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SE

Sardar Patel University
Sixth Semester Examination—2018
Class---TYBSc Genetics-- 3 Credit course
US06CGEN01: Biological Chemistry and Metabolism
Date ---26/03/2018 (Monday)

Time 10.00am -1.00pm

Total marks 70

Q1. MCQs. Attempt All Questions.

[10]

- i. Antifertility vitamin is
(A) Vitamin B₁ (B) Vitamin B₂ (C) Vitamin E (D) Vitamin K
- ii. What is the disease caused by thiamine deficiency?
(A) Nyctalopia (B) Scurvy (C) Rickets (D) Beriberi
- iii. The substrate concentration that results in 50% V_{max} defines what?
(A) K_m/V_{max} (B) K_m (C) V_{max}/K_m (D) 1/K_m
- iv. Ketone bodies are formed by
(A) Breakdown of acetyl CoA produce in excess in β-oxidation
(B) Inhibition of fatty acid activation and transport
(C) Channelization of oxaloacetate from the TCA to gluconeogenesis
(D) Inhibition of cAMP production
- v. The storage form of fatty acids in animals is
(A) Triglycerides (C) Phospholipid
(B) Glycerol (D) Cholesterol
- vi. The enzymes of the citric acid cycle are located in
(A) Mitochondrial matrix (C) Golgi apparatus
(B) Nucleus (D) Endoplasmic reticulum
- vii. The end product of purine metabolism in human is
(A) Lactic acid (C) Uric acid
(B) Glutamic acid (D) Pyruvic acid
- viii. Ammonia is stored and transported in which form?
(A) Methionine (C) Tryptophan
(B) Glutamine (D) Proline
- ix. Which of the following metabolite integrates glucose and fatty acid metabolism?
(A) Acetyl CoA (B) Pyruvate (C) Citrate (D) Lactate
- x. LB plot is drawn between the values of
(A) 1/V and 1/S (C) V and S
(B) S and S/V (D) V and V/S

Q2. Short questions. Attempt any TEN questions.

[20]

- Define and explain the terms K_m and K_{cat}.
- Define first order and zero order reactions.
- Discuss the deficiency symptoms of Riboflavin.
- How ammonia is disposed in different organisms?
- Differentiate between synthesis and oxidation of fatty acids.
- Give the classification and significance of vitamins.
- Define lipids and enlist their significance.
- What is iodine number? Explain.
- Define oxidative and non oxidative deamination.
- Differentiate between glucokinase and hexokinase.
- Describe the role of PRPP in salvage pathway of purines.
- Explain the role of citrate in fatty acid synthesis.

(1)

(P.T.O.)

Q3a. What are the biochemical functions and deficiency symptoms of ascorbic acid. [06]

Q3b. Enlist the biochemical functions of vitamin-A [04]

OR

Q3a. Write a note on significance of Vitamin--B complex. [06]

Q3b. How Vitamin K helps in blood clotting? [04]

Q4a. Explain the structure and functions of allosteric enzymes. [06]

Q4b. Draw LB plot and Eadie Hofstee plot. [04]

OR

Q4a. Derive the equation $V_0 = V_{max} \cdot [S] / K_m + [S]$ [06]

Q4b. Explain the specificity of enzymes. [04]

Q5a. Enlist the types of glycerophospholipids. [06]

Q5b. How the functioning of acetyl CoA carboxylase is regulated? [04]

OR

Q5a. Describe in detail the oxidation of fatty acids. [06]

Q5b. What are glycolipids? Explain. [04]

Q6.a. Write down the steps involved in glycolysis. [06]

Q6b. Explain the term ketogenesis and ketoacidosis. [04]

OR

Q6a. Give detailed mechanism of transamination. [06]

Q6b. List out the steps in pyrimidine biosynthesis. [04]

- x -

(2)