

[216]

SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY

M.Sc. 2<sup>nd</sup> Semester Zoology

Time: 2:00 p.m. to 5:00 p.m.

Tuesday, March 26<sup>th</sup> 2019

PS02EZOO21

Biological chemistry

Total Marks: 70

1. Choose the most appropriate answer.

(8)

- i. What is the end product of the Electron transport chain?  
(a) ATP (c) O<sub>2</sub>  
(b) CO<sub>2</sub> (d) None of the above
- ii. Two conditions in which gluconeogenesis is increased are  
(a) Diabetes mellitus and atherosclerosis (c) Diabetes mellitus and Starvation  
(b) Fed condition and thyrotoxicosis (d) Alcohol intake and smoking
- iii. Feedback inhibition of enzyme action is effected by  
(a) Enzyme (c) Substrate  
(b) End product (d) None of the above
- iv. Pyruvate converted in to Acetyl CoA in \_\_\_\_\_  
(a) Mitochondrial matrix (c) Golgi bodies  
(b) Cytoplasm (d) None of the above
- v. Choose the correct combination of only non-polar amino acids.  
1) Leucine 2) Glutamate 3) Proline 4) Methionine 5) Lysine 6) Glutamate 7) Serine  
8) Tyrosine  
(a) (1), (4), (3) (c) (5), (7), (2)  
(b) 6), (2), (8) (d) (3), (5), (8)
- vi. Cholesterol molecule has \_\_\_\_\_ carbon atoms.  
(a) 27 (c) 21  
(b) 15 (d) 12
- vii. The major storage form of lipids is  
(a) Esterified cholesterol (c) Triglycerides  
(b) Glycerophospholipids (d) Sphingolipids
- viii. The protein present in hair is  
(a) Keratin (c) Elastin  
(b) Myosin (d) Tropocollagen

(4)

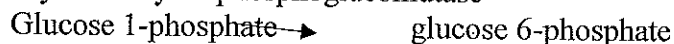
(P.T.O)

Q-2 Attempt any seven:

7x2=14

- a. Write importance of H-H equation.
- b. Explain actual free energy with an example.
- c. What is fate of pyruvate in anaerobic condition in vigorously contracting muscle?
- d. Write significance of pentose phosphate pathway.
- e. What is an 'apoenzyme'?
- f. Define the term 'activation energy'
- g. What is meant by primary structure of protein?
- h. What would be consequence of vitamin A deficiency in human beings?
- i. Why selenocysteine is considered as 21<sup>st</sup> amino acid in proteins?

- Q-3
- a. Explain the Q cycle occurring in Electron transport chain. (6)
  - b. Define standard free energy and calculate the standard free-energy change of the reaction catalysed by the enzyme phosphoglucomutase (6)



Given that, starting with 20 mM glucose 1-phosphate and no glucose 6-phosphate, the final equilibrium mixture at 25°C and pH 7.0 contains 1.0 mM glucose 1-phosphate and 19 mM glucose 6-phosphate. Does the reaction in the direction of glucose 6-phosphate formation proceed with a loss or a gain of free energy? (RT = 2.47 kJ/mole).

OR

- b. Explain the structure and function of ATP synthase in detail (6)

- Q-4
- a. Write a note on urea cycle (6)
  - b. Briefly explain the salient features of fibrous and globular proteins (6)

OR

- b. Explain the classification of amino acids (6)

- Q-5
- a. Explain the glycolysis and its regulation in brief. (6)
  - b. Briefly explain the cori cycle. (6)

OR

- b. Explain biochemical reaction of oxidative phase of Pentose Phosphate Pathway. (6)

- Q-6
- a. Write a note on phospholipids. (6)
  - b. Explain the structure and properties of triglycerides (6)

OR

- b. Briefly explain the synthesis of fatty acids. (6)