

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

Time: 3 hours

Maximum Marks: 75

PART- A
Marks

5 X 5 = 25

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
Marks

5 X 10 = 50

Answer **ALL** the questions. Each carries **TEN** marks

- 9 (a). (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.

(or)

- (b). (i) Explain Baeyer Strain Theory
(ii) Draw the conformations of Cyclohexane and explain their stability by drawing energy profile diagram.

- 10 (a). (i) Write any two methods of preparation of alkenes.
(ii) Explain the mechanism of Markownikoff and Anti-Markownikoff addition of HBr to alkene.

(or)

- (b). (i) Explain the acidity of 1-alkynes

- (ii) How will you prepare acetaldehyde and acetone from alkynes?
- (iii) Write alkylation reaction of terminal alkene.

11.(a). Define Huckel rule of aromatic compounds. What are benzenoid and non- benzenoid aromatic compounds? Give examples.

(or)

- (b). Explain the mechanisms of Nitration and Friedel-Craft's alkylation of Benzene.

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

- (ii) Differentiate Physisorption & Chemisorption. Explain Langmuir adsorption isotherm.

(or)

- (b). Construct the Molecular Orbital diagram for O₂ and NO and explain their bond order and magnetic property.

13.(a). Define racemic mixture. Explain any two techniques for resolution of racemic mixture.

(or)

- (b).(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.
