FACULTY OF SCIENCE
Subject: Biochemistry
Paper – I : Chemistry and Metabolism of Protein and Lipids and Porphyrim

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.

(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.

(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 steroils and
steroid hormones.

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

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

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