1. Sandmeyer Reaction:

2. Finkelstein Reaction:

$$R - X + NaI \longrightarrow R - I + NaX$$

(X = Cl,Br)

3. Swarts Reaction:

$$H_3C-X + AgF \longrightarrow H_3C - F + AgX$$

(X = Cl,Br)

4. Wurtz Reaction:

5. Wurtz-Fittig Reaction:

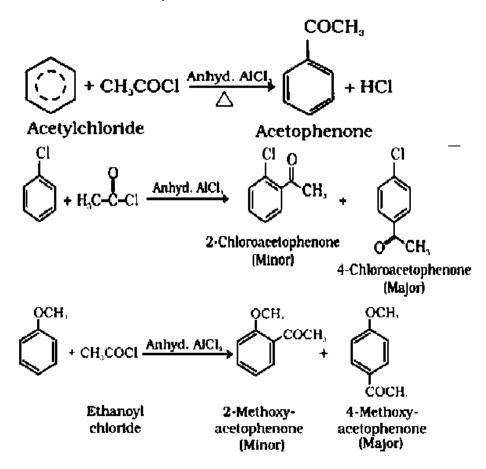
$$X + Na + RX \xrightarrow{Ether} R + NaX$$

6. Fittig Reaction:

$$2 \longrightarrow^{X} + Na \xrightarrow{Ether} + 2NaX$$

7. Friedel-Crafts alkylation Reaction:

8. Friedel-Crafts acylation reaction:



Reimer-Tiemann Reaction:

$$\begin{array}{c}
OH \\
CHCl_{3} + aq NaOH
\end{array}$$

$$\begin{array}{c}
OH \\
CHCl_{2} + aq NaOH
\end{array}$$

$$\begin{array}{c}
OH \\
NaOH
\end{array}$$

$$\begin{array}{c}
CHO \\
H^{*}
\end{array}$$

$$\begin{array}{c}
CHO \\
H^{*}
\end{array}$$
Salicylakiehyde

Kolbe's Reaction:

Williamsons synthesis:

Rosenmund Reduction:

Stephen reaction:

$$RCN + SnCl_2 + HCl \longrightarrow RCH = NH \xrightarrow{H_3O} RCHO$$

Etard reaction:

$$CH_{3} + CrO_{3}Cl_{3} \xrightarrow{CS_{7}} CH(OCrOHCl_{2})_{2} \xrightarrow{H_{3}O'} CHO$$
Toluene Chromium complex Benzaldehyde

<u>Gatterman – Koch reaction:</u>

Clemmensen Reduction:

$$C=0 \xrightarrow{Zn-Hg} CH$$

Wolff Kishner Reduction:

$$C = O \xrightarrow{\text{NH}_2 \text{NH}_2} C = \text{NNH}_2 \xrightarrow{\text{KOH/ethylene glycol}} CH_2 + N_2$$
(Wolff-Kishner rduction)

Aldol condensation:

2 CH₃-CHO
$$\stackrel{\text{dil. NaOH}}{\longleftarrow}$$
 CH₃-CH-CH₇-CHO $\stackrel{\Delta}{\longleftarrow}$ CH₃-CH=CH-CHO But-2-enal Aldol SH Aldol Condensation (Aldol)

Cannizzaro reaction:

Kolbe electrolysis:

$$\downarrow$$
 Electrolysis
CH₂ = CH₂ + 2CO₂ + H₂ + 2NaOH

Hell-Volhard-Zelinsky (HVZ)reaction:

Gabriel phthalimide synthesis:

Hoffmann bromamide degradation reaction:

$$\begin{array}{c} O \\ || \\ R-C-NH_z+Br_z+4NaOH & \longrightarrow R-NH_z+Na_2CO_3+2NaBr+2H_2O \end{array}$$