

Roll.No.

22UCHCT3005

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 - NOVEMBER 2025

SEMESTER - III

22UCHCT3005 - Organic Functional Groups and Heterocyclic Compounds

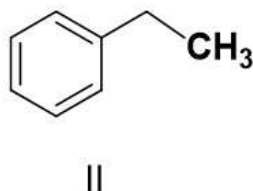
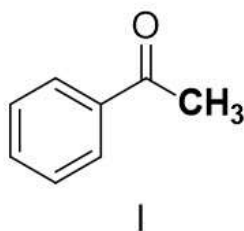
Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

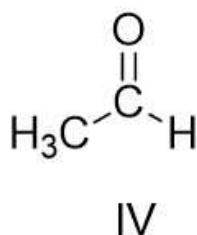
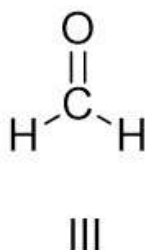
Section BAnswer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. Account for the following statements.

a) Methyl group of compound I is more acidic than the methyl group of compound II.



b) Compound III could undergo Cannizzaro reaction in the presence of a base, but Compound IV could not undergo.



c) 2-Pentanone tests positive for iodoform test whereas 3-pentanone does not.

2. How will you effect the following transformations?

a) Ethanol to acetic acid. b) Acetaldehyde to lactic acid.

3. Distinguish hydroboration-oxidation from oxymercuration-demercuration method.

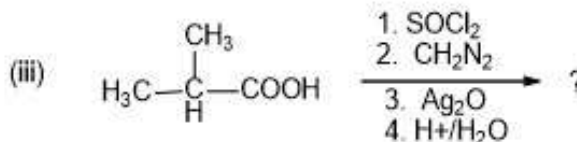
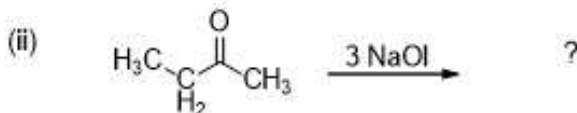
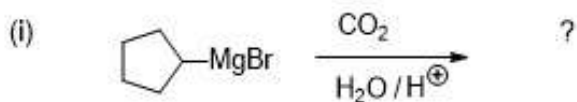
4. Provide any one method of preparation for *o*-dinitrobenzene, *m*-dinitrobenzene and *p*-dinitrobenzene.**Contd...**

- Describe the synthesis of furan and pyrrole using Paal-Knorr synthesis method.
- Explain the following reactions with appropriate mechanism.
 - Knoevenagel reaction
 - Perkin reaction
- Describe the synthesis of phenol from the following methods.
 - Dow's Process
 - From aryldiazonium salts
- Illustrate the stereospecific addition to Maleic acid and fumaric acid.

Section C

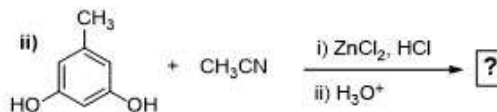
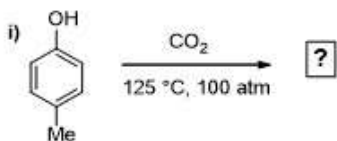
Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

- Explain the following reactions with relevant mechanism.
 - Wittig reaction
 - Reformatsky reaction
 - Wolf-Kishner reduction
- (a) Predict the products for the following conversions.



- Illustrate the various plausible mechanisms for acid and base catalysed hydrolysis of esters.

- (a) Find out the major product for the following reaction.



- Outline the mechanistic details of the following reactions.
 - Riemer-Tieman reaction.
 - Lederer-Manasse reaction.
 - Friedel Craft's alkylation of phenol.

- (a) How would you distinguish 1° , 2° and 3° amines using Hinsberg test?
 - Illustrate the reduction reaction of nitrobenzene in acid, neutral and alkaline media.

Contd...

13. a) Describe a synthetic method for each of the synthesis of quinoline and isoquinoline.
b) Compare the basicity of pyrrole and pyridine.
