

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. 1 which is compulsory and selecting one question from each Section.

x-x-x

- I**
- a. Differentiate between oxidative and non-oxidative deamination. 2
 - b. What is meant by uricotelic, ureotelic and ammoniotelic organisms. 2
 - c. Name the following : 5
 - i. Two ketogenic amino acids.
 - ii. Enzyme defective in maple syrup disease.
 - iii. Methyl donor form of methionine.
 - iv. Inhibitor of xanthine oxidase.
 - v. Enzyme involved in conversion of ribonucleotides to deoxyribonucleotides.

Section A

- II**
- a. What are transamination and deamination reactions? 4,5
 - b. How ammonia is detoxified by urea cycle?
- III**
- a. Discuss the role of various proteolytic enzymes in protein digestion in GIT. 5,4
 - b. Write a note on glucose-alanine cycle.

Section B

- IV**
- a. Name different families of amino acid degradation. 5,4
 - b. Describe the catabolism of tryptophan.
- V**
- Write down the reactions involved in 3,3,3
 - i. Phenylalanine to homogentisate
 - ii. Glycine to serine interconversion
 - iii. Arginine to α -ketoglutarate

Section C

- VI**
- a. List the amino acid biosynthetic families grouped by metabolic precursor. 3,3,3
 - b. How proline is synthesized in bacteria?
 - c. Write down the steps involved in conversion of ornithine to arginine.

- VII**
- a. Write down the biosynthesis of : 4,5
 - i. Serine from 3-phosphoglycerate
 - ii. Cysteine from serine
 - b. Describe the biosynthesis of different neurotransmitters.

Section D

- VIII**
- a. Discuss the biosynthesis of purine nucleotides. 6,3
 - b. Write reactions of purine salvage pathway.
- IX**
- a. Write down the synthesis of deoxyribonucleotides. 5,4
 - b. How is conversion of UMP to dTMP inhibited by 5-fluorouracil ?

x-x-x