

**PARUL UNIVERSITY**  
**FACULTY OF APPLIED SCIENCE**  
**M.Sc. Summer 2017-18 Examination**

**Semester: 2**  
**Subject Code: 11203153**  
**Subject Name: Biochemical Pathways and Metabolism**

**Date: 09/05/2018**  
**Time: 10:30 am to 1:00 pm**  
**Total Marks: 60**

**Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1. A)** Discuss Glycogen metabolism with the help of diagram. (08)
- Q.1. B) Answer the following questions (Any two)**
- (a) Describe the regulation of Glycolysis. (04)
  - (b) Write a short note on "Glyoxylate Cycle". (04)
  - (c) Draw a well labeled diagram of TCA or Krebs cycle. (04)
- Q.2. A) Answer the following questions.**
- (a) Short answer questions (Each of 02 marks) (04)
    1. How many ATPs are generated from one molecule of Glucose under aerobic and anaerobic conditions respectively?
    2. List two names of metabolic disorders associated with carbohydrate metabolism.
  - (b) Describe the pathway for degradation of Heme to bile pigments. (04)
- Q.2. B) Answer the following questions (Any two)**
- (a) Short answer questions. (Each of 01 marks) (03)
    1. What is the end product of purine metabolism in humans?
    2. Write the name of cofactor required by enzyme Ribonucleotide reductase
    3. Write the name of regulatory enzyme in pyrimidine biosynthesis.
  - (b) Describe briefly the significance of HMP shunt. (03)
  - (c) Describe the salvage pathway of purine nucleotide synthesis. (03)
- Q.3. A)** Discuss the Urea Cycle with its regulation. (08)
- Q.3. B) Answer the following questions (Any two)**
- (a) Brief note (2x2) (Each of 02 marks) (04)
    1. Transamination
    2. Deamination
  - (b) Write short note on any one inborn error of amino acid metabolism (04)
  - (c) Differentiate between ketogenic and glycolytic amino acids. (04)
- Q.4. A) Answer the following questions.**
- (a) Brief note (2x2) (Each of 02 marks) (04)
    1. Write the summary for  $\beta$ -oxidation of Palmitoyl CoA.
    2. State the full form of "LDL" and HDL" and their significance.
  - (b) Describe enzymes involved in the degradation of Phospholipids. (04)
- Q.4. B) Answer the following questions (Any two)**
- (a) Multiple choice questions. (Each of 01 marks) (03)
    1. A fatty acid which is not synthesized in the body and has to be supplied in the diet is
 

(A) Palmitic acid	(B) Lauric acid
(C) Linolenic acid	(D) Palmitoleic acid
    2. Glycosphingolipids are a combination of
 

(A) Ceramide with one or more sugar residues	(B) Glycerol with galactose
(C) Sphingosine with galactose	(D) Sphingosine with phosphoric acid
    3. The cholesterol molecule is
 

(A) Benzene derivative	(B) Quinoline derivative
(C) Steroid	(D) Straight chain acid
  - (b) Describe "Hypercholesterolemia" in brief. (03)
  - (c) Write a short note on "Ketone Bodies". (03)