

FACULTY OF SCIENCE

M. Sc. I – Semester (CBCS) Examination, December 2016

Subject : Biochemistry

Paper – I : Chemistry and Metabolism of Protein and Lipids and Porphyrin

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 α -helix and 3_{10} helix protein structure.
- 2 Small peptides with examples.
- 3 Amino acids degraded to oxaloacetate.
- 4 Glucose- alanine cycle
- 5 Bile acids and their functions
- 6 Gangliosides
- 7 MCAD
- 8 Explain the reaction for conversion of acetyl – Co – A to malonyl Co-A.

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

- 9 (a) Give an account of the classification and structures of the 20 amino acids. Add a note on the PKa.

OR

- (b) Write about:
(i) Causes for protein denaturation
(ii) Role of chaperones in protein folding

- 10 (a) Explain the steps in metabolism of branched chain amino acids and the associated disorders.

OR

- (b) Write the reactions of urea cycle and its linking with citric acid cycle.

- 11 (a) Give an account of the chemistry and biological functions of the major sterols and steroid hormones.

OR

- (b) Write the structures and functions of :
(i) Sphingolipids
(ii) Thromboxanes

- 12 (a) Explain the mechanisms of oxidative break down of fatty acids.

OR

- (b) Write down the steps in catabolism of porphyrin and add a note on their clinical significance.
