

(56/A-17)

SEAT No. \_\_\_\_\_

No. of Printed Pages 2

SARDAR PATEL UNIVERSITY

SEMESTER-VI

B.Sc. EXAMINATION (MICROBIOLOGY)

USO6CMIC03

(Microbial Biochemistry)

Date: 31/03/2018

Time: 10 :00 a.m. to 1:00 p.m.

Day : Saturday

Total marks: 70

N.B: Figures on the right indicate marks.

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

- 1 Which among the following compounds having highest redox potential:  
(a) Cytochrome C (b) Cytochrome a  
(c) Oxygen (d) Fumerate
- 2 Cytochrome oxidase is inhibited by:  
(a) Carbon monoxide (b) Barbiturates  
(c) Rotenone (d) oligomycin
- 3 \_\_\_\_\_ got Nobel Prize in 1997 for Binding Change Mechanism.  
(a) John Walker (b) Efrain Racker  
(c) Peter Mitchell (d) Paul Boyer
- 4 In P.P. Pathway which enzyme requires thiamine pyrophosphate as a coenzyme:  
(a) Transaldolase (b) 6-phosphogluconatedehydrogenase  
(c) Transketolase (d) Glucose6phosphate dehydrogenase
- 5 Pick out the substrate level phosphorylation reactions:  
(a) 1,3 bis PGA to 3PGA (b) 3-PGAL to 1,3-bis PGA  
(c) PEP to Pyruvate (d) Both A AND C
- 6 How many ATPs are produced in the conversion of pyruvate to citrate:  
(a) 3.5 (b) 2.5  
(c) 4 (d) 1.5
- 7 Complete  $\beta$ -oxidation of one molecule of Palmitoyl CoA yields \_\_\_\_\_ COA.  
(a) 108 (b) 180  
(c) 123 (d) 1
- 8 \_\_\_\_\_ is a poly unsaturated fatty acid.  
(a) Archidonic acid (b) Acetyl COA  
(c) Oleoyl COA (d) Melonyl COA

1/3

(2)

(P.T.O.)

9 \_\_\_\_\_ inhibit the anthranilate synthase enzyme.

- (a) Tyrosine (b) Lysine  
(c) Phenylalanine (d) Tryptophan

10 Which intermediate product of urea cycle enters into TCA cycle:

- (a) Fumerate (b) Aspartate  
(c) Arginine (d) Arginosuccinate

Q.2 Give short answers to the following questions: (Attempt Any Ten) (20)

- 1 Explain:ETC and Secondary metabolism.
- 2 Describe the organization of ETC.
- 3 Describe various biochemical reactions used during use of biochemical mutant in intermediary metabolism.
- 4 Explain three irreversible reactions involved in gluconeogenesis.
- 5 In non-physiological state, how TCA cycle reactions are regulated ?
- 6 Give names of three enzymes and five co-enzymes required by PDH complex.
- 7 Justify: Fatty acid oxidation yield large amounts of ATP rather than carbohydrate.
- 8 Define: Write a chemical structure of Acyl CoA and Acetyl CoA.
- 9 What are the major differences between  $\beta$ -Oxidation of fatty acid and fatty acid biosynthesis.
- 10 What is oxidative deamination?
- 11 Enlist the four common enzymes shared for biosynthesis of isoleucine and valine.
- 12 Explain about significance of transamination reaction.

Q.3 Draw a neat labeled diagram of Fo-F<sub>1</sub> ATPase and Explain chemical composition and role of it. (10)

OR

Q.3 What is phosphorylation ? Discuss different methods used for ATP generation. (10)

Q.4 Write on:

- (A) EMP pathway with its energetics under aerobic condition. (5)  
(B) Anaplerotic reactions (5)

OR

Q.4 Write on:

- (A) CO<sub>2</sub> assimilation pathway (05)  
(B) Amphibolic nature of TCA cycle (05)

Q.5 (A) Explain oxidation of mono unsaturated fatty acid. (05)

(B) Explain biosynthesis of poly unsaturated fatty acid. (05)

OR

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

Q.6 Write notes on following: 2/3

- (A) Biogenesis of peptidoglycan (06)  
(B) Biosynthesis of amino acid in which Chorismate is a key intermediate. (04)

OR

Q.6 Write notes on following:

- (A) Ornithine cycle (05)  
(B) Stickland reaction (05)

\*\*\*\*\*