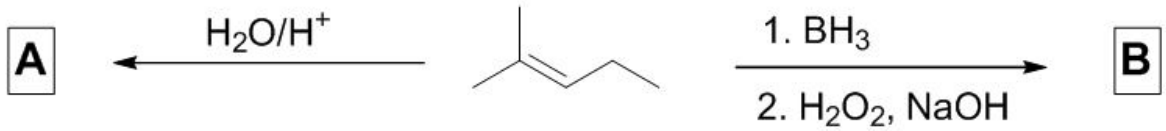
SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai - 600 044.
B.Sc.Chemistry - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - II
22UCHCT2003 - Basics of Organic Chemistry

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

Section B

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

1. Illustrate the hybridisation and shape of the following molecules with relevant structures.
   a) Benzene b) Acetylene
2. Classify the different types of organic reactions with suitable examples.
3. Describe the preparation of alkanes using Wurtz reaction and explain its advantage and limitations.
4. Predict the product A and B in the following reactions and propose the plausible mechanism for the product formation.



5. Deduce the reaction mechanism for the following conversions

6. Distinguish Inductive effect and electromeric effect with relevant examples.
7. Illustrate the preparation of cycloalkanes by Dieckmann's ring closure Reactions with suitable example.
8. Describe a method each for the industrial and laboratory preparation of benzene.

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Section C

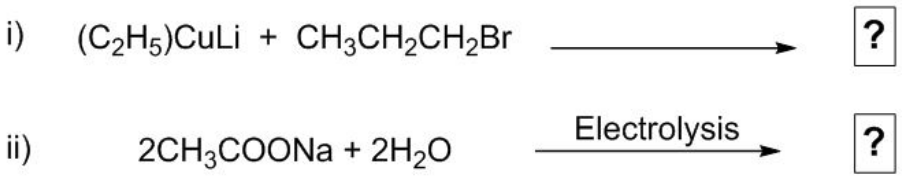
Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. a) Justify the following statements.(4 x 1)
   i) Formic acid (HCOOH) is more acidic than acetic acid (CH_3COOH).
   ii) α-Hydrogen in carbonyl compounds are more acidic than α-Hydrogen in alcohols.
   iii) 2-Butene is more stable than 1-butene.
   iv) Despite possessing four polar bonds (C-Cl), the dipole moment of CCl_4 is zero.

   b)Distinguish the following terms with suitable examples.(3 + 3)
   i) Nucleophilicity and basicity
   ii) Homolytic fission and heterolytic fission

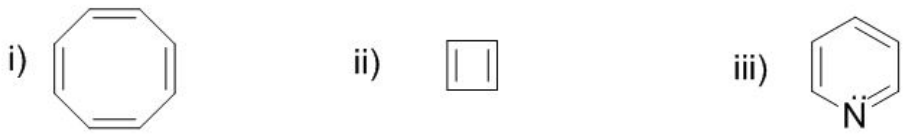
10. a) Compare the mechanism of S_N1 and S_N2 pathway and discuss the effect of nucleophile and leaving group.(5)
    b) Distinguish E1 and E2 mechanism of elimination reactions.(5)

11. a) Compare and discuss Baeyer's strain theory and Sache-Mohr theory. (8)
    b) Complete the following reaction(2)



12. a) Comparatively illustrate the Hofmann and Saytzzeff rule in the dehydrohalogenation of alkenes. (5)
    b) Describe the following reactions with suitable mechanism and examples.(2.5+2.5)
    i) Ozonolysis of alkenes ii) Dihydroxylation of alkenes using $KMnO_4$

13. a) Ascertain whether the following compounds are aromatic, anti aromatic, non aromatic and provide reason. (3 x 2)



    b) Outline the mechanistic details of Friedel-Craft's alkylation and acylation reaction.(4)

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