

2012
B.A./B.Sc. (General) Third Semester
Biochemistry
Paper - B: Protein and Nucleic Acid Metabolism

Time allowed: 3 Hours

Max. Marks: 45

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting one question from each Section.

x-x-x

I Fill in the blanks

9x1

- a. Amino acids have two ionizable groups _____ and _____.
- b. Bile acids are synthesized in _____ and stored in _____.
- c. Uric acid is formed from _____ in the presence of oxygen.
- d. Leucine on catabolism yields _____ and _____.
- e. N3 and N9 of purine base are derived from the amide nitrogen _____.

Name the following:

- i. Two intestinal peptide hormones.
- ii. End-product of heme degradation.
- iii. Two branched chain amino acids.
- iv. Two hormones derived from tyrosine

Section A

- II** a. Write down the reaction catalyzed by transaminases. Describe the role of pyridoxal phosphate in transamination reaction. 4,5
- b. How ammonia is detoxified by urea cycle?
- III** a. Discuss the absorption of free amino acids and dipeptides in small intestine. 5,4
- b. Write a note on nitrogen balance.

Section B

- IV** a. Describe the common reactions in degradation of branched chain amino acids. 6,3
- b. Write down the reactions involved in interconversion of propionyl CoA and succinyl CoA.
- V** Discuss the sequence of reactions involved in catabolism of lysine. 9

Section C

- VI** Write down the sequence of reactions involved in synthesis of 2x4.5
- a. Proline from glutamate.
- b. Cysteine from S-adenosyl methionine
- VII** a. Write down the reactions involved in conversion of the following 4,5
- i. Tyrosine to epinephrine
- ii. Arginine to creatinine
- b Write a note on polyamines.

Section D

- VIII** a. Discuss the regulation of biosynthesis of pyrimidine nucleotides. 4,5
- b. Write the sequence of reactions involved in biosynthesis of CTP from aspartate.
- IX** a. Purine bases and nucleosides can be salvaged to reform nucleotides, justify. 5,4
- b. Write a note on anticancer drugs.