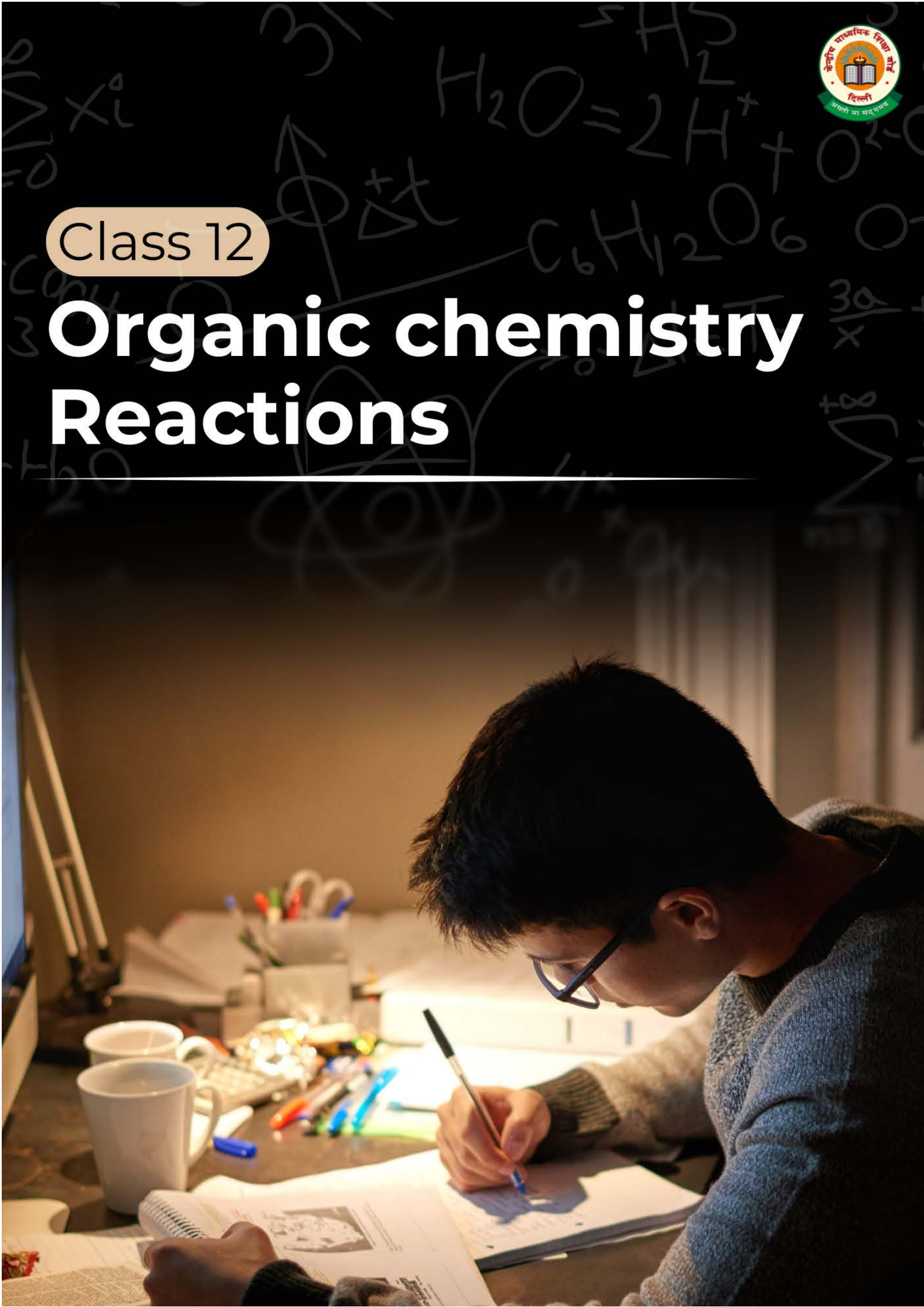
Class 12

Organic chemistry Reactions



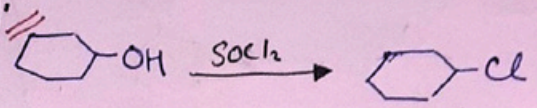
ALL NAME REACTIONS

① Darzen's Reaction

Best M.OP for R-Cl

$$R-OH \xrightarrow{SOCl_2} RCl + \underbrace{SO_2 + HCl}_{\text{Gases}}.$$

Eg.



② Luca's Reagent

$$R-OH \xrightarrow[ZnCl_2]{Conc\ HCl} RCl$$

It is test to distinguish degree of alcohol!!

- 3° alcohol → v. fast rexn (in secs)
- 2° alcohol → 5-10 min
- 1° alcohol → take hours (req heat also)

③ Swarts Reaction

[Halogen exchange Method]

For prep of alkyl fluorides [2023]

$$R-X \xrightarrow{AgF\ OR\ Hg_2F_2\ OR\ CoF_2\ OR\ SbF_3} R-F$$

Eg. $CH_3Br \xrightarrow{AgF} CH_3F$

④ Finkelstein Reaction

→ For prep of alkyl iodide.

$$R-X \xrightarrow[\text{OR DMSO}]{NaI\ \text{acetone}} R-I$$

Eg. $CH_3CH_2Br \xrightarrow[\text{acetone}]{NaI} CH_3CH_2I$

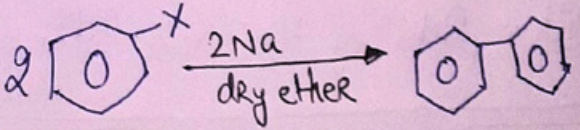
⑤ Rexn by Anti Markownikoff's Rule

$$R-CH=CH_2 \xrightarrow[\text{Peroxide}]{HBr} RCH_2-CH_2Br$$

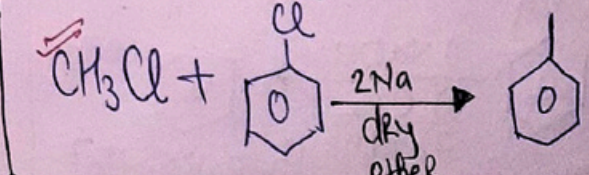
⑥ Wurtz Reaction

$$2CH_3Cl \xrightarrow[\text{dry ether}]{2Na} CH_3-CH_3$$

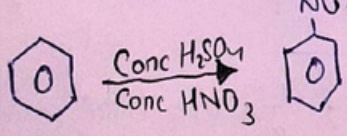
Fitting Reaction

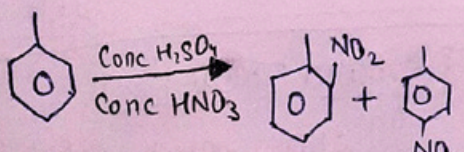


Wurtz-Fitting Reaction

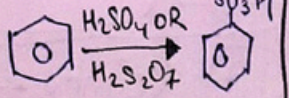


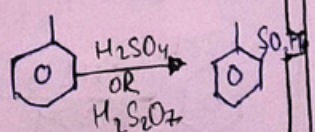
⑦ Nitration



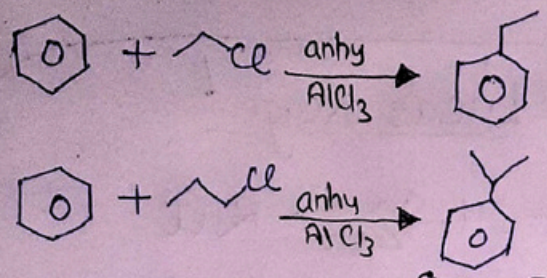


Sulphonation



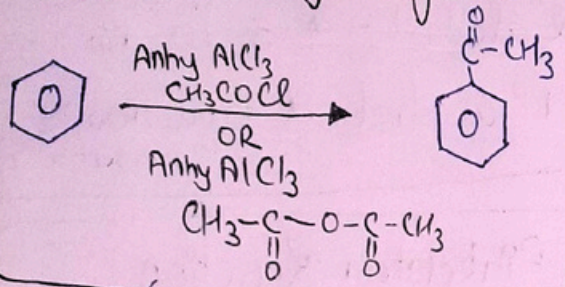


(8) Friedal Craft Alkylation

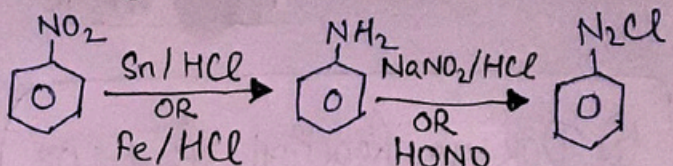


[Cumene]

(9) Friedal Craft Acylation

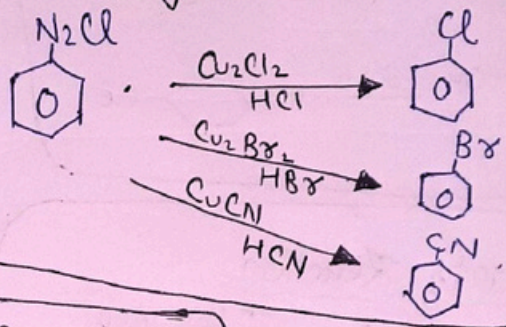


(10) Diazotisation Rexn

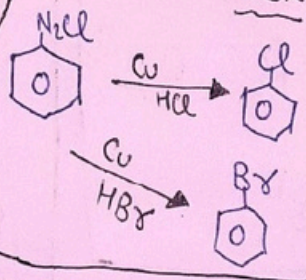


[Benzene Diazonium chloride]

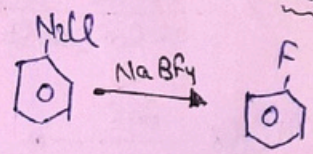
(11) Sandmeyer's Rexn



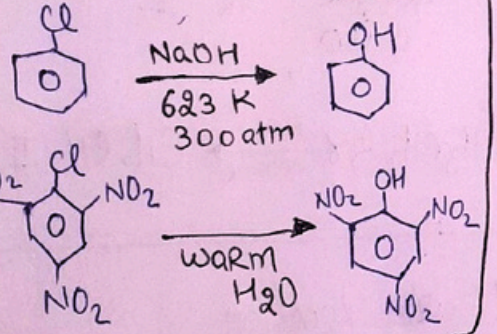
(12) Gattermann Rexn



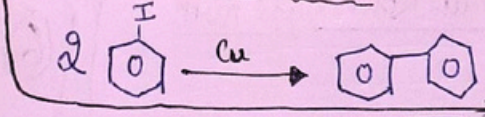
(13) Balz-Schiemann's Rexn



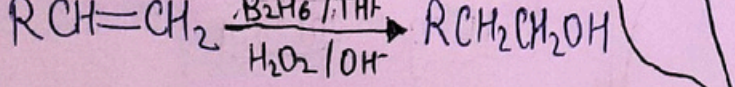
(14) Dow's Process



(15) Ullmann's Rexn

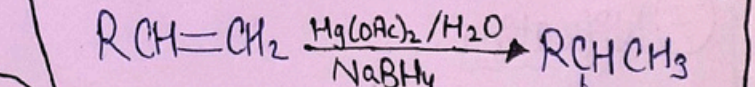


(16) Hydroboration-Oxidation [HBO]



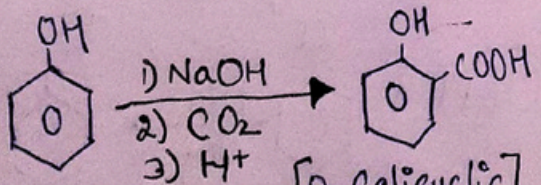
Trick ⇒ Addn of H_2O via Antimarkovnikov's Rule

(17) Oxymercuration-Demercuration [OMDM]



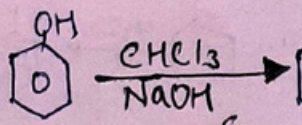
Trick ⇒ Addn of H_2O via Markovnikov's Rule

(18) Kolbe's Reaction



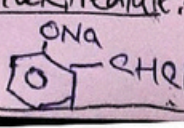
[O-salicyclic acid]

(19) Reimer-Tiemann Reaction

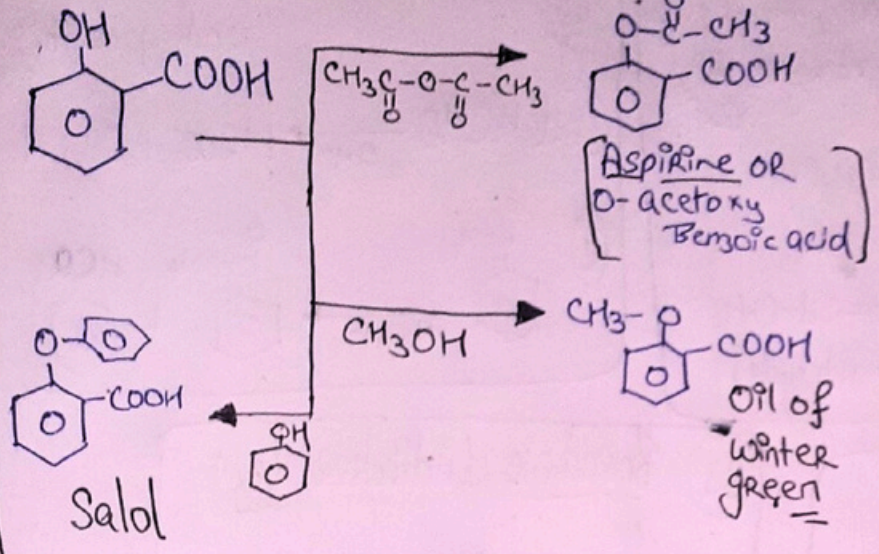


[Salicylaldehyde]

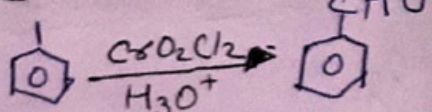
- Electrophile:- Dichloro carbene ($:CCl_2$)
- Intermediate:-



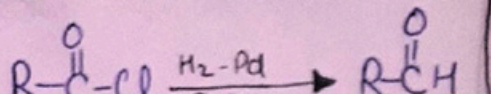
(20) Imp Rexn Related to Salicylic acid



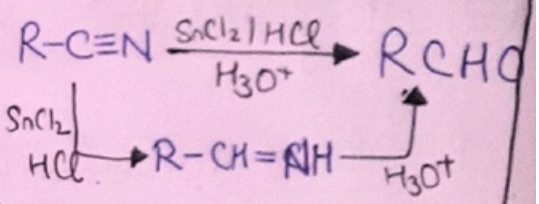
(21) Etard Rexn



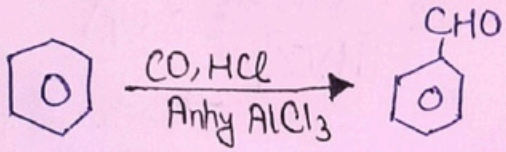
(22) Rosenmunds Rexn



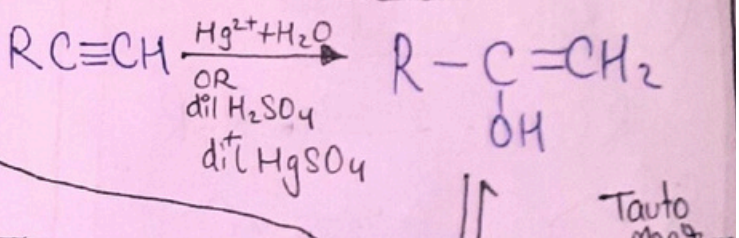
(23) Stephen's Reduction



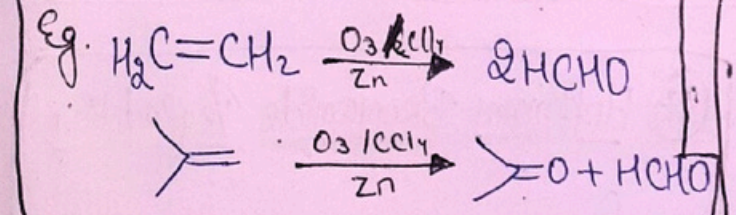
(24) Gattermann Koch Synthesis



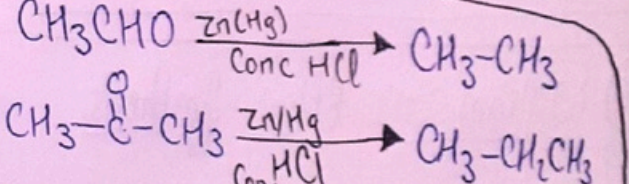
(25) Kucherov Reaction



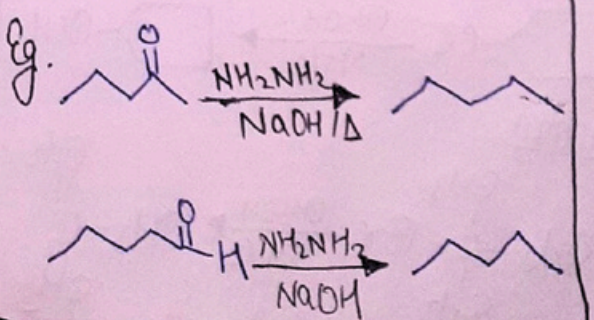
(26) Reductive Ozonolysis



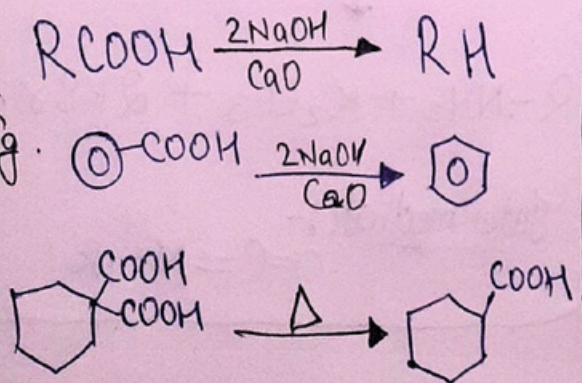
(27) Clemmenson's Reduction



(28) Wolf Kishner Redn



(29) Decarboxylation Reaction



(30) Aldol Condensation

→ Aldehydes & Ketones having atleast 1 α-H undergoes this rexⁿ

Eg.

$2CH_3-CHO \xrightarrow[\text{OR } OH^-]{NaOH} CH_3\underset{OH}{CH}-CH_2CHO$

$\downarrow \Delta$

$CH_3-CH=CH-CHO$

[Croton aldehyde]

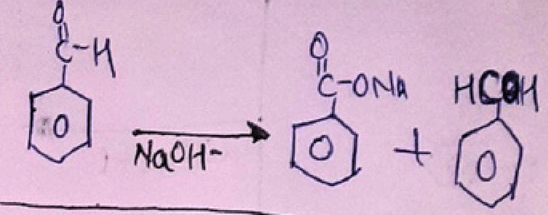
(31) Cannizaro Rexⁿ

→ Aldehydes / Ketones having NO α-H undergoes this Rexⁿ

Eg.

① $2HCHO \xrightarrow{OH^-} HCOO^- + CH_3OH$

②



(32) Esterification Rexⁿ

$R-\overset{O}{C}-OH + HOR' \underset{}{\overset{H^+}{\rightleftharpoons}} R\overset{O}{C}-OR$

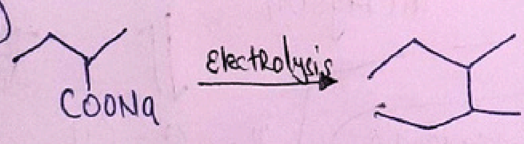
(33) Borodiene Hundiecker Rexⁿ

$R-\overset{O}{C}-OAg \xrightarrow[CCl_4]{Br_2} R-Br$

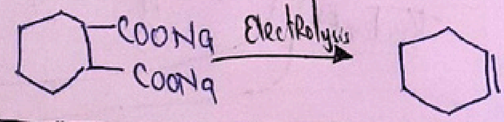
(34) Kolbe's Electrolysis

$RCOONa \xrightarrow{\text{Electrolysis}} R-R$

Eg. ①



②



(35) Hell-volhard Zeleinsky Rexⁿ [HVZ]

→ Carboxylic acid shall have atleast 1 α H

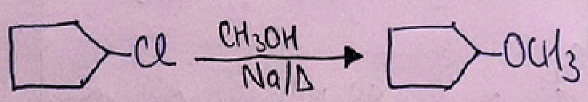
$R-\underset{H}{CH}-COOH \xrightarrow[H_2O]{\text{Red } P+X_2} R-\underset{X}{CH}-COOH$

[X = Cl, Br]

(36) Williamson's Ether Synthesis

Eg. ① $CH_3Br \xrightarrow[Na/\Delta]{CH_3CH_2OH} CH_3OCH_2CH_3$

②



③ Exception

$CH_3-\underset{CH_3}{\overset{CH_3}{C}}-Br \xrightarrow[Na/\Delta]{CH_3OH} CH_3-\underset{CH_3}{\overset{CH_2}{\overset{\|}{C}}}$

E^2 mech

(37) Hoffmann Bromamide Degradation

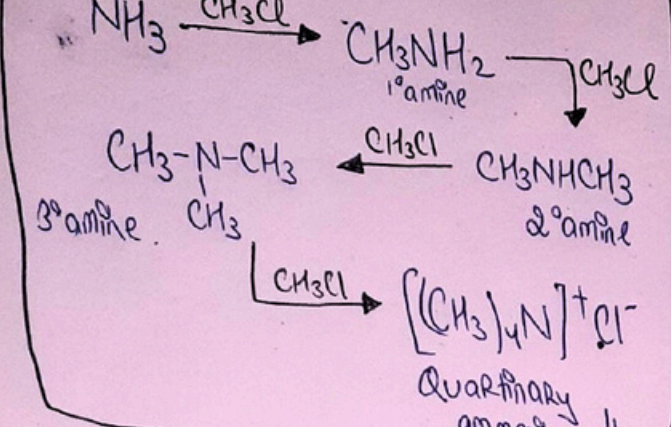
$R-\overset{O}{C}-NH_2 + 4(aq\ KOH) + Br_2$

$\downarrow \Delta$

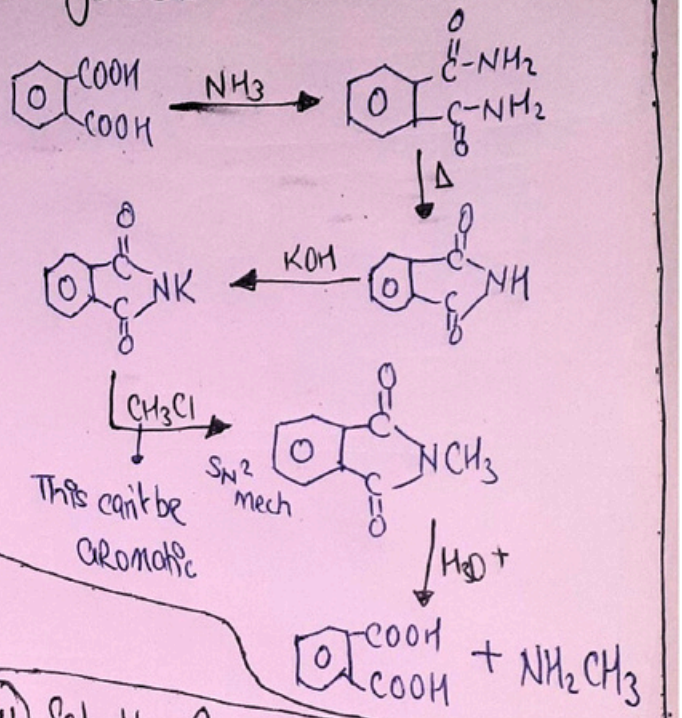
$R-NH_2 + K_2CO_3 + 2KBr$

Intermediate:- $O=C=N-R$

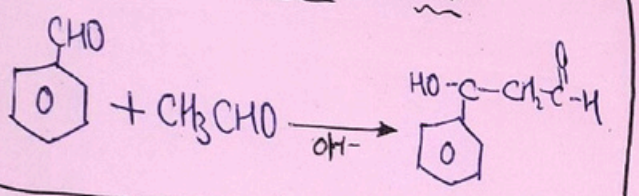
(38) Hoffmann's Ammonolysis Rexn



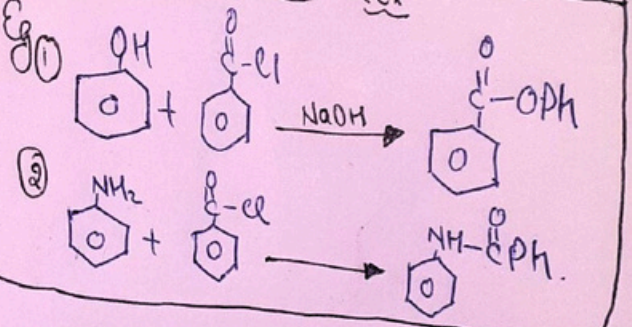
(39) Gabriel Phthalimide Rexn.



(40) Clasien-Schmidt Rexn



(41) Schotten-Baumann Rexn



(42) Bouveault-Blanc Reduction