

## Group-A

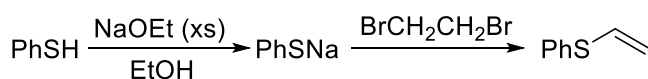
(Answer any 5 questions, each question carries 2 marks)

A.1. Chloroacetic acid is 10000 times stronger than acetic acid. Explain.

A.3. Explain why acidity of an acid H-A is more pronounced in H<sub>2</sub>O than in DMSO.

A.5. What happens when *meso*-2,3-dibromobutane is refluxed with Zn in MeOH? Provide relevant mech.

A.7. Explain the following sequence with plausible mechanism.



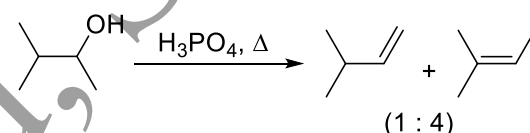
A.2. Between sodium *p*-hydroxybenzoate and sodium salicylate which one is more acidic? Explain.

A.4. Predict the product(s) with plausible mech.



A.6. Write the characteristic differences between E2 and E1cB reactions.

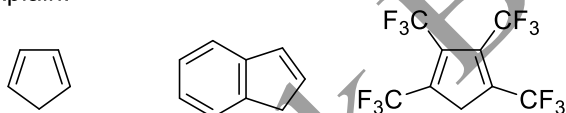
A.8. Explain the following mechanistically. Also explain the regioselectivity observed.



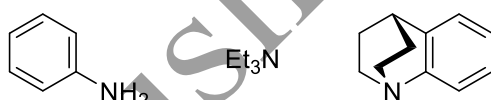
## Group-B

(Answer any 5 questions, each question carries 3 marks)

B.1. Arrange the following in order of increasing acidity. Explain.

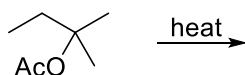


B.3. Arrange the following in order of decreasing basicity. Explain.



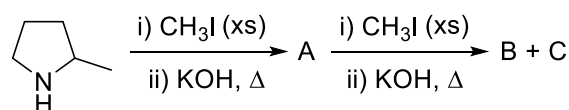
B.5. Treatment of 2-bromobutane with NaOEt/EtOH affords 19% 1-butene whereas with NaOEt/*t*-BuOH the yield of 1-butene increases to 38%. Explain with suitable mechanism.

B.7. Predict the major product and provide a plausible mechanism.

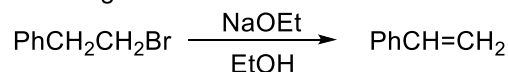


B.2. What are proton sponges (PSs)? Give the chemical structure of a PS. Why are they unusually basic?

B.4. Identify A to C. Explain.



B.6. Write the E2 & E1cB mechanism for the following:



Which one actually operates? Give evidence.

B.8. Among methylamine, dimethylamine and trimethylamine. which one is the most basic in - i) water and ii) chlorobenzene? Explain.