

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.

B.Sc.Chemistry - END SEMESTER EXAMINATIONS - APRIL 2025

SEMESTER - III

22UCHCT3005 - Organic Functional Groups and Hetero Cyclic Compounds

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Explain the acidity of alpha hydrogen in carbonyl compounds.
2. Illustrate the mechanism of the Aldol condensation reaction.
3. Describe the effect of substituents on the acidity of carboxylic acids.
4. Compare the physical and chemical properties of aliphatic and aromatic nitro compounds.
5. Explain the mechanism of the Riemer-Tiemann reaction.
6. Write note on Gattermann reaction and Houben-Hoesch reaction.
7. Classify heterocyclic compounds with suitable examples.
8. Justify the comparative basicity of pyrrole, pyridine, and piperidine.

Section C

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Apply the Reformatsky reaction to synthesize β -hydroxy esters and explain its mechanism.
10. Examine the hydrolysis of esters under acidic and alkaline conditions with mechanisms.
11. Determine the electrophilic substitution orientation in phenols and explain the mechanism of nitration and sulphonation.
12. Analyze the factors affecting the basicity of aromatic amines and compare the basicity of primary, secondary, and tertiary amines.
13. Evaluate the synthesis and applications of quinoline and isoquinoline.
