SEAT No._____ No. of Printed Pages:02

[10/A-14]

SARDAR PATEL UNIVERSITY
T.Y.B.Sc EXAMINATION, VIth Semester
Thursday, 6th October 2022, 03.30p.m to 05.30p.m
BIOTECHNOLOGY: US06CBIT06
[Metabolism]

NOTE- Figures in the right indicate full marks. Maximum Marks-70

Q.1. Multiple Choice Questions (10 marks- One Mark for Each MCQ)

1. Glycolysis is process for the
A. breakdown of glucose B. synthesis of glucose
C. synthesis of glycogen D. breakdown of glycogen

2. In what form does the product of glycolysis enter the TCA cycle?
A. AcetylCoA B. Pyruvate C. NADH D. Glucose

3. Which is not formed during TCA Cycle
A. Lactate B. Isocitrate C. Succinate D. Matate

4. Where are ketone bodies synthesized?
A. Brain B. Muscles C. Liver D. Adipose tissues

5. Enzymes for the β- oxidation of long chain fatty acids located in
A. Cytosol C. Mitochondria matrix
B. Peroxisomes D. Endoplasmic reticulum

6. Urea is formed from which toxic material?
A. CO_2 B. Ammonia C. Uric acid D. All of the above

7. Amino transferase catalyzed the following reaction
A. Decarboxylation B. Transamination C. Dehydrogenation D. Deamination

8. Which part of ATP synthase forms the transmembrane channel?
A. F_0 Subunit B. F_1 Subunit C. Delta Subunit D. Beta Subunit

9. The chemiosmotic theory is given by which biochemist?
A. James Watson B. Erwin Chargaff C. Peter Mitchell D. Francis Crick

10. Which of the following accepts two electron?
A. Cytochrome b B. Coenzyme Q C. Cytochrome a D. Cytochrome c

(P.T.O.)

Q.2.Fill in the Blanks and True –False (01 Mark each) [08]

1. The glycolysis occur in Mitochondria matrix (True/False)
2. Gluconeogenesis shares the same pathway as glycolysis but in opposite direction. (True/False)
3. The long-chain fatty acids get first activated in cytoplam (True/False)
4. Acetoacetate are ketone bodies (True/False)
5. Urea production occurs in the cytoplasm. (True/False)
6. Pyruvate is the precursor for Glutamate.(True/False)
7. Electron transport chain takes place in cytoplasm (True/False).
8. The ATP synthase enzyme present in the plasma membrane (True/False)

Q.3. Short Question (any 10 question x2 marks each) [20]

1. Discuss about the bypass of gluconeogensis.
2. Describe about the PDH complex.
3. Describe the reaction catalyzed by trans-aldolase.
4. Describe the function carnitine acyltransferase.
5. Describe any two differences between Denovo and salvage pathway.
6. Discuss the importance of purine and pyrimidine.
7. Describe the decarboxylation reaction in amino acid metabolism.
8. Describe the reaction catalyzed during deamination.
9. Discuss the importance of urea cycle.
10. What is binding change hypothesis?
11. Write any two differences between oxidative and photo phosphorylation?
12. Describe about the Cytochrome as electron carrier of ETC.

Q.4. Long Answer Question (attempt any 4 X 08 marks each) [32]

1. Describe the glycolysis pathway with its ATP production.
2. Draw the pathway for the oxidative pentose phosphate pathway.
3. Describe the β-oxidation of mono unsaturated fatty acid.
4. Describe the pathway for the de-novo biosynthesis of purine.
5. Describe urea cycle with neat diagram.
6. Give an overview for the biosynthesis of amino acid.
7. Describe the structure of Complex 1.
8. Discuss about the chemiosmotic hypothesis of ATP synthesis.

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