B.Sc. Semester-II
Core Course-III (CC-III)
Organic Chemistry-I

IV. Aromatic Hydrocarbons

8. The Friedel-Crafts Acylation Reaction

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IV Aromatic Hydrocarbons **10 Lectures**

Aromaticity: Hückel's rule, aromatic/anti-aromatic/non-aromatic character of arenes, cyclic carbocations/carbanions and heterocyclic compounds with suitable examples.

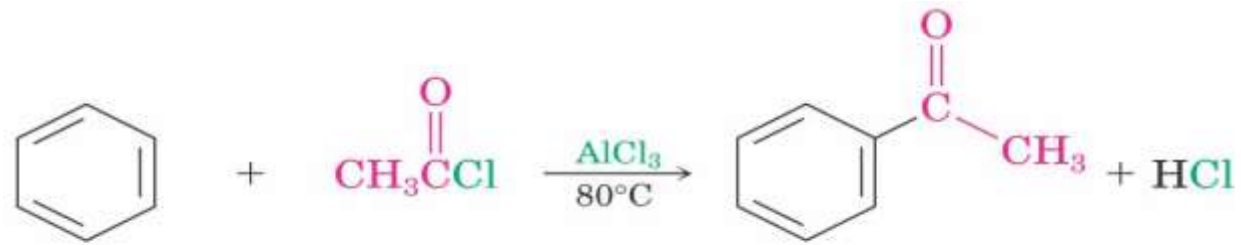
Electrophilic aromatic substitution: Halogenation, Nitration, Sulphonation and Friedel-Craft's alkylation/acylation with their mechanism. Directing effects of mono-functional groups.

Coverage:

1. The Friedel-Crafts Acylation Reaction

The Friedel-Crafts Acylation Reaction

- **Reaction of an acid chloride (RCOCl) and an aromatic ring in the presence of $AlCl_3$ introduces acyl group, —COR**
  - **Benzene with acetyl chloride yields acetophenone**

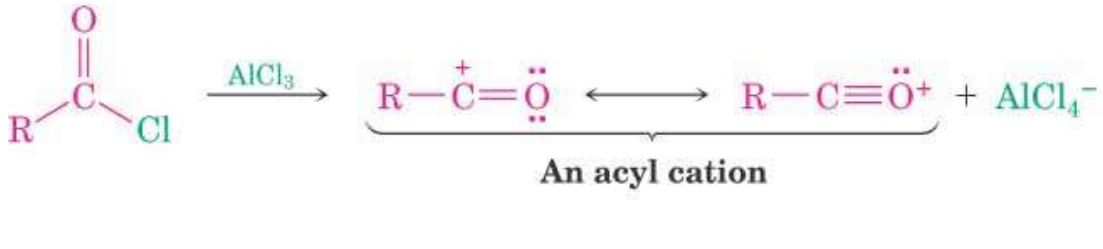


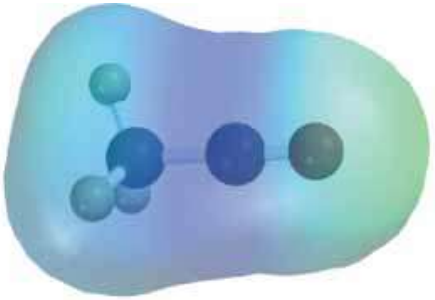
Benzene **Acetyl chloride** **Acetophenone (95%)**

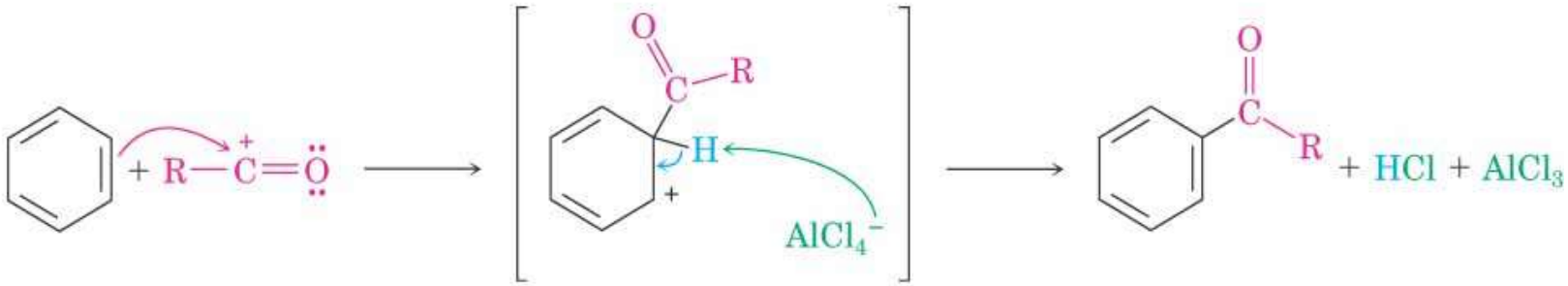
The Friedel-Crafts Acylation Reaction

- **Similar to alkylation**
- **Reactive electrophile: resonance-stabilized acyl cation**
- **An acyl cation does not rearrange**

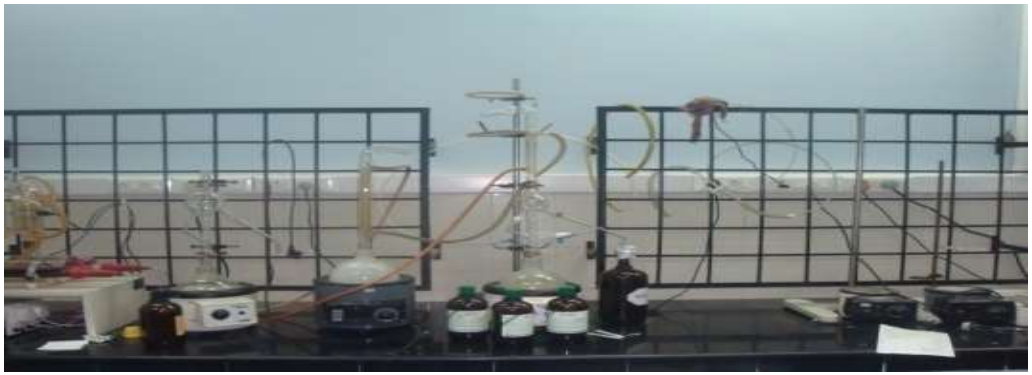
Mechanism:







Thank You



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