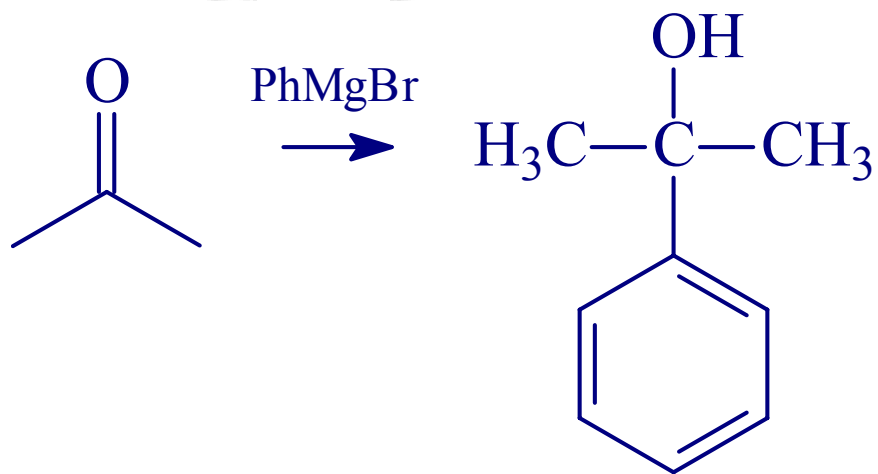
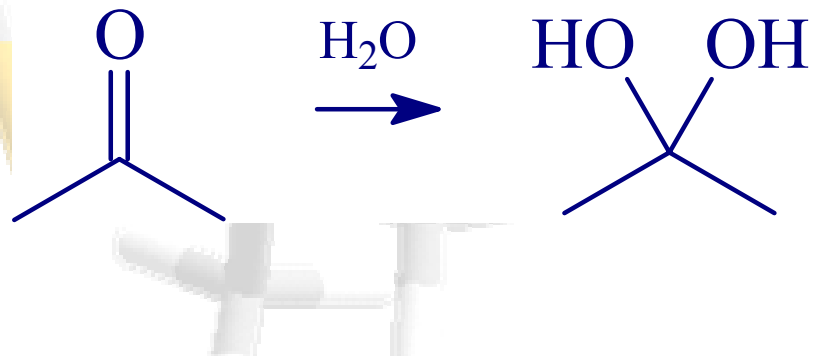
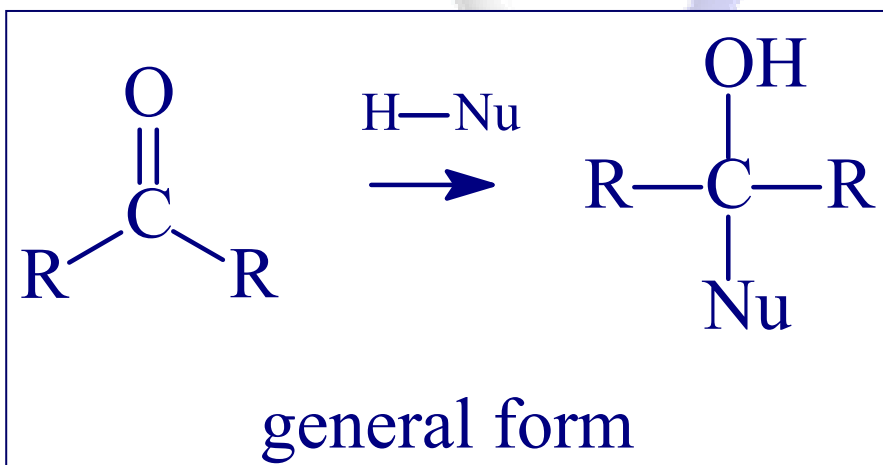


# Reactions of carbonyl groups

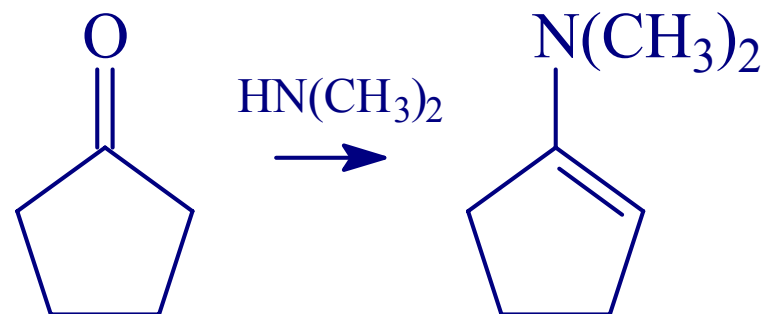
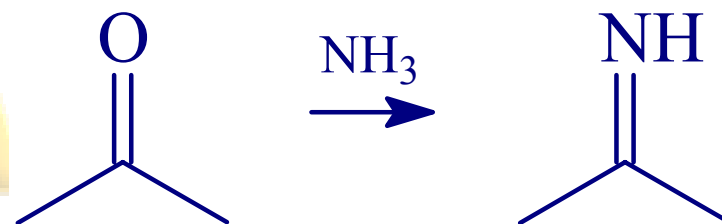
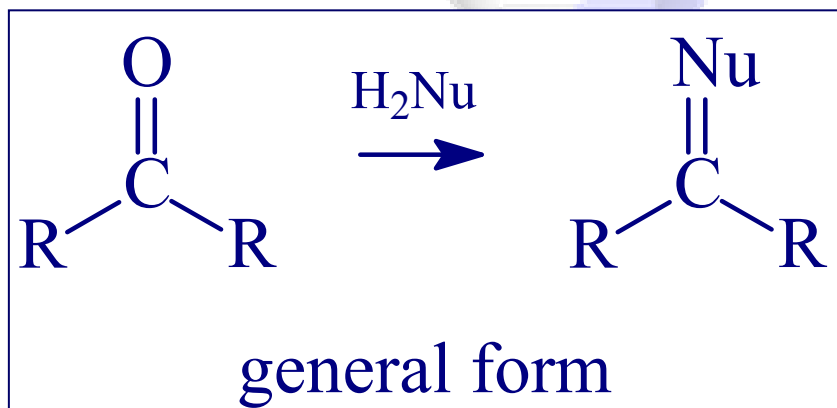


- Nucleophilic addition
- Nucleophilic substitution to form C=Nu
- Nucleophilic acyl substitution
  - Of a leaving group in an acid or derivative
- Alpha-substitution from the enol or enolate
  - Alkylation
  - Carbonyl condensation

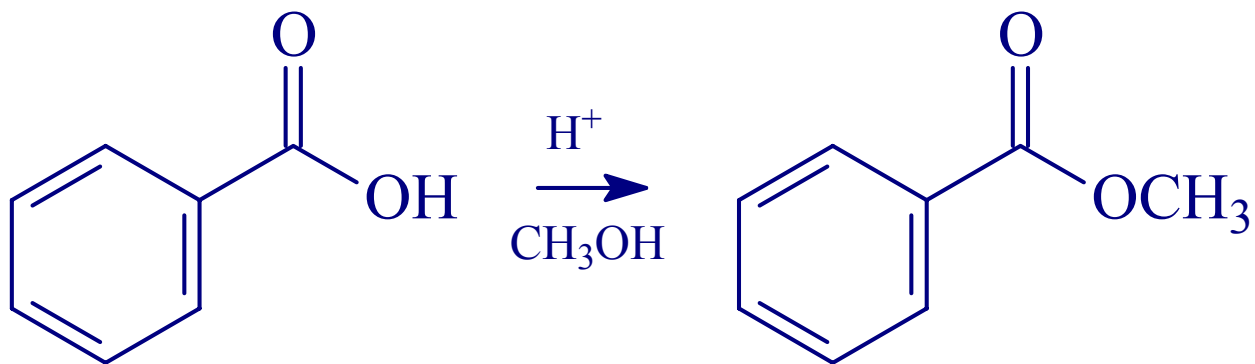
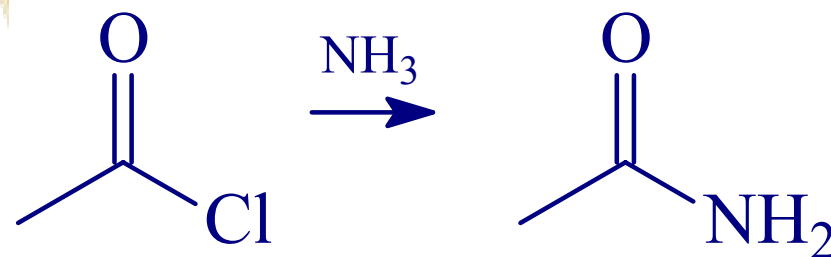
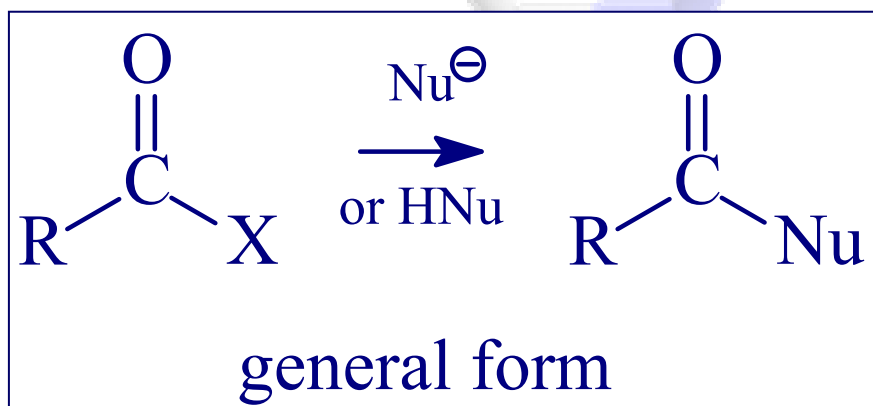
# Nucleophilic addition



# Nucleophilic substitution to form C=Nu



# Nucleophilic acyl substitution



# Alpha-substitution

