

**FACULTY OF SCIENCE**  
M. Sc. I – Semester Examination, January 2018

Subject : Biochemistry

Paper – II  
Chemistry and Metabolism of Carbohydrates, Nucleic Acids & Vitamins

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

**PART – A (8 x 4 = 32 Marks)**  
(Short Answer Type)

- 1 Explain the pyranose forms of glucose.
- 2 Pectin and its importance
- 3 Anapleurotic reactions
- 4 Glyoxalate cycle
- 5 Structure of tRNA with the modified / unusual bases.
- 6 Heteroduplex mapping
- 7 Vitamin B<sub>12</sub> sources and deficiency
- 8 Folic acid physiological functions

**PART – B (4 x 12 = 48 Marks)**  
(Essay Answer Type)

- 9 (a) Give an account of the structure, glycosidic linkage and biological significance of starch, glycogen and insulin.

OR

- (b) Explain sugar code and role of lectins.

- 10 (a) Write down the reactions of glycolysis, energy yield and the regulatory mechanisms.

OR

- (b) Explain the light and dark reaction mechanisms of photosynthesis.

- 11 (a) Give an account of the structure of purines, pyrimidines and their nucleotides. Add a note on their contribution in the DNA and RNA.

OR

- (b) Explain the de-novo pathway for the biosynthesis of purines.

- 12 (a) Discuss the sources, biological role and deficiency disorders due to vitamin A and E.

OR

- (b) Write about the sources, biological role and deficiency disorders due to vitamin D and K.