

2022
B.A./B.Sc.
Fifth Semester
CORE – 11
CHEMISTRY
Course Code: CHC 5.11
(Organic Chemistry - IV)

Total Mark: 70

Pass Mark: 28

Time: 3 hours

Answer five questions, taking one from each unit.

UNIT-I

1. (a) Write the structure of adenine and thiamine. 4
- (b) Write the chemical composition of nucleotides and show the structure of different types of sugars present in it. 6
- (c) Write the structure of adenosine monophosphate and adenosine diphosphate. 4
2. (a) Write the structure of purine, adenine, and guanine. 6
- (b) Write the synthesis of adenine and guanine. 5
- (c) Write the structure of thymidine monophosphate. 3

UNIT-II

3. (a) Write Gabriel phthalimide synthesis for preparation of α -amino acid. 3
- (b) Write Schlack-Kumpf and reductive method for C-terminal analysis of amino acids. 6
- (c) Write the general reactions involved in protection of amino and carboxylic group of amino acids. 5
4. (a) Discuss the structure of proteins. 7
- (b) Write the classification of proteins on the basis of chemical composition. 3
- (c) Write the problems posed during the synthesis of peptides from α -amino acid. 4

UNIT-III

5. (a) Write the classification of enzymes. 4
(b) Explain the salient features of active site of enzymes. 4
(c) Write short notes on the following: $2 \times 3 = 6$
(i) Non-competitive enzyme inhibitor
(ii) Allosteric inhibition
(iii) Competitive inhibition
6. (a) Write short notes on the following: $3 \times 2 = 6$
(i) Enzyme activators
(ii) Isoenzyme
(b) Explain the characteristics of enzyme. 4
(c) Write the applications of enzymes. 4

UNIT-IV

7. (a) A triglyceride has molecular weight 890 and contains four double bonds. Calculate its saponification number and iodine number. $4 + 4 = 8$
(b) What are oils and fats? How do they differ from each other? 3
(c) Explain the term rancidity of fats and oils. 3
8. (a) Explain the term hydrogenation of oils with suitable example. 4
(b) A triglyceride has molecular weight 800 and contains three double bonds. Calculate its saponification number and iodine number. 7
(c) Write the biological importance of triglycerides. 3

UNIT-V

9. (a) Define the term antipyretics and write its application on the basis of chemical structure. $1 + 7 = 8$
(b) Write the chemical name, source, uses and structure of vitamin C. 4
(c) Explain broad and narrow spectrum antibiotics. 2
10. (a) Write the synthesis and uses of chloramphenicol. $6 + 2 = 8$
(b) Write the preparation of chloroquine and its uses. $4 + 2 = 6$