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(A-93)

SARDAR PATEL UNIVERSITY

M.Sc. (Integrated) Biotechnology- Semester 4
PS04CIGB01: Bioenergetics
Tuesday 21st April, 2015
02.30 p.m. to 5.30 p.m.

Total Marks : 70

Note : (i) All questions are to be attempted.
(ii) Figures to the right indicate marks.

Q.1 **Mark the right answer of following questions.** [08]

1. Which of them is an ETC Complex
   a. Succinate Dehydrogenase
   b. Cytrochrome Oxidase
   c. Lactate Dehydrogenase
   d. Both a and b

2. Enthalpy is ----------
   a. Heat content of reacting system
   b. Energy change of reacting system
   c. pH of reacting system
   d. None of them

3. Synthesis of Glycogen is .....
   a. Glycogenolysis
   b. Glycolysis
   c. Glycogenesis
   d. None of these

4. The main stores of glycogen are found in ----------
   a. Adipose tissue
   b. Skeletal muscles
   c. Brain
   d. Erythrocytes

5. Which of the following is an output of Citric acid cycle .....
   a. Carbondioxide
   b. ATP
   c. $FADH_2$
   d. All of the above

6. Enzymes for TCA cycle are located in ----------
   a. Mitochondrial matrix
   b. Golgi body
   c. Cytoplasm
   d. E.R

7. ----------catalyzed reaction is committed step in Purine nucleotide synthesis
   a. PRPP Synthetase
   b. PRPP glutamyl amido transferase
   c. Cyclohydrolase
   d. None of these

8. The end product of purine metabolism in humans is---------
   a. Xanthine
   b. Urea
   c. Uric acid
   d. Allantoin

Q.2 **Answer the following: (ANY SEVEN)** **[14]**

a Explain Laws of thermodynamics giving justification to bioenergetics.
b Differentiate catabolic and anabolic reactions.
c Enzymes involved in Pay off Phase of Glycolysis
d Discuss the energetics of TCA Cycle?
e Write the role of CPS enzyme in pyrimidine metabolism.
f Define: Endergonic and Exergonic reaction.
g List the anaplerotic reactions of TCA cycle.
h Briefly explain salvage pathway.
i What is glycogenolysis?

Q3 a Explain Oxidative Phosphorylation and ATP synthesis. **[06]**
b Write the role of Biological oxidation-reduction reactions. **[06]**

OR

b Write a note on electron carriers of ETC **[06]**

Q4 a Explain the preparatory phase of Glycolysis in detail. **[06]**
b What is Glycogen? Explain the anabolism of same. **[06]**

OR

b Write a note on gluconeogenesis **[06]**

Q5 a Explain Krebs cycle in detail. **[06]**
b Give detail note on Amphibolic nature of TCA Cycle. **[06]**

OR

b Explain the regulation of TCA cycle. **[06]**

Q6 a Explain synthesis of parent purine nucleotide in detail. **[06]**
b Write catabolism of purines. **[06]**

OR

b Explain synthesis of pyrimidine nucleotides in detail. **[06]**

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