



Progressive Education Society's  
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16  
End Semester Examination: Sept/Oct 2024  
Faculty: Science and Technology

**Program: B.Sc.**

**Semester: III**

**SET: A**

**Program (Specific): B.Sc. Chemistry**

**Course Type: Core**

**Class: T.Y.B.Sc.**

**Max. Marks: 35**

**Name of the Course: Organic Chemistry I**

**Course Code: 24-CH-507**

**Time: 2Hrs**

**Paper: VII**

**Instructions to the candidate:**

- 1) There are 4 sections in the question paper. Write each section on separate page.*
- 2) All Sections are compulsory.*
- 3) Figures to the right indicate full marks.*

**SECTION: A**

**Q1) Answer the following:**

**5 x 1 Mark = 5 Marks**

- a) State Huckel's rule of aromaticity with a suitable example.
- b) State Hofmann's rule with a suitable example.
- c) State Saytzeff's rule with a suitable example.
- d) Give one method of preparation of diethyl malonate.
- e) What is a rearrangement reaction?

**Q2) Answer any four of the following:**

**4 x 1 Mark = 4 Marks**

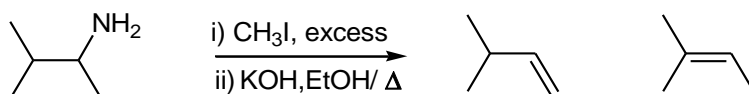
- a) Write the structure of isocyanate intermediate and give names of two rearrangements involving it.
- b) Which intermediate is involved in Beckmann rearrangement?
- c) Write names and structures of three aromatic five membered heterocycles.
- d) Give an example of pinacol-pinacolone rearrangement.
- e) Place the following in the descending order of migratory aptitude.  
t-butyl, methoxyphenyl, phenyl and methyl
- f) Explain aromaticity of cyclopentadienyl anion.

## SECTION: B

**Q3) Answer any four of the following:**

**4 x 2 Marks = 8 Marks**

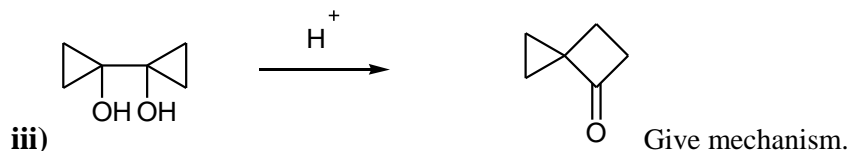
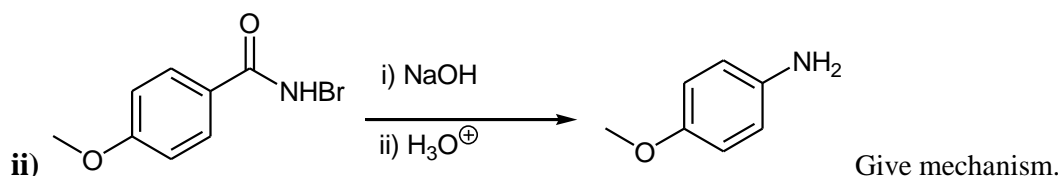
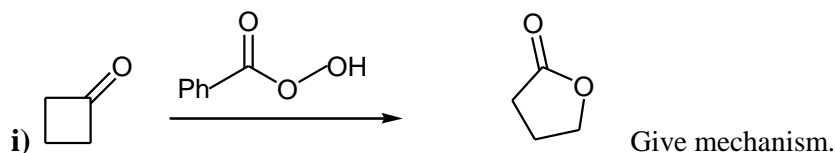
- i) Write a note on Beckmann rearrangement.
- ii) How is cyclohexanone converted to  $\epsilon$ -caprolactum?
- iii) Write any one application of diethyl malonate (with mechanism).
- iv) Write a note on aromatic and non-aromatic compounds.
- v) How is ethyl acetoacetate prepared by Claisen condensation?
- vi) Which of the following is the major product? Why?



## SECTION: C

**Q4) Answer any four of the following.**

**4 x 2 Marks = 8 Marks**



- iv) Write a note on Hofmann rearrangement.
- v) Explain hydrolysis of isocyanate intermediate.
- vi) Explain Curtius rearrangement with a suitable example.

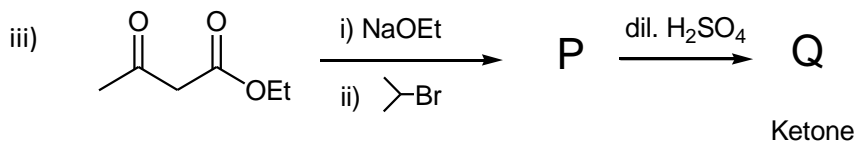
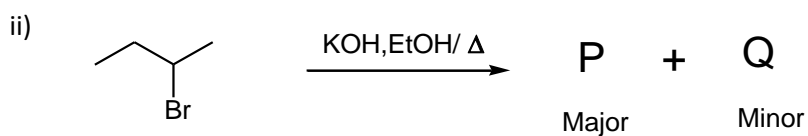
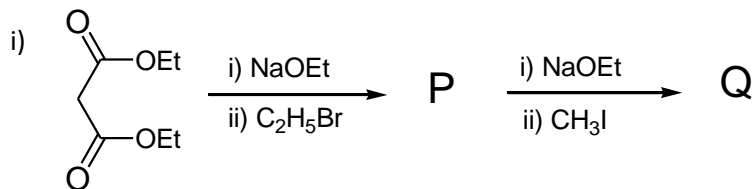
### SECTION: D

**Q5) Answer any two of the following:**

**2 x 5 Marks = 10 Marks**

**a) What is E2 elimination? Discuss the kinetics and mechanism with a suitable example.**

**b) Predict the products in the following reactions. (any 2)**



**c) Explain the effect of leaving group in an elimination reaction.**

**d) Explain conversion of diethyl malonate to propanoic acid.**

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