

# Gurudas College

Internal Assessment Examination, 2021

Subject-CEMA, SEM-IV

Paper- CC-4-8-Th

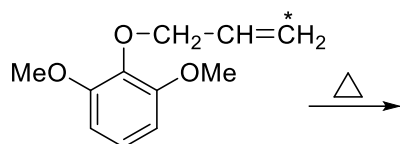
Time: 30 Minutes

Full Marks: 10

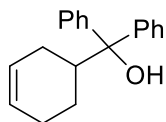
Answer any five questions

5x2=10

1. Convert nitrobenzene to 1,3,5 tribromobenzene.
2. Distinguish chemically between nitrile and isonitrile.
3. Define stereoselective and stereospecific reaction with example.
4. Predict the products of the following reactions and give the mechanism.



5. The  $\alpha,\beta$  unsaturated ketone, mesityl oxide shows  $\lambda_{\max}$  230 nm ( $\epsilon_{\max} = 12,600$ ) and 329 nm ( $\epsilon_{\max} = 41$ ) in hexane and  $\lambda_{\max}$  243 nm ( $\epsilon_{\max} = 10,000$ ) and 305 nm ( $\epsilon_{\max} = 60$ ) in water. Explain.
6. Though the electronegativity of cyano group is greater than that of the chlorine atom the chemical shift value of acetonitrile ( $\text{CH}_3\text{-CN}$ ) is  $\delta$  1.97 ppm whereas, methyl chloride ( $\text{CH}_3\text{-Cl}$ ) is  $\delta$  3.05 ppm. Explain.
7. Write the possible retrosynthetic analysis of the following compound and mention forward synthesis also.



8. How can you prepare primary amine by Gabriel's phthalimide synthesis? Explain.