

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 - II

22UCHCT2003 - Basics of Organic Chemistry

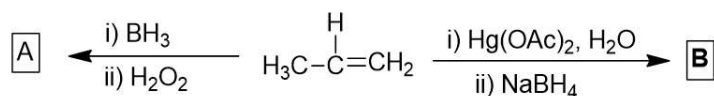
Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

- (a) Derive the structures of ethylene based on the hybridization of the carbon atoms involved.
(b) Identify the nucleophiles and electrophiles from the following:
 CN^- , NO^{2+} , BF_3 , H_2O , H^+ , NH_3 , OH^- , CH_3^+
- Discuss the competition between substitution and elimination using the same substrate.
- Explain the following reactions with suitable mechanism.
 - Kolbe's electrolytic method.
 - Corey-House synthesis.
- Predict the major products (A and B) formed in the following reactions and provide suitable mechanism for your product.



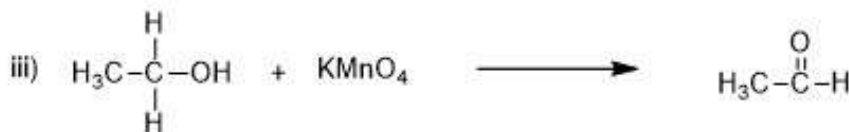
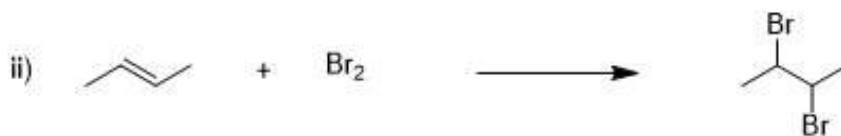
- Describe the industrial and laboratory preparation of benzene.
- Justify the following statements.
 - 2-Butene is more stable than 1-butene.
 - Chloroacetic acid is a stronger acid than acetic acid.
- Illustrate the methods of preparation of cycloalkanes using.
 - Dieckmann's ring closure reactions.
 - Reduction of aromatic rings.
- Explain the following reactions
 - Reaction of propene with HBr without peroxide.
 - Reaction of propene with HBr with peroxide.

Contd...

Section C

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

9. a) Illustrate the different types of tautomerism.
b) Provide any two methods for the formation of carbocations and free radicals.
c) Compare nucleophilicity and basicity.
10. a) Identify the type of reactions for the following conversion.



- b) Compare the mechanism of S_N1 and S_N2 based on the effect of substrate, nucleophile, leaving group and solvents.
11. Explain Baeyer strain theory and strainless rings theory with suitable examples.
12. Illustrate the following reactions with relevant mechanism.
(i) Ozonolysis of alkenes.
(ii) Diels-Alder reaction.
(iii) Ziegler Natta polymerisation.
13. a) Outline the mechanistic details of the following reactions.
(i) Friedel - Crafts acylation.
(ii) Nitration of benzene.
b) Discuss the orientation and reactivity of the following disubstitution reaction.
(i) Bromination of toluene.
(ii) Bromination of nitrobenzene.
