

FACULTY OF SCIENCE
M.Sc. III Semester Examinations, January 2018

Subject: Chemistry (Organic Chemistry) (Elective-I)

Paper- III
Bio Organic Chemistry

Time: 3 Hours

Max.Marks: 80

Note: Answer all questions from Part - A and Part – B.
Each question carries 8 marks in Part-A and 12 marks in Part-B

Part-A (4x8=32 marks)
(Short answer type)

- 1 a) Write the 4C_1 and 1C_4 conformations of D-glucose.
 b) Give the structure and biological functions of glycogen.
- 2 a) Give the secondary structure of different types of DNA.
 b) What is DNA finger printing? Explain.
- 3 a) Give the secondary tertiary structure of proteins.
 b) Describe the factors affecting enzyme catalysis.
- 4 a) Give the structure and biological functions of S- adenosyl methionine (SAM).
 b) Write the synthesis of vitamin – B₆.

PART-B(4X12=48 Marks)
(Essay Answer Type)

- 5 a) Discuss about Ferrier and Hanesian reactions with examples.
 b) Give any two synthetic methods for the synthesis of amino and halo sugars.
 (OR)
 c) Determine the ring size and structure of maltose.
 d) Write in brief about the structure and biological functions of starch and cellulose.
- 6 a) Describe the protein bio-synthesis.
 b) What are nucleic acids? Give the structure of the nucleotide bases and sugars.
 (OR)
 c) Write the synthesis of any two nucleotides.
 d) Give any two chemical synthesis of phospholipids.
- 7 a) Explain the determination of amino acid sequence in peptides by Edman's method (phenyl thiohydantoin) from N- terminal amino acid.
 b) Write the different types of enzyme inhibition.
 (OR)
 c) Depict the peptide synthesis by solid- phase method.
 d) Explain about the mechanism of enzyme catalysis.
- 8 a) Give an account on the mechanism of reactions catalysed by the following co-enzymes
 (i) TPP (ii) PLP
 b) Write the synthesis of vitamin C
 (OR)
 c) Describe the role of the following co- enzymes with mechanism.
 (i) ATP (ii) FADH₂
 d) Elucidate the structure and give the synthesis of vitamin- B₁.
