

**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  $ClF_3$  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**

5 X 10 = 50 Marks

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  $O_2$  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.

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