Seat No:_____ Enrollment No:_____

# PARUL UNIVERSITY

## FACULTY OF APPLIED SCIENCE

## M.Sc., Winter 2017-18 Examination

**Semester: 1** **Date: 26/12/2017**
**Subject Code: 11203102** **Time: 02:00pm to 04:30pm**
**Subject Name: Intermediary Metabolism** **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) Essay type** **(08)**

(a) Write a note on glycolysis with energetics.

**Q.1. B) Answer the following questions (Any two)**

(a) Mention enzyme defect, organs involved and characteristic features of the following glycogen storage diseases. **(Each of 02 marks)** **(04)**

1. Von Gierke's disease
2. Pompe's disease

(b) Short note: Uronic Acid Pathway **(04)**

(c) Hexose monophosphate pathway. Give only reaction steps. **(04)**

**Q.2. A) Answer the following questions.**

(a) Answer True / False with justification (Each of 02 marks) **(04)**

1. Muscle glycogen does not directly contribute to blood glucose. True/ False. Justify the answer.
2. Ascorbic acid is synthesized in man. True/ False. Justify the answer.

(b) Explain ketogenesis and its significance. **(04)**

**Q.2. B) Answer the following questions (Any two)**

(a) Multiple choice questions. (Each of 01 marks) **(03)**

1. How many $FADH_2$ are synthesized in TCA from 1 molecule of pyruvate?
   a) 1 b) 3 c) 2 d) 4
2. Which of the following is not an example of aromatic amino acid?
   a) Phenyl alanine b) Tyrosine c) Tryptophan d) Leucine
3. The two final products in the Beta-oxidation of odd chain fatty acids are
   a) Acetyl CoA & Succinyl CoA b) Acetyl CoA & Malonyl CoA
   c) Both a & B d) Two Molecules of Acetyl CoA

(b) Describe mechanism of transamination. **(03)**

(c) Short note on toxicity of ammonia. **(03)**

**Q.3. A) Essay type** **(08)**

(a) Describe De Novo Purine Nucleotide Synthesis

**Q.3. B) Answer the following questions (Any two)**

(a) Brief note **(04)**

1. Justify the statement: TCA cycle is called an open cycle.
2. Brief note: Reduction of ribonucleotides to deoxyribonucleotides by ribonucleotide reductase.

(b) Describe short term and long-term regulation of fatty acid metabolism **(04)**

(c) Describe any two inborn errors of amino acid metabolism. **(04)**

**Q.4. A) Answer the following questions.**

(a) Fill in the blanks. (Each of 02 marks) **(04)**

1. Two types of pathways for nucleotide biosynthesis are _____ and _____.
2. Fatty acid oxidation takes place in _____ while that of fatty acid biosynthesis takes place in_____ part of cell in eukaryotes.

(b) Describe beta oxidation of fatty acids. Mention its transport to oxidation site and reaction steps. **(04)**

**Q.4. B) Answer the following questions (Any two)**

(a) Multiple choice questions. (Each of 01 marks) **(03)**

1. A genetic lack of hypoxanthine-guanine phosphoribosyl transferase activity results in_____.
   a) Lesch-Nyhan syndrome
   b) Gout
   c) Pompe's disease
   d) None of the above.
2. Gout is a metabolic disease associated with overproduction of _____.
   a) Uric acid
   b) Urea
   c) Free fatty acids
   d) Glucose
3. The end product of purine metabolism in humans is_____.
   a) Xanthine
   b) Uric acid
   c) Urea
   d) Allantoin.

(b) Melanin is synthesized in organelle named _____ in the cell named _____. The precursor for melanin is _____ and the enzyme involved in its biosynthesis is _____. **(03)**

(c) Short note: Palmitate biosynthesis. **(03)**