

24

SEAT No. _____

No. of Printed Pages : 2

SARDAR PATEL UNIVERSITY
M. Sc (Int.) Biotechnology: Semester IV Examination
Tuesday, 19th March, 2019
Time: 10.00am to 1.00pm
Sub: PS04CIGB01: Bioenergetics

Total Marks: 70

Q-1 Give the answer by choosing appropriate option.

[8 X 1]

- (1) In a reaction, ΔG° is positive under standard condition then the chemical reaction is _____.
a. Endergonic b. Exergonic c. Equilibrium d. None of these
- (2) Pentoses are obtained from _____ pathway.
(a) Gluconeogenesis (b) Glycolysis (c) HMP (d) Glycogenesis
- (3) Following enzyme regulates the citric acid cycle.
(a) Isocitrate dehydrogenase (b) Citrate synthase
(c) α -ketoglutarate dehydrogenase (d) All of these
- (4) The synthesis of glucose from non-carbohydrate compound is known as _____.
(a) HMP (b) Glycolysis (c) Gluconeogenesis (d) None of these
- (5) Following shows amphibolic nature.
(a) Glycolysis (b) TCA (c) HMP (d) All of these
- (6) Following is an intermediate in the anabolism of AMP.
(a) XMP (b) Orotate (c) Adenylsuccinate (d) None of these
- (7) Following is the final excretory product in human from purine metabolism.
(a) Uric acid (b) Allantoin (c) Urea (d) None of these
- (8) The amount of energy released after hydrolysis of PEP is _____.
(a) -61.9.0 kJ/mol (b) -49.0 kJ/mol (c) 730 kcal (d) -30 kJ/mol

Q-2 Answer the following questions in short. (Any seven)

[7 X 2]

- (1) Explain oxidation and reduction reactions.
- (2) Enlist high energy and low energy compounds.
- (3) Explain energetics of glycolysis.
- (4) What is glyoxylate cycle?
- (5) Enlist the enzymes of TCA cycle?
- (6) What is the importance HMP?

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1

- (7) What is glycogenolysis?
(8) How TMP is synthesized from UTP?
(9) Differentiate purines and pyrimidines.
- Q-3 (a) Explain chemiosmotic theory in brief. [06]
(b) Write a short note on Electron Transport Chain. [06]
OR
(b) Discuss hydrolysis of any two high energy compounds. [06]
- Q-4 (a) Explain energy generation phase of Glycolysis. [06]
(b) Discuss the steps of gluconeogenesis from pyruvate. [06]
OR
(b) Explain the regulation of glycolysis in detail. [06]
- Q-5 (a) Draw the steps of TCA cycle and discuss the energetics of it. [06]
(b) Explain glyoxylate cycle in detail. [06]
OR
(b) Describe regulation of Krebs cycle in detail. [06]
- Q-6 (a) Describe the pathway for the synthesis of parent purine nucleotide. [06]
(b) Discuss the degradation of purines in brief. [06]
OR
(b) Explain the pathway for the synthesis of pyrimidine UMP. [06]



(2)