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-2023
SEMESTER - II
22UCHCT2003 - Basics of Organic Chemistry

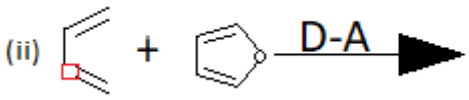
Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section B

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

1. Explain the hybridization of (i) CH_4 (ii) C_2H_4
2. Illustrate with examples ,the preparation of alkanes by
   (i) Wurtz reaction (ii) Corey-House synthesis (iii) Kolbe's electrolytic process.
3. Differentiate between Hoffman and Saytzeff rules. Give examples for each.
4. Explain deactivating and m-directing nature of NO_2 group towards electrophilic substitution reactions.
5. Discuss the mechanism and types of elimination reactions.
6. Prove that halogenation of methane takes place by free radical mechanism.
7. Predict the product: (2+2+1)

(i) $CH_3{-}CH{=}CH_2{\equiv}H_2O \xrightarrow{\text{alk.KMnO4}}$?

(ii) 

(iii) $CH_3{-}C{\equiv}C{-}CH_3 + Br_2 \longrightarrow$?

8. State Huckel's rule. Distinguish between aromatic, antiaromatic and non-aromatic compounds.

Section C

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

9. Explain why
   (i) CCl_3COOH is a stronger acid than CH_3COOH.
   (ii) $C_6H_5NH_2$ is a weaker base than ammonia.

Contd...

10. Differentiate between S_N1 and S_N2 reactions and discuss the factors that affect the rate of reaction.

11. (a) Summarize the concept of Bayer's Strain theory and its limitations.
    (b) Outline the synthesis of cyclopentane by Dieckmann's ring closure reaction. (7+3)

12. Explain about (5+5)
    (i) Ziegler-Natta Polymerization.

    (ii) $HC \equiv CH \equiv H_2O \xrightarrow{HgSO4}$?

13. Write the mechanistic steps of following electrophilic substitution reactions of benzene: (5+5)
    (i) Nitration (ii) Sulphonation

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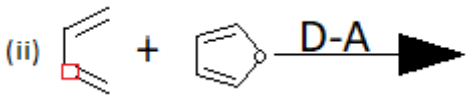
(ii) 

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