

Time: 3Hours

Max Marks: 70

Question Paper Consists of **Part-A** and **Part-B**  
Answering the questions of **Part-A** is Compulsory,  
Four Questions should be answered from **Part-B**

**PART-A**

(7 X 2 = 14 Marks)

- (a) Define Inductive and Mesomeric effect.  
(b) Write a short note on ozonolysis reaction.  
(c) What is Geometric isomerism?  
(d) Explain any two steps of  $SN_1$  mechanism.  
(e) Brief about Williamsons synthesis of ethers.  
(f) Give the structural formula of 3,4-Dichloro-2-methyl hexane and 1,4-Dimethyl cyclohexane.  
(g) Mention any four applications of Grignard reagent in organic synthesis.

**PART-B**

- (a) Define the term Hybridization. Explain various types of hybridization in carbon compounds with suitable examples.  
(b) Give a short note on carbocations. [10+4]
- (a) Describe Bayer's strain theory and Sachse-Mohr theory.  
(b) Enumerate the methods for the preparation and synthetic utility of alkenes. [8+6]
- (a) Define elimination reaction. Discuss the mechanism, reactivity, and orientation of  $E1$  and  $E2$  reaction with suitable example.  
(b) Write any four general methods of preparation of alkyl halides. [7+7]
- (a) Explain the nomenclature and any four method of preparation of alcohols.  
(b) What are the different types of alcohols? Explain how to distinguish between them. [8+6]
- (a) Explain configuration with suitable examples. Write in brief about stereo isomers and optical isomers.  
(b) What is racemic mixture? Explain different types of racemic mixtures. Enlist different methods of resolution of racemic modifications. [6+8]
- (a) Describe the methods of preparation, mechanism and the synthetic utility of Grignard reagent.  
(b) Explain the importance of nucleophilic addition and substitution reaction by using Grignard reagents. [7+7]