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[19/A-17]

SARDAR PATEL UNIVERSITY

B.Sc. VI SEMESTER EXAMINATION

FRIDAY, 6TH APRIL 2018

10:00 A.M. TO 1:00 P.M.

BIOTECHNOLOGY: US06CBIT06

METABOLISM

TOTAL MARKS: 70

Note: Figures to the right indicates marks.

Q.I Multiple Choice Questions

[10]

- 1) EMP pathway is the another name of _____.
 - a) Glycolysis
 - b) Kreb's cycle
 - c) Calvin cycle
 - d) Gluconeogenesis
- 2) The formation of one molecule of glucose from pyruvate requires _____.
 - a) 4 ATP
 - b) 2 GTP
 - c) 2 NADH
 - d) All of these
- 3) Thiamine pyrophosphate, a co enzyme derived from vitamin _____.
 - a) B₁₂
 - b) B₁
 - c) C
 - d) A
- 4) The enzymes of fatty acid oxidation in animal cells are located in the _____.
 - a) Cytoplasm
 - b) Nucleus
 - c) Endoplasmic reticulum
 - d) Mitochondria
- 5) ETF is _____.
 - a) Electron transferring flavoprotein
 - b) Electron transport flavoprotein
 - c) Energy transferring factor
 - d) Energy transporting factor
- 6) De novo synthesis of nucleotides begins with their metabolic precursors such as _____.
 - a) Amino acids
 - b) Ribose-5-phosphate
 - c) CO₂ & NH₃
 - d) All of these
- 7) Which of the following is not the product of amino acid decarboxylation?
 - a) Epinephrine
 - b) GABA
 - c) Histamine
 - d) None of these
- 8) The effect of transamination reactions is to collect the amino groups from many different amino acids in the form of _____.
 - a) L-Aspartate
 - b) L-Glutamate
 - c) D-Aspartate
 - d) D-Glutamate
- 9) Following is an examples of high energy compounds, except
 - a) Phosphoenol pyruvate
 - b) 1,3-Bisphosphoglycerate
 - c) Phosphocreatine
 - d) Glycerol 3-phosphate
- 10) Which of the following is the prosthetic group of NADH dehydrogenase?
 - a) FMN
 - b) FAD
 - c) Fe-S
 - d) NADPH

P.T.O

- Q.II** Answer the following questions in short. (Attempt any 10) [20]
- a) What are the salient features of glycolysis?
 - b) Mention about anaplerotic reaction.
 - c) Write about pyruvate dehydrogenase complex.
 - d) What is β - oxidation?
 - e) Give the sources of individual atoms in purine ring.
 - f) Give the importance of nucleotides in the cell.
 - g) Define the following terms: Ureotelic & Ammonotelic animals.
 - h) What is transdeamination?
 - i) How urea cycle is interrelated to TCA cycle?
 - j) What is electron transport chain?
 - k) Write about Coenzyme Q.
 - l) Write a brief note on Complex II of ETC.
- Q.III** a) Describe each step of Kreb's cycle. [06]
b) Write about pay off phase of glycolysis. [04]
- OR**
- Q.III** Explain in detail oxidative and non oxidative phase of the pentose phosphate pathway. [10]
- Q.IV** a) Describe β -oxidation of saturated fatty acid. [06]
b) Write about Carnitine shuttle. [04]
- OR**
- Q.IV** a) Discuss in detail denovo pathway for purine biosynthesis. [06]
b) Give an account on Ketogenesis. [04]
- Q.V** a) Write short note on overview of amino acid biosynthesis. [05]
b) Describe decarboxylation of amino acids [05]
- OR**
- Q.V** a) Explain in detail Urea cycle & also give its significance. [06]
b) Write about transamination. [04]
- Q.VI** a) Discuss in detail chemiosmotic theory. [05]
b) Explain the mechanism for phosphorylation of ADP as proposed by binding change hypothesis. [05]
- OR**
- Q.VI** a) Explain in detail Complex III of electron transport chain. [06]
b) Write short note on ATP synthase. [04]