydrogenase
  - d. Dioxygenase
8. Which of the following is useful to prevent oxidative damage in cells
  - a. Superoxide molecule
  - b. Glutathione peroxidase
  - c. Antimycin A
  - d. Rotenone

- Q.2 Answer the following questions. (ANY SEVEN OUT OF NINE) [14]**
1. List various lipoproteins found in the blood & name their source.
  2. What are uncouplers? Give example.
  3. Glucose and fructose are reducing sugars but sucrose-containing glucose & fructose is a non-reducing sugar. Explain.
  4. Write the regulatory reaction of glycolysis.
  5. Name any four unsaturated fatty acids.
  6. Give definition of secondary and tertiary structure of protein.
  7. Explain mucopolysaccharides.
  8. Explain isomers and stereoisomers.
  9. Differentiate between glucokinase and hexokinase.
- Q.3 a. Explain the industrially important polysaccharides. [06]**  
**b. Describe two phases involved in glycolysis. [06]**
- OR**
- b. Explain the reactions of pyruvate dehydrogenase (PDH) complex. [06]**
- Q.4 a. Explain the structure, function and mechanism of ATP synthase. [06]**  
**b. Write a detailed account on carriers involved in Electron Transport Chain. [06]**
- OR**
- b. Explain uncoupler and inhibitor of energy transfer. [06]**
- Q.5 a. Explain the oxidation of Palmitoyl -CoA with its energy production by  $\beta$ -oxidation. [06]**  
**b. Give a note on neuronal lipids. [06]**
- OR**
- b. Which amino acids are transformed into  $\alpha$  ketoglutanate? Give reasons. [06]**
- Q.6 a. What do you understand by 'inborn metabolic errors'? Explain the cause, symptoms & treatment for any two of them. [06]**  
**b. Explain the urea cycle and discuss its significance. [06]**
- OR**
- b. Write the steps for denovo synthesis of purine nucleotides. [06]**