

MODEL PAPER
FIRST YEAR B.Sc., DEGREE EXAMINATION
SEMESTER-II
CHEMISTRY COURSE -II: ORGANIC & GENERAL CHEMISTRY

Time: 3 hours

Maximum Marks: 75

PART- A

5 X 5 = 25 Marks

Answer any **FIVE** of the following questions. Each carries **FIVE** marks

1. Write different conformations of n-butane. Explain their relative stability..
2. Explain 1,2- & 1,4- addition reactions of conjugated dienes.
3. Explain the orientation effect of halogens on mono substituted benzene.
4. Explain the mechanism of E1^{CB} elimination reaction.
5. Explain the structure of ClF₃ by Valency Bond theory.
6. What are Hard & soft acids & bases? Explain with examples.
7. Draw the Wedge, Fischer, Newmann & saw-Horse representations for Tartaric acid.
8. Define Enantiomers and Diastereomers and give two examples for each.

PART- B (Organic Chemistry) 3 X 10 = 30 Marks

Answer **any three** of the following questions. Each carries **TEN** marks

9. (i) Write the preparation of alkanes by Wurtz and Corey-House reaction.
(ii) Explain Halogenation of alkanes. Explain the reactivity and selectivity in free radical substitutions.
10. (i) Explain Baeyer Strain Theory
(ii) Draw the conformations of Cyclohexane and explain their stability by drawing energy profile diagram.
11. (i) Write any two methods of preparation of alkenes.
(ii) Explain the mechanism of Markownikoff and Anti-Markownikoff addition of HBr to alkene.
12. (i) Explain the acidity of 1-alkynes
(ii) How will you prepare acetaldehyde and acetone from alkynes?
(iii) Write alkylation reaction of terminal alkene.
13. Define Huckel rule of aromatic compounds. What are benzenoid and nonbenzenoid aromatic compounds? Give examples.
14. Explain the mechanisms of Nitration and Friedel-Craft's alkylation of Benzene.

PART- C (General Chemistry) 2 X 10 = 20 Marks

Answer **any two** of the following questions. Each carries **TEN** marks

15. (i) Define Hardy-Schulze rule & Gold number.

- (ii) Differentiate Physisorption & Chemisorption. Explain Langmuir adsorption isotherm.
16. Construct the Molecular Orbital diagram for O_2 and NO and explain their bond order and magnetic property.
17. Define racemic mixture. Explain any two techniques for resolution of racemic mixture.
18. (i) Define Optical activity and Specific rotation.
(ii) Draw the R- & S- isomers of Alanine, Glyceraldehyde.
(iii) Write the E- & Z- isomers of 2-butene.
