

M.Sc. Examination, 2017

Semester-II

Chemistry

Course: CH-808

(Organic Chemistry)

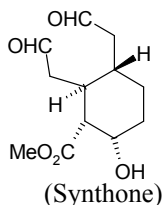
Time: Three Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. a) Write down the structure of dopamine and its precursor amino acid in biological system. 2
b) Write down the name of the enzyme that catalyzes the synthesis of dopamine. Which cofactor does involve in this enzyme. 2
c) Discuss the mechanism of the catalytic reaction to form the dopamine. 3
d) Discuss the mechanism of the catalysing action of racemeses. 3
2. a) What is glycopeptide transpeptidase? What is its role in the physiology of bacteria? Write down the name of a drug that affect the function of glycopeptide transpeptidase and discuss the mechanism of action. 1+2+3
b) Name the drug that could inhibit reversibly the catalytic process of an enzyme. 2
c) What is serin protease? How the action of this protease can be inhibited by a group specific inhibitor. 2
3. a) What do you mean by ϕ and ψ angle of a peptide bond? How does Ramachandran diagram predict the restricted combination of (ϕ , ψ) angle? 2+2
b) Which area of Ramachandran diagram represent the α -helix and β -strand secondary structure of a protein. 2
c) Show the intra or inter chain hydrogen bonds that stabilizes the secondary structure like α -helix and β -sheet. 4
4. a) How does glycerides differ from wax? 2
b) Stearic acid and oleic acid both the fatty acids contain the same no. of carbon atom (C=18). But the melting point of stearic acid is 70°C while that of oleic acid is 4°C . – Explain. 3
c) What do you mean by hydrogenation of triglycerides? 2
d) What is detergent? What are the basic differences between soap and detergent? 1+2
5. a) Give a short note on phospholipid. 2
b) How soap does clean the greasy dirt forming micelles? 4
c) Give an example of a complex lipid and a simple lipid? 2
d) What is the function of carboxypeptidase A and carboxypeptidase B in the hydrolysis of peptide bond? 2
6. a) Explain the stereochemistry for alkaloid yohimbine at C-3 and C-17 position. 6



- b) How this synthon can be synthesised by readily available material? 2
- c) Make the conversion with necessary reagents: 2
Yohimbine $\rightarrow$ ψ -Yohimbine
 ψ -Yohimbine $\rightarrow$ Yohimbine.