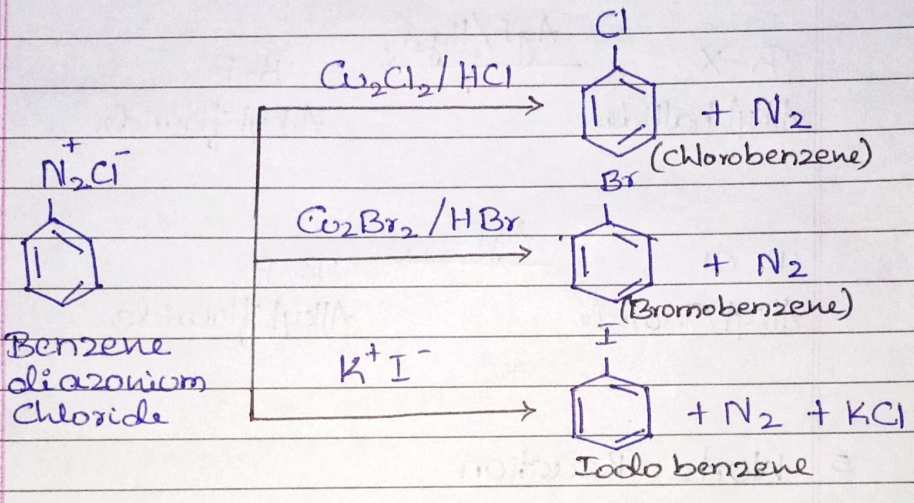
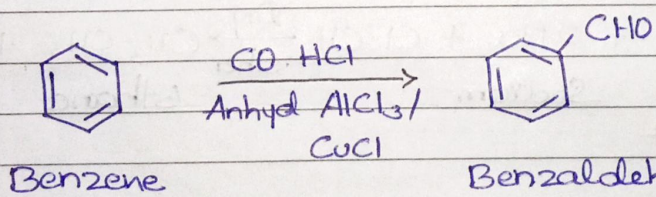
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# Named Reactions

## 1. Sandmeyer Reaction

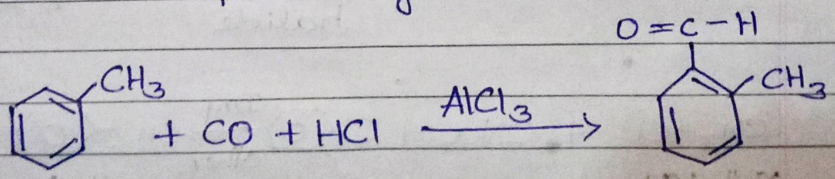



## 2. Gattermann Reaction




## 3. Gattermann koch Reaction

* It is formylation of benzene and Substituted benzene in presence of Lewis acid.



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## 4 Swarts Reaction

$$R\text{-}X \xrightarrow{AgF/Hg_2F_2} R\text{-}F$$

Alkyl halide → Alkyl fluoride

$$R\text{-}Cl \xrightarrow{AgF} R\text{-}F$$

Alkyl Chloride → Alkyl fluoride

## 5 Wurtz Reaction

$$R\text{-}X + 2Na + X\text{-}R \xrightarrow[ether]{Dry} R\text{-}R + 2NaX$$

Alkyl halide + Sodium → Alkanes

$$CH_3\text{-}Cl + 2Na + Cl\text{-}CH_3 \xrightarrow[ether]{Dry} CH_3\text{-}CH_3 + 2NaCl$$

Methyl Chloride + Sodium → Ethane

## 6. Wurtz - fittig Reaction

$$R\text{-}X + 2Na + X\text{-}C_6H_5 \xrightarrow[ether]{Dry} R\text{-}C_6H_5 + 2NaX$$

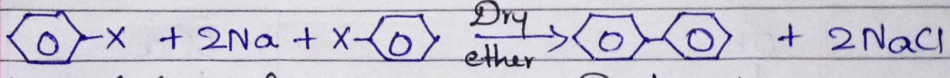
Alkyl halide + Sodium + Alkyl halide → Alkyl benzene

$$CH_3\text{-}Cl + 2Na + Cl\text{-}C_6H_5 \xrightarrow[ether]{Dry} CH_3\text{-}C_6H_5 + 2NaCl$$

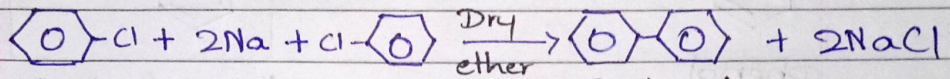
Methyl Chloride → Methyl benzene

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## 7 Fetting Reaction



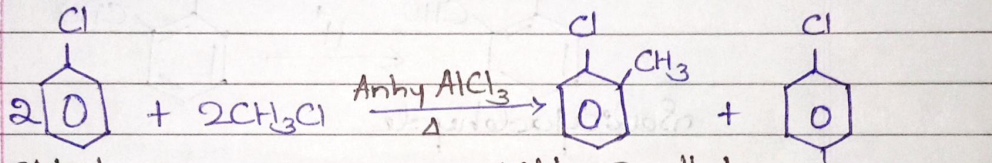

Arylhalide Sodium — Diphenyl




Chlorobenzene — Diphenyl

## 8 Friedel Graft Reaction

### (a) Alkylation

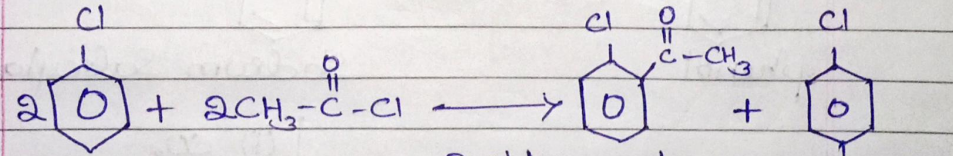



Chlorbenzene

1-Chloro 2 methyl benzene (minor)

1-Chloro 4 methyl benzene (major)

### (b) Acylation



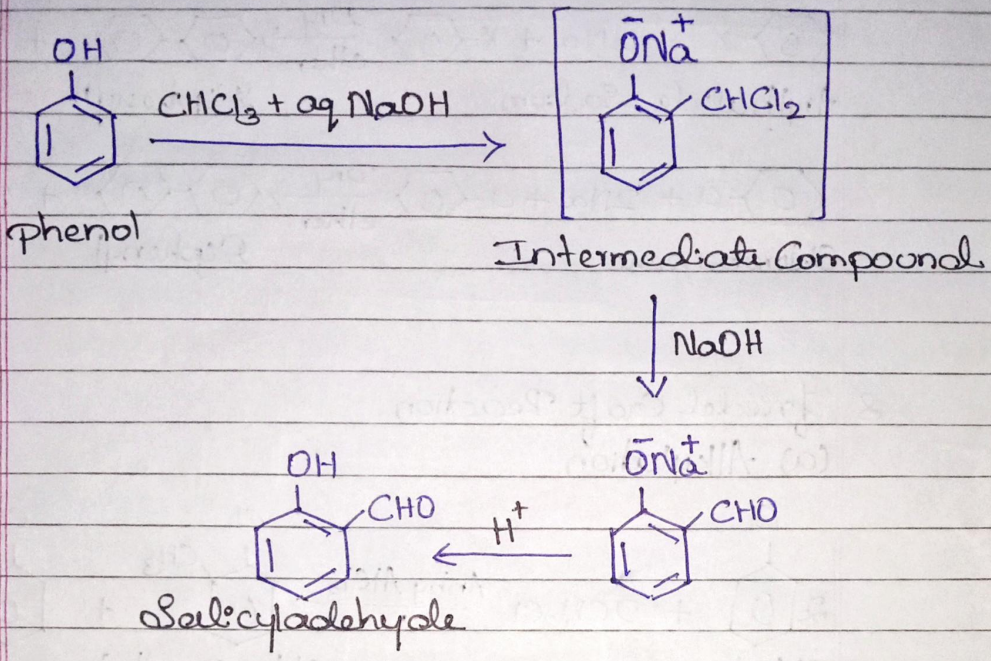

Chlorobenzene

2-Chloro aceto Phenol (minor)

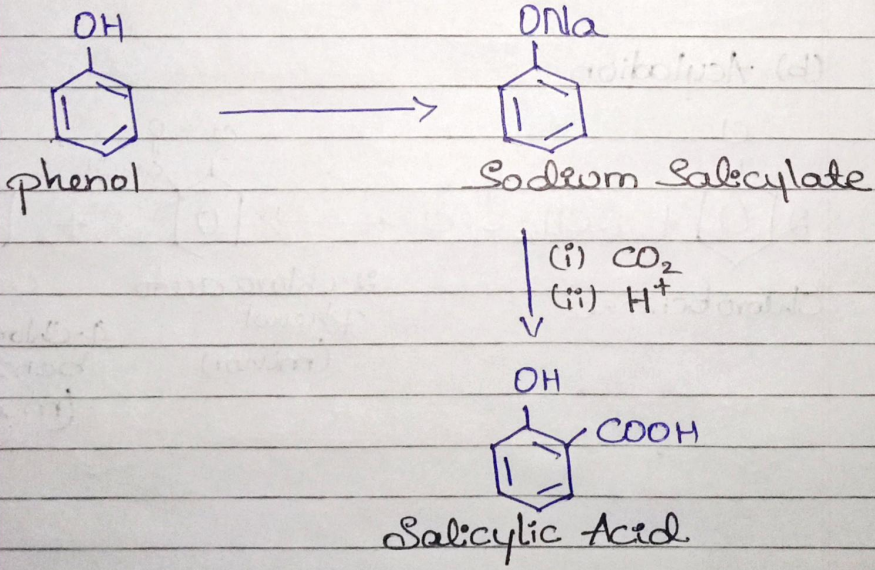
4-Chloro aceto benzene (major)

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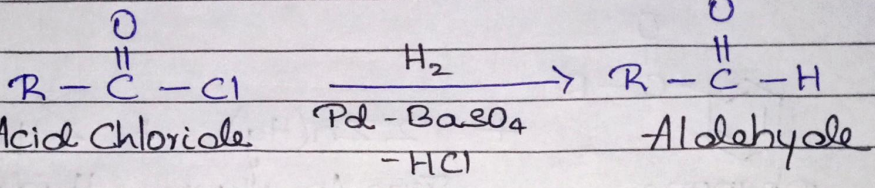
## 9 Reimer Tiemann Reaction



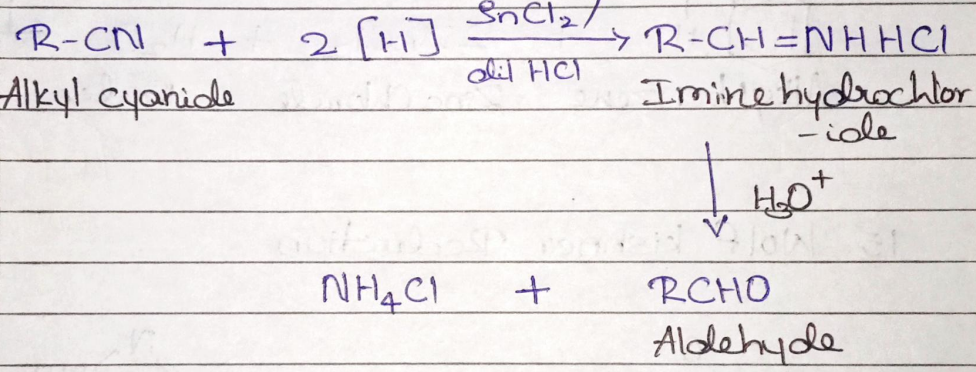

## 10 Kolbe's Reaction



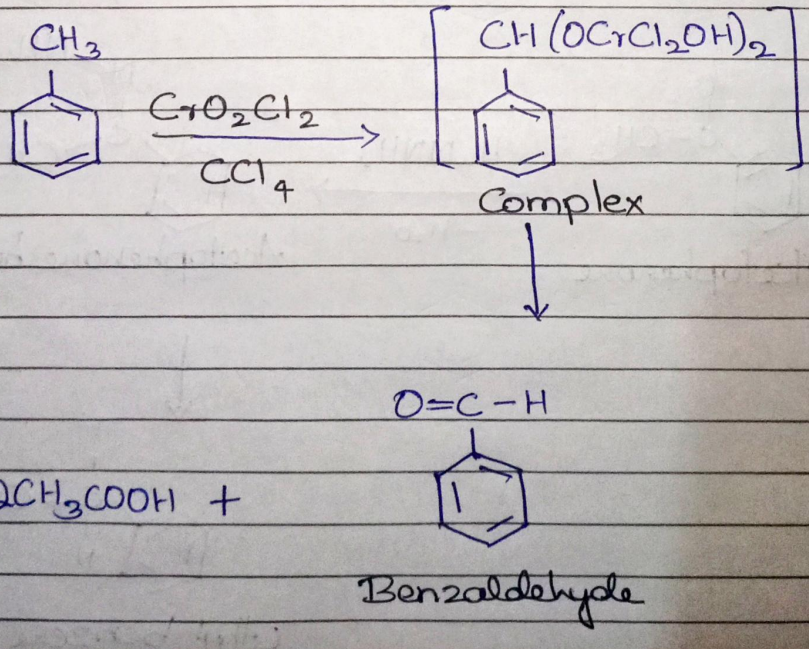
## 11 Rosenmund Reduction



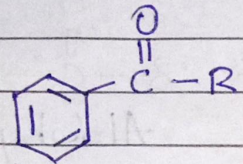

## 12 Stephen Reaction




## 13 Etard Reaction

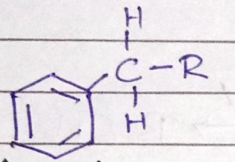


## 14 Clemmensen Reduction



phenone + 2 Zn(Hg) + 4 HCl

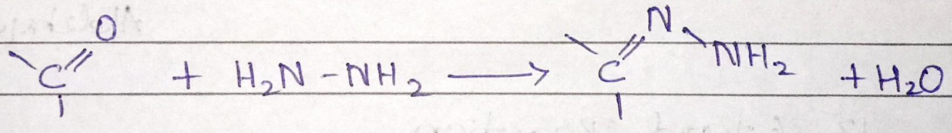
Zinc Amalgam Hydrochloric acid



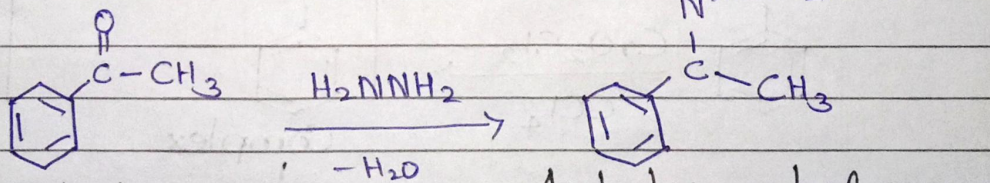
Alkyl benzene + $2ZnCl_2$ + $H_2O$

Zinc Chloride Water

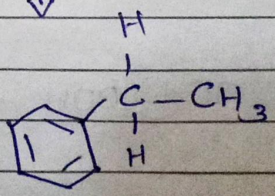
## 15 Wolf kishner Reduction



Aldehyde Hydrazine Hydrazone



Acetophenone Acetophenone hydrazone



Ethyl benzene

## 16 Tollens Test

$$R-\overset{O}{\overset{\|}{C}}-H + 2[Ag(NH_3)_2]^+ OH^- + H_2O$$

Aldehyde — diaminesilver (I) hydroxide — Water

$$R-\overset{O}{\overset{\|}{C}}-OH + 2Ag + 4NH_3 + 2H_2O$$

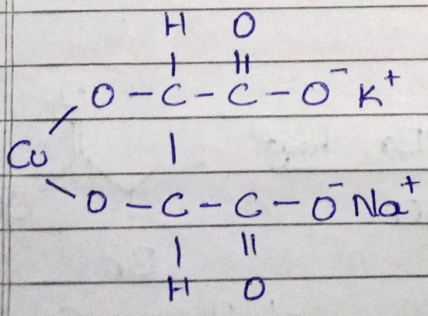
Carboxylic acid — Silver — Ammonia — Water

## 17 Fehling's Solution

$$CuSO_4 \cdot 5H_2O + 2NaOH + KNaC_4H_4O_6 \cdot 4H_2O$$

Cupric sulfate — Sodium hydroxide — Potassium sodium tartrate

$\xrightarrow{\Delta}$

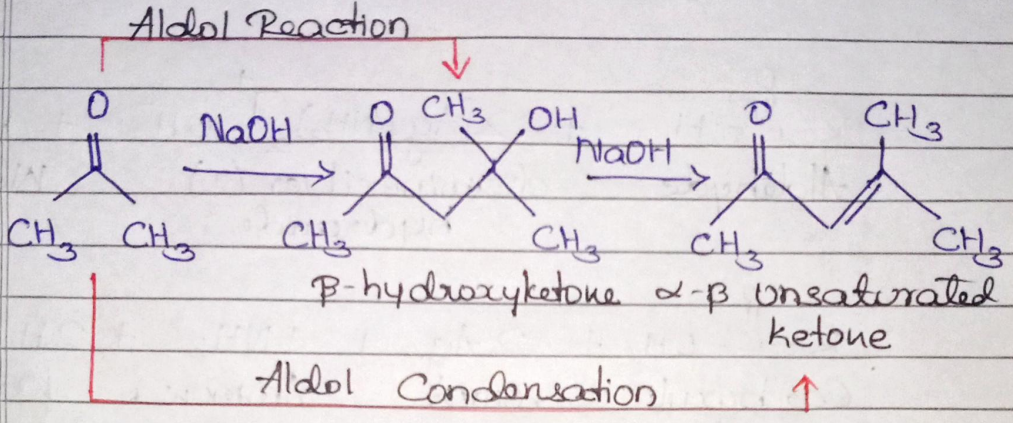


$$+ Na_2SO_4 + 11H_2O$$

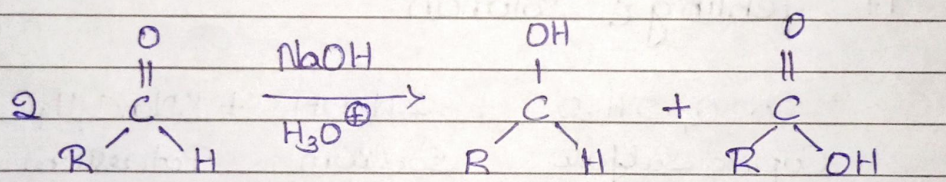
Sodium sulfate — Water

Fehling's Solution

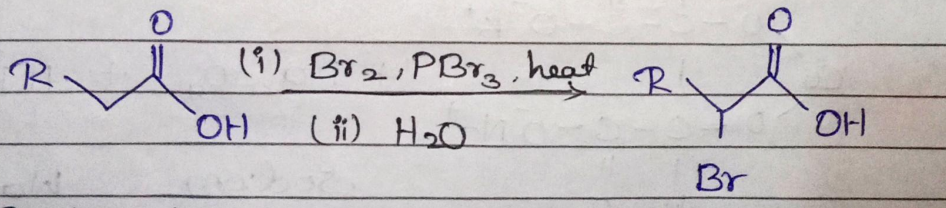
## 18 Aldol Condensation




## 19 Cannizzaro Reaction




## 20 Hell Volhard Zelinsky Reaction



21 Kolbe's Electrolysis

$RCOONa \longrightarrow RCOO^- + Na^+$

At Anode

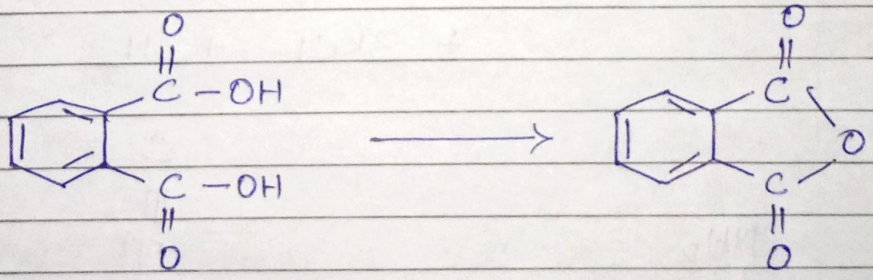
$$R-\underset{\underset{O}{\|}}{C}-O^- \xrightarrow{-e} R-\underset{\underset{O}{\|}}{C}-\dot{O}\cdot \longrightarrow R\cdot + CO_2$$

$R\cdot + R\cdot \longrightarrow R-R$

At Cathode

$Na^+ + e^- \longrightarrow Na + H_2O \longrightarrow NaOH + H_2$

22 Gabriel Phthalimide synthesis

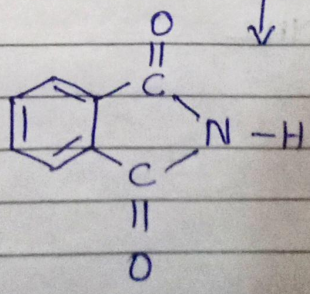


1-2-dicarboxylic acid



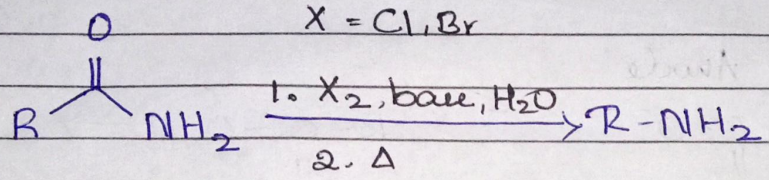
pthalic anhydride

$\Delta / NH_3$



pthalimide

## 23 Hoffmann Bromamide Reaction

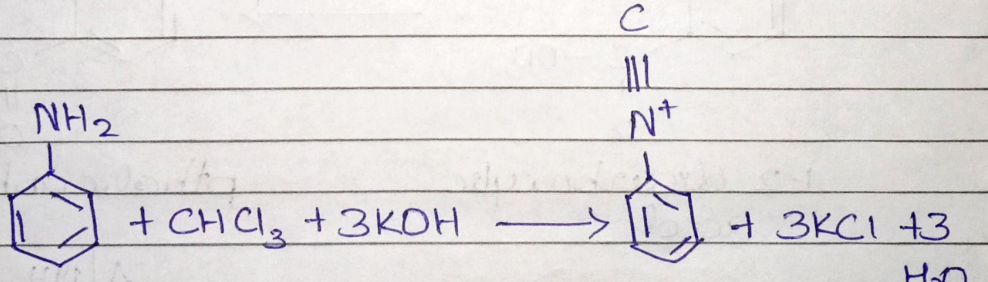



1° amide — 1° amine

## 24 Carbylamine reaction

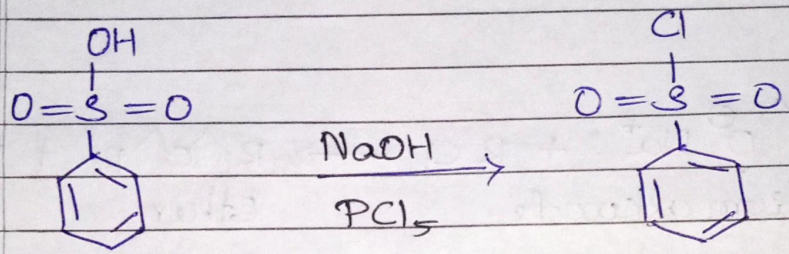
$CH_3CH_2NH_2 + CHCl_3 + 3KOH \longrightarrow CH_3CH_2NC + 3KCl + 3H_2O$

Ethyl amine — Alcoholic — Ethyl isocyanide




Amine — Phenyl isocyanide

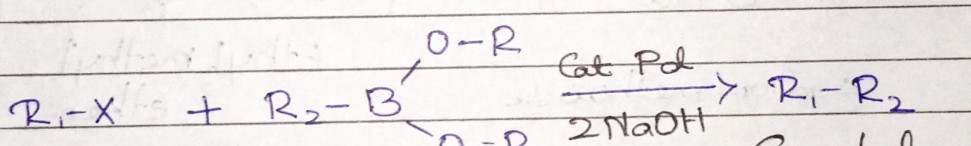
## 25 Hinsberg reaction




Benzene sulfonic acid

Benzene sulfonyl Chloride

## 26 Coupling Reaction

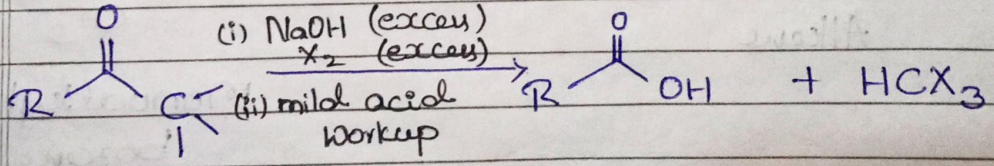



Organo halide

Organo borane

Coupled product

## 27 Haloform Reaction

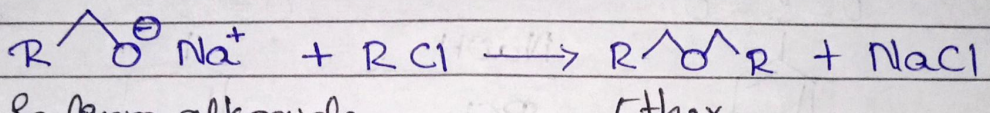



Ketone

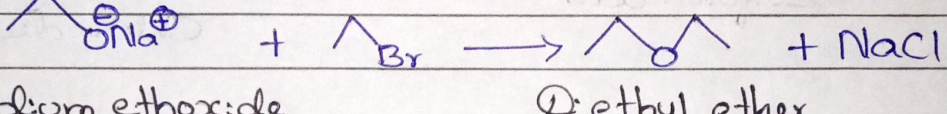
Carboxylic acid

Haloform

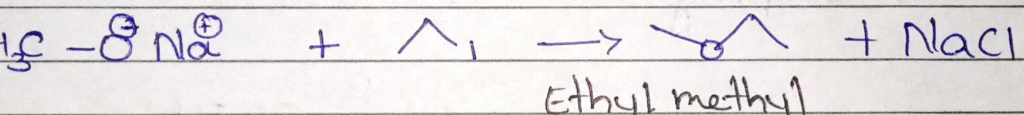
## 28 Williamson Ether Synthesis



Sodium alkoxide — Ether

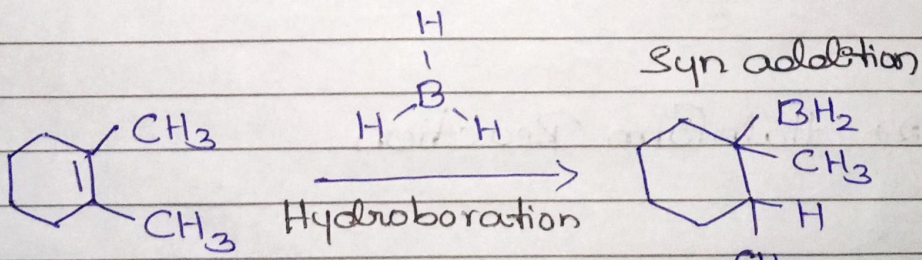


Sodium ethoxide — Diethyl ether



Sodium methoxide — Ethyl methyl ether.

## 29 Hydroboration Oxidation



Alkene — Monoalkyl borane

Syn addition

30 Lucas test

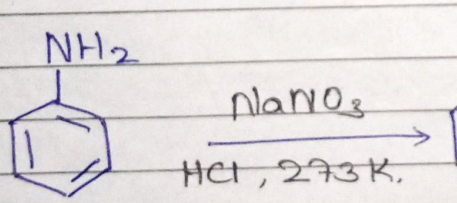
Lucas reagent
= Conc $HCl$ + $ZnCl_2$ (anhydrous)

31 Finkelstein Reaction

$$R-X + 2NaI \xrightarrow[\text{ether}]{\text{Dry}} R-I + NaI$$

Alkyl halide — Sodium Iodine — Alkyl Iodide

32 Diazotization




Aniline — Benzene diazonium Chloride