

PARUL UNIVERSITY
PARUL INSTITUTE OF APPLIED SCIENCES
MID SEMESTER INTERNAL EXAMINATION, APRIL 2017
B. Sc. Semester II
Biotechnology/ Microbiology
Biochemistry II

Paper Code: 11103151

Date: 13/04/2017

Time: 12.30 p.m. to 02.00 p.m.

Maximum Marks: 40

Instructions:

1. All questions are compulsory and options are given in first and second question only.
2. Numbers to the right of question indicate the marks of respective question.

Q. 1 Attempt any one question of the following. **(08)**

- i. Explain the oxidation process of fatty acids.
- ii. Discuss the tricarboxylic acid cycle.

Q. 2 Attempt any three questions of the following. **(12)**

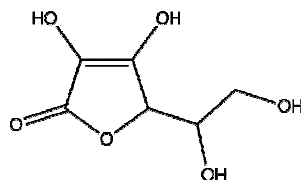
- i. Explain the Wald's visual cycle.
- ii. What are the different types of metabolism? Differentiate between them using examples.
- iii. Explain the importance of HMP shunt.
- iv. Explain how vitamin D is converted into calcitriol.
- v. How is glycolysis regulated?

Q. 3 Do as directed. Attempt all five questions. **(05)**

- i. What is the net ATP gain during glycolysis from 1 glucose molecule?
- ii. Define: Holoenzyme
- iii. Draw the chemical structure of palmitate.
- iv. Using a flowchart show how vitamin K is essential for blood clotting.
- v. Give an example each of a Ligases class and a Transferases class of enzymes.

Q. 4 Write correct option in your answer sheet for following 15 multiple choice questions. **(15)**

MCQ 1 Name the vitamin



- | | |
|-----------------|---------------|
| (A) Vitamin B3 | (B) Vitamin K |
| (C) Vitamin B12 | (D) Vitamin C |

MCQ 2 Which is not a characteristic of vitamin like compounds?

- | | |
|---|------------------------------|
| (A) Does important bodily functions | (B) Antagonistic to vitamins |
| (C) Nutritional compounds that are needed by the body | (D) Present in food |

- MCQ 3 For every one molecule of sugar glucose which is oxidized _____ molecules of pyruvic acid are produced
 (A) 1 (B) 2
 (C) 3 (D) 4
- MCQ 4 The FADH₂ and NADH produced by the oxidation of one acetyl-CoA results in the synthesis of about _____ ATPs
 (A) 3 (B) 6
 (C) 11 (D) 15
- MCQ 5 How many enzymes does FAS have?
 (A) 5 (B) 2
 (C) 7 (D) 9
- MCQ 6 How many C atoms are cleaved during α oxidation?
 (A) 1 (B) 2
 (C) 3 (D) 0
- MCQ 7 Primary role of pentose phosphate pathway is
 (A) catabolic (B) anabolic
 (C) both A and B (D) none of above
- MCQ 8 ATP is from which general category of molecules?
 (A) Polysaccharides (B) Proteins
 (C) Nucleotides (D) Amino acids
- MCQ 9 NADPH is produced by?
 (A) Glycolysis (B) TCA cycle
 (C) HMP shunt (D) none of the above
- MCQ 10 How many ATPs are produced during citric acid cycle?
 (A) 10 (B) 13
 (C) 12 (D) 8
- MCQ 11 The glycolytic pathway (glucose \rightarrow 2 pyruvate) is found
 (A) in all living organisms (B) primarily in animals
 (C) only in eukaryotes (D) only in yeast
- MCQ 12 If you breakdown an odd chain fatty acid, what product do you contribute to the tricarboxylic cycle?
 (A) malate (B) fumarate
 (C) oxaloacetate (D) succinate
- MCQ 13 _____ is an omega 6 fatty acid
 (A) alpha-linolenic acid (B) linolenic acid
 (C) phosphatidylcholine (D) phytosterols
- MCQ 14 Deficiency disease for thiamine is
 (A) Nightblindness (B) Beriberi
 (C) Scurvy (D) Rickets
- MCQ 15 Most of the enzymes of the citric acid cycle in a eukaryotic cell are located in the
 (A) inner mitochondrial membrane (B) cytosol
 (C) mitochondrial matrix (D) intermembrane space