

SEAL NO.

[18]

SARDAR PATEL UNIVERSITY

No. of Printed Pages : 2

M. Sc. (I Semester) Biotechnology Examination (MC)

Thursday, 19<sup>th</sup> April 2018

Time: 10.00 a.m to 1.00 p.m.

Paper: PS 01EBIT01 (Biochemistry)

Total Marks: 70

Q1. Give the most correct answers for the following questions: (08 Marks)

- Which of the following could be cause of inhibition of Glycolysis?
  - hypoxia condition
  - high level of ATP
  - lack of NAD<sup>+</sup>
  - both b and c
- What could be the fate of glucose -6-phosphate in a liver cell?
  - Glycolysis
  - Pentose phosphate pathway
  - Glycogenesis
  - all of the above
- HDL is synthesized from
  - Liver
  - intestine
  - Liver & intestine
  - Brain
- Which of the following is the main storage of Tgs in the body?
  - Adipose tissue
  - Adipose tissue & Liver both
  - Liver
  - none of the above
- The rate of the FA oxidation can be increased by increasing \_\_\_\_\_ in the diet.
  - PUFA.
  - MUFA.
  - Carnitine
  - Creatinine
- Which of the following enzyme is protecting the aerobic organisms from the superoxide and hydrogen peroxide?
  - Superoxide dismutase
  - catalase
  - NADH oxidase
  - both a & b
- Glutamine is synthesized in the liver by the action of enzyme
  - Transaminase
  - Glutamine synthetase
  - $\alpha$ - ketoglutarate dehydrogenase
  - none of the above
- Which of the following is the possible site of pentose phosphate pathway?
  - Liver
  - Adrenal Gland
  - Mammary gland
  - all of the above

(1)

(C.P.T.O.)

Q2. Answer any Seven of the following:

(7 X 2 = 14 Marks)

1. Differentiate between free energy change and standard free energy change.
2. Differentiate between PFK-1 and PFK-2
3. Differentiate between Glucokinase and Hexokinase.
4. Write the reaction catalyzed by glyceraldehyde 3- phosphate dehydrogenase and explain importance of this reaction in glycolysis.
5. An amino acid that yields acetoacetyl-CoA during catabolism is glucogenic or ketogenic?
6. Give the sub cellular location of all the reactions of fatty acid biosynthesis.
7. What are uncouplers? Give examples.
8. Which reaction is catalyzed by ribose phosphate pyrophosphokinase
9. Which enzyme/s in FA oxidation is regulatory?

- Q3. (a) Write reactions, sites and importance of pentose phosphate pathway. (06)  
(b) Explain the regulation of TCA cycle. (06)

**OR**

- (b) Explain the reactions of glycogen breakdown. (06)

- Q4. (a) Explain the regulation of ETC. (06)  
(b) Write a detailed note on the carriers involved in electron transport chain. (06)

**OR**

- (b) How do Acetyl-coA produced in mitochondria come to cytosol for fatty acid biosynthesis? (06)

- Q5 (a) Explain the oxidation of Palmitoyl-coA and calculate the energy production by  $\beta$  - oxidation. (06)  
(b) Explain the regulation of fatty acid biosynthesis. (06)

**OR**

- (b) What are ketone bodies? Under which physiological conditions are they produced? (06)

- Q6 (a) Give any two examples and explain transamination reactions. (06)  
(b) Write a detailed note on regulation of purine biosynthesis. (06)

**OR**

- (b) Explain the urea cycle and discuss its significance. (06)

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