[81/A-17] SEAT No._____ No. of Printed Pages : 3

SARDAR PATEL UNIVERSITY

SEMESTER-VI

B.Sc. EXAMINATION MICROBIOLOGY

US06CMIC03

(Microbial Biochemistry)

Date: 29/03/2019 Time: 10:00a.m.to 1:00p.m.

Day : Friday Total marks: 70

N.B: Figures on the right indicate marks.

Q.1 **Select the correct answer for each question from the given options.** (10)

1 _____is a precursor for biosynthesis of Arginine and Proline.

(a) Glutamic acid (b) Gluconic acid

(c) Aspartate (d) a-keto glutaric acid

2 In ATPase complex I, III and IV act as _____.

(a) protonmotive force (b) proton pump

(c) active pump (d) passive pump

3 β-chains of F_1 has_____sites.

(a) catalytic (b) allosteric

(c) passive (d) Zymogen

4 6-Phosphogluconic acid is converted to Ribulose-5 Phosphate by_____.

(a) Interconversion (b) Oxidative decarboxylation

(c) Reductase (d) Phosphorylation

5 Succinate dehydrogenase activity is competitively inhibited by_____.

(a) Malic acid (b) Fumaric acid

(c) Malonate (d) Acetate

6 _____enzyme is responsible for conversion of pyruvate to oxaloacetate..

(a) pyruvatedehydrogenase (b) Pyruvate carboxylase

(c) Pyruvate kinase (d) Enolase

7 Complete β-oxidation of one molecule of Palmitoyl CoA yields_____molecules of H_2O.

(a) 108 (b) 180

(c) 118 (d) 123

8 _____scientist reported that fatty acids were degraded by removal of two carbon at a time.

(a) Fritz knoop (b) Sahil Wakil

(c) Efrain Racker (d) John Walker

9 All tansaminases require_____coenzyme derived from Vitamin B_6.

(a) TPP (b) Pyridoxal phosphate

(c) Biotin (d) Lipoic acid

10 _____enzyme convert arginine to ornithine and urea..

(a) Arginosuccinase (b) Urease

(c) Arginase (d) Proteinase

Q.2 **Give short answers to the following questions. (02 - marks each)** (20)
(Attempt Any Ten)

1 Explain:Auxotroph and Secondary metabolism.

2 Describe structure and role of ATP.

3 Describe chemical composition of F_1 subunit of ATP Synthase.

4 Give names of three enzymes and five co-enzymes required by PDH complex.

5 In non-physiological state, how TCA cycle reactions are regulated?

6 Explain the four different Anapleurotic reactions.

7 Explain reaction where role of Acetyl CoA carboxylase is involved.

8 Define: α-Oxidation and β-Oxidation of fatty acid.

9 What are the major differences between β-Oxidation of fatty acid and fatty acid biosynthesis.

10 Define:Transamination.

11 Enlist the names of enzymes involved in Urea cycle.

12 Enlist the four common enzymes shared for biosynthesis of isoleucine and valine.

Q.3 (A) Describe:Use of biochemical mutant for studying intermediary metabolism. (6)

(B) Draw a neat labeled diagram of ATP Synthase. (4)

OR

Q.3 (A) Discuss organization and role of ETC. (5)

(B) Write on:Oxidative phosphorylation. (5)

Q.4 (A) Discuss various steps involved during CO_2 assimilation in dark phase. (6)

(B) Justify :-Gluconeogenesis is not a complete reversal of glycolysis. (4)

OR

Q.4 (A) Discuss various steps involved where pyruvate is oxidized to form CO_2 and H_2O. (6)

(B) E.D. pathway (4)

Q.5 Discuss various steps involved in biosynthesis of saturated fatty acid. (10)

OR

Q.5 Discuss various steps involved in β-Oxidation of Palmitoyl coA with its energetics. (10)

Q.6 Write notes on following:

(A) Biogenesis of murein (6)

(B) Deamination and its types (4)

OR

Q.6 Write notes on following:

(A) Kreb-Hansleit cycle (5)

(B) Biosynthesis of amino acids in which Chorismate is a key intermediate. (5)

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