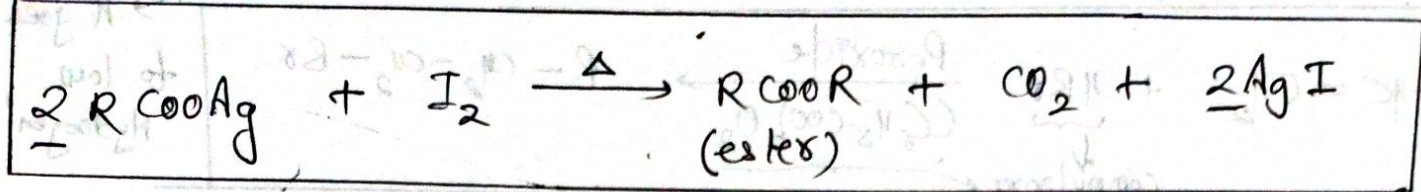
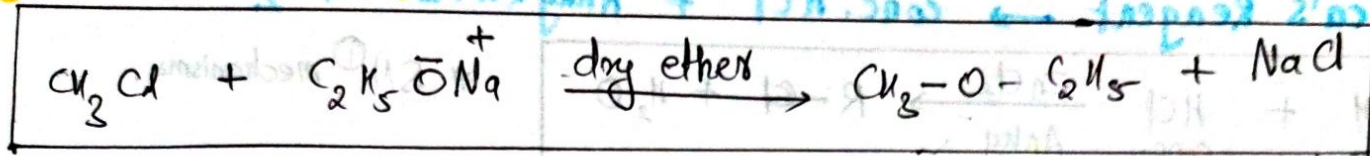


⑦ Birnbaum-Simonini Reaction / Birnbaum-Simonini Reaction

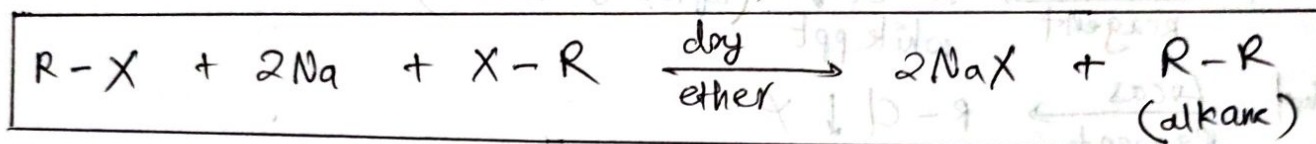


⑧ Williamson Synthesis



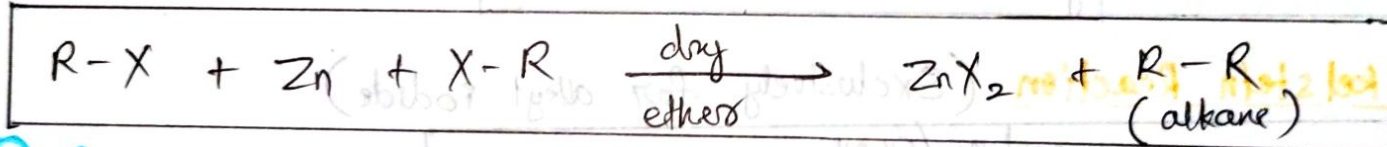
Note: alkyl halide should be 1°.

⑨ Wurtz Reaction (with Sodium Na)

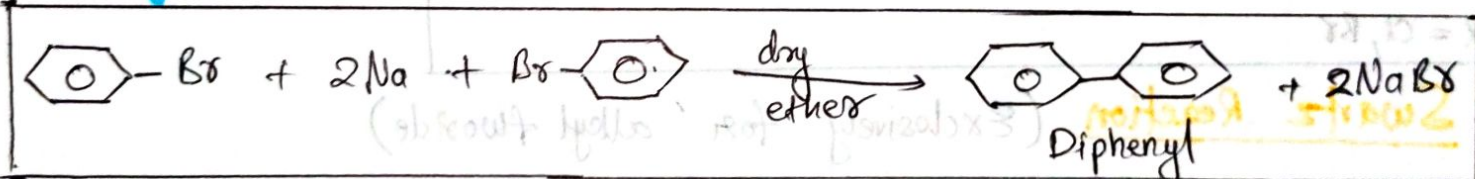


Note:- when a mixture of two different alkyl halide is used, all the three possible alkanes are formed.

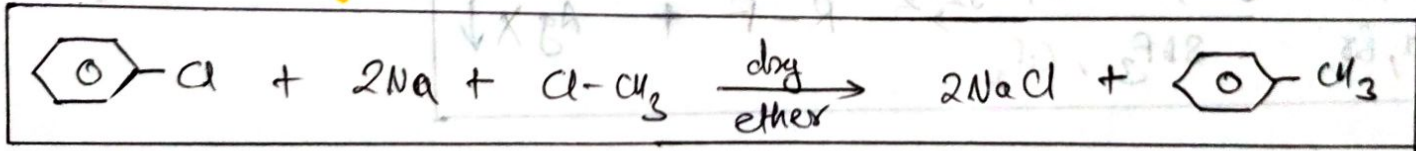
⑩ Frankland Reaction (with Zinc Zn)



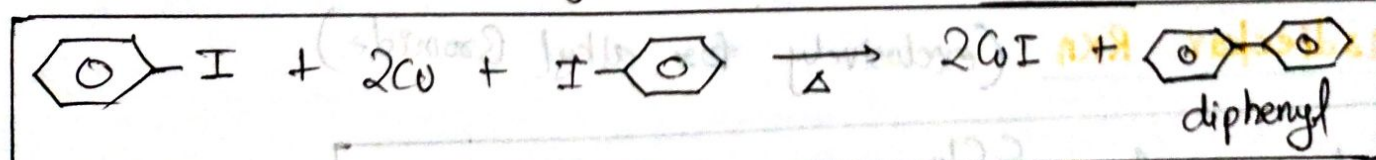
⑪ Fittig Reaction



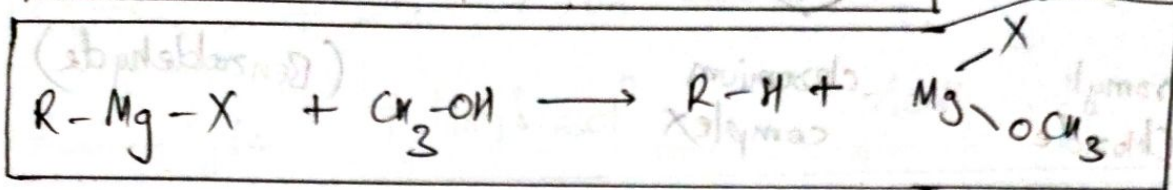
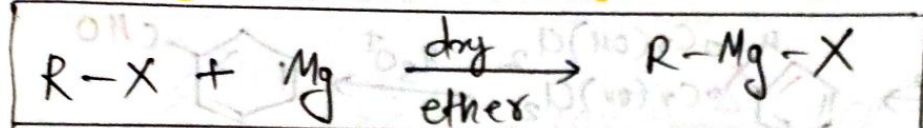
⑫ Wurtz-Fittig Reaction



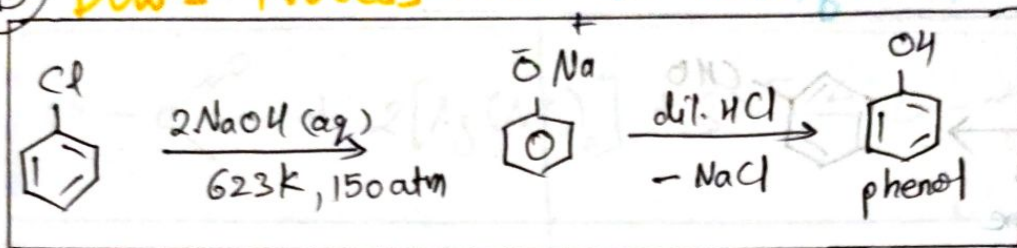
⑬ Ullmann Reaction (only Iodobenzene) with copper



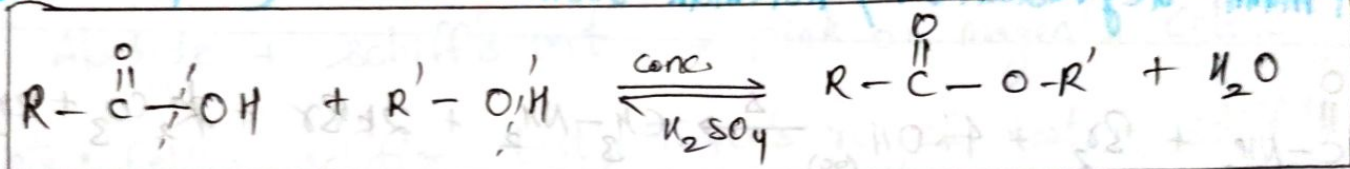
⑭ Magnesium (Mg) → Grignard Reagent



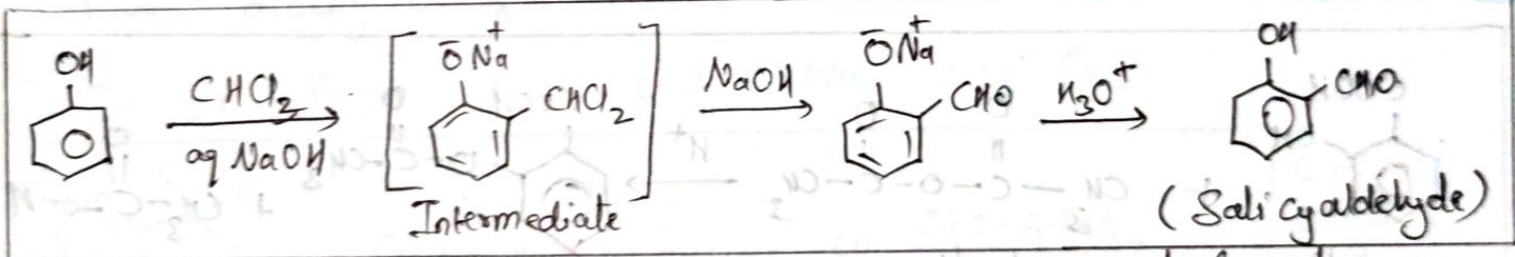
⑮ Dow's Process



⑯ Esterification

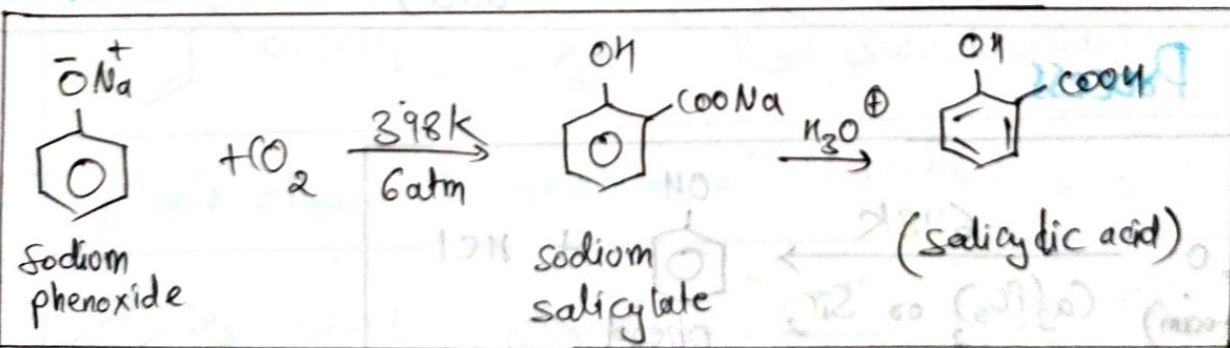


⑰ Reimer - Tiemann Rxn. (Electrophile → Dichlorocarbene $[:CCl_2]$)

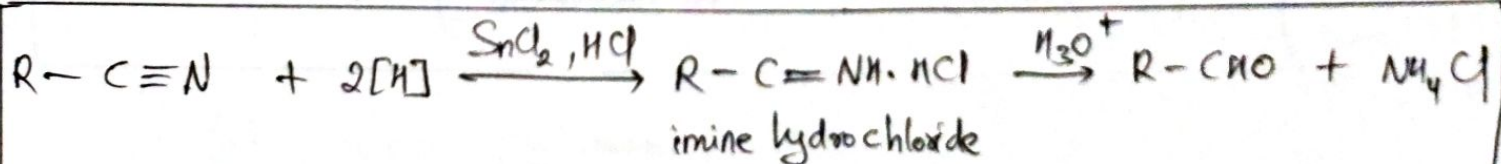


Note: If Carbon tetrachloride is used then salicylic acid formed.

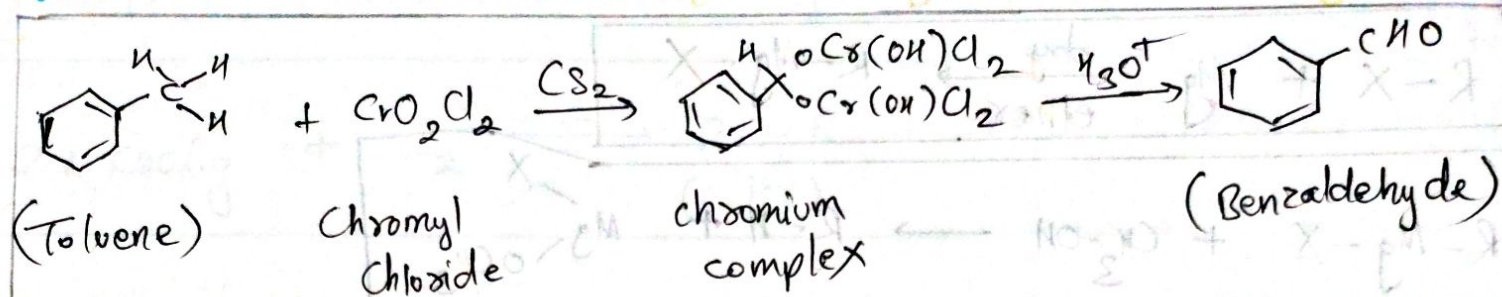
⑱ Kolbe reaction



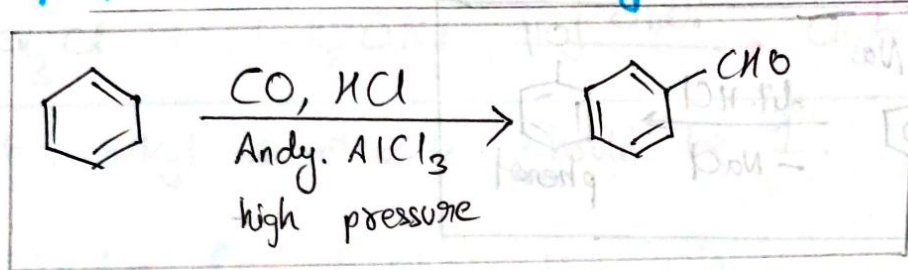
⑲ Stephen Rxn



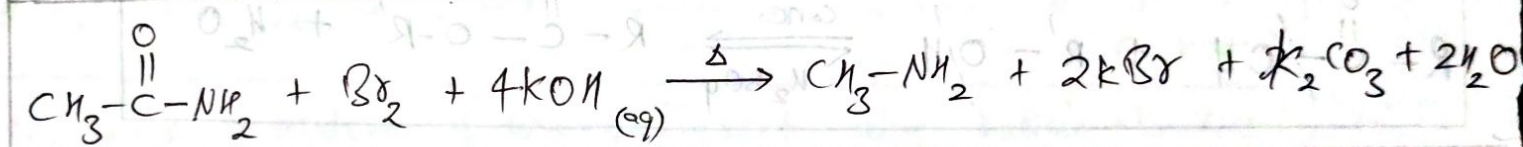
Etard reaction (20)



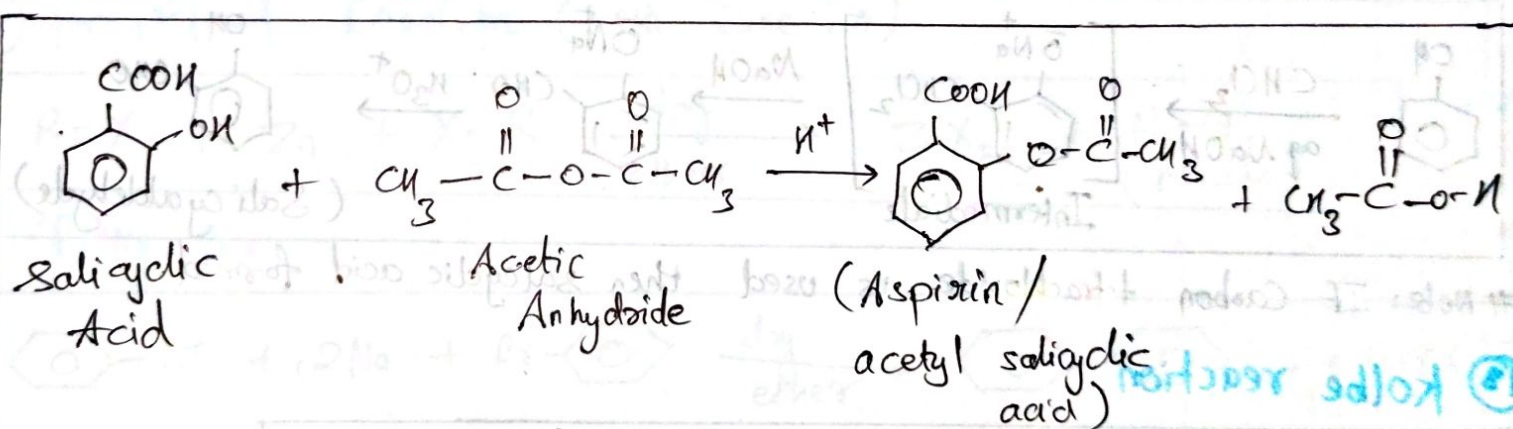
(21) Gatterman - Koch formylation of arene:



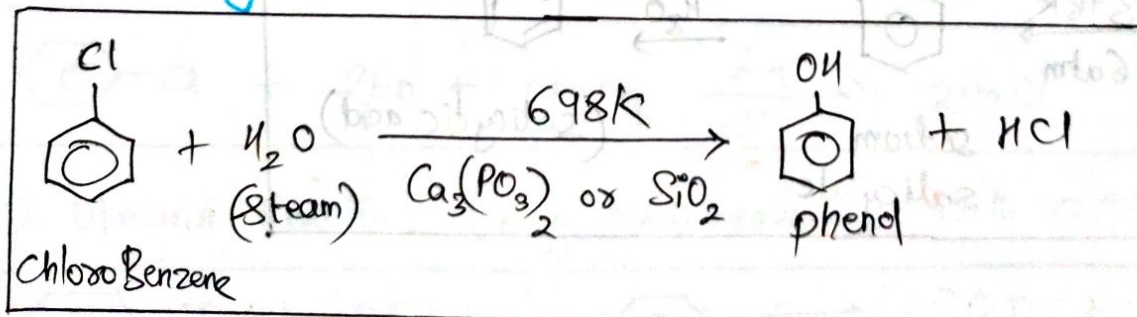
(22) Hofmann degradation / Hoffman Bromamide d.



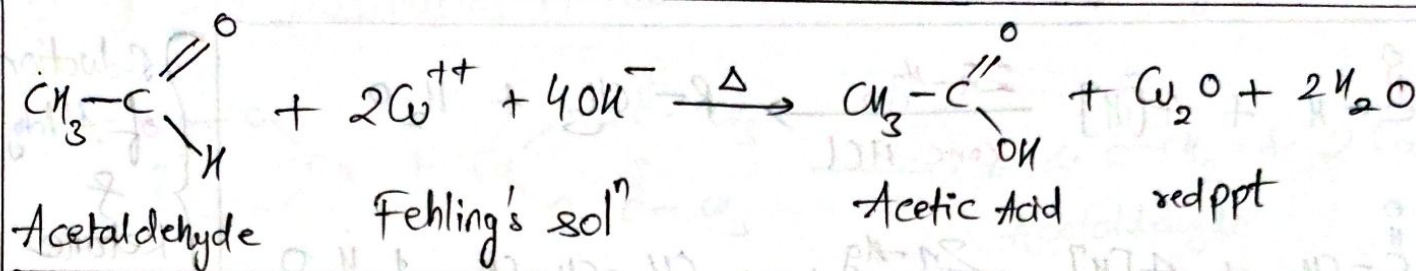
(23) Esterification



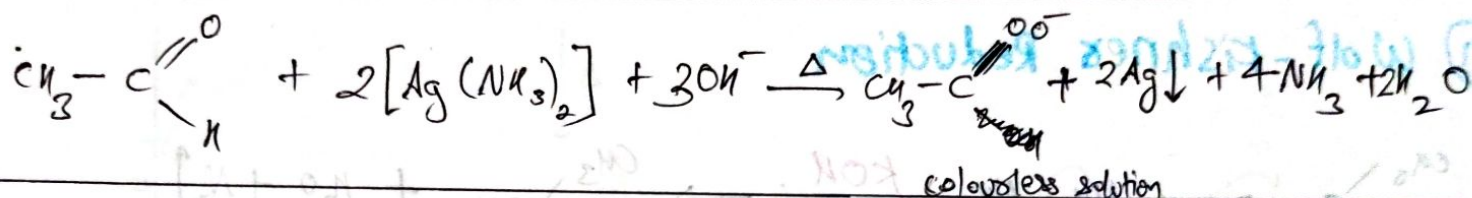
(24) Raching Process



25) Fehling solⁿ test



26) Tollen's reagent

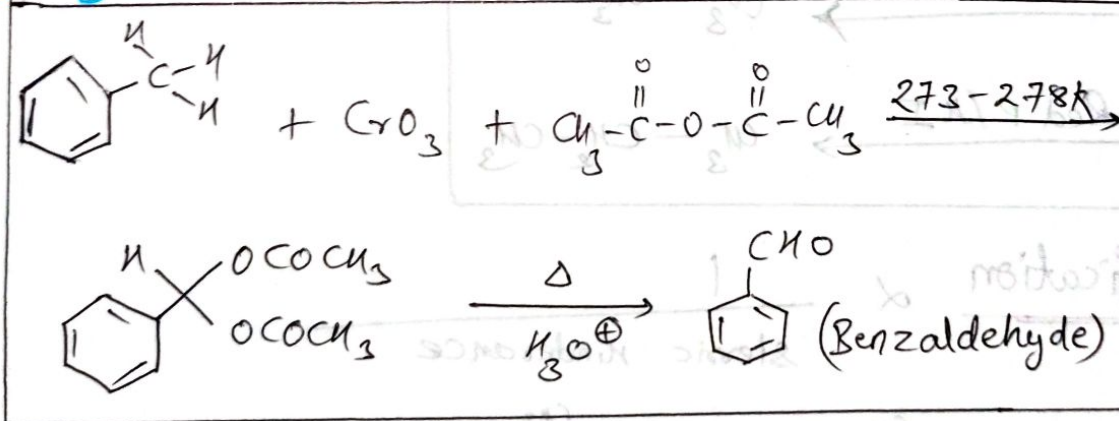


27) Schiff's reagent test:

Aldehyde + Schiff's test \rightarrow pink or magenta colour

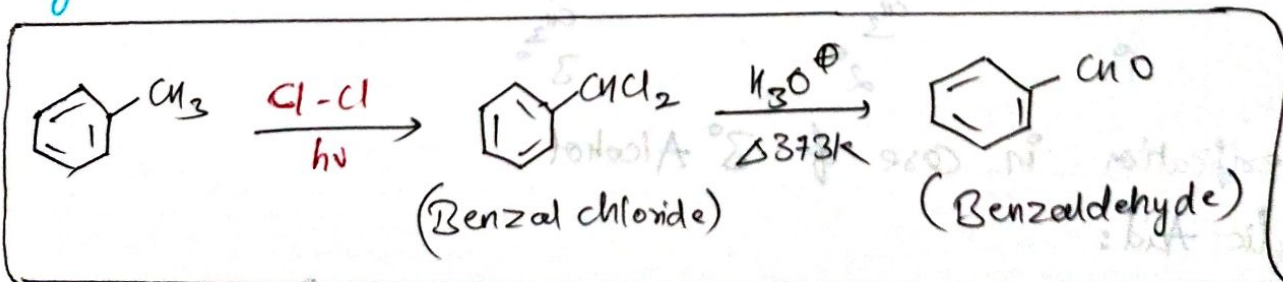
Note: Fehling solution test, Tollen's reagent test & Schiff's reagent test are not given by ketones & hence used to distinguish between aldehydes & ketones.

28) By oxidation of methyl arene using CrO_3



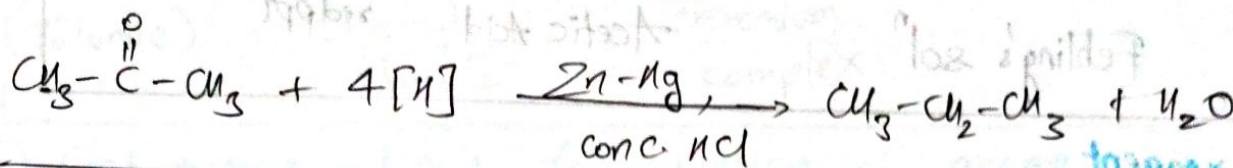
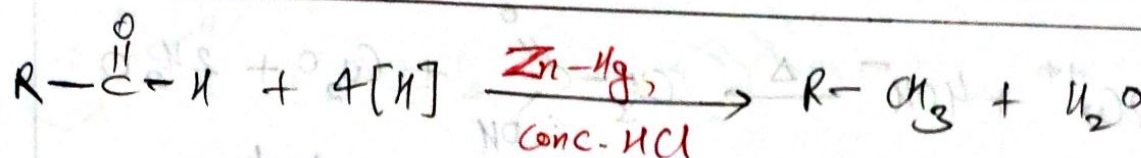
CrO_3 is used to protect Benzaldehyde from further oxidation.

29) By side chain chlorination of toluene:



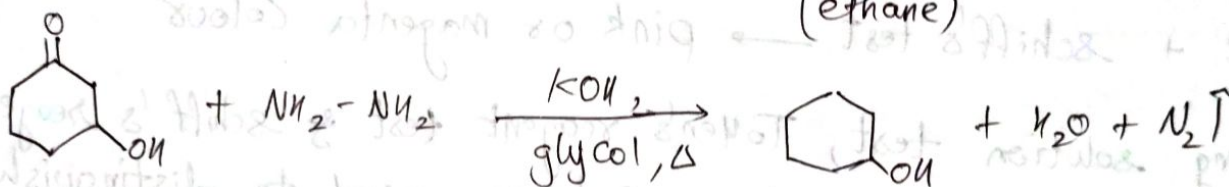
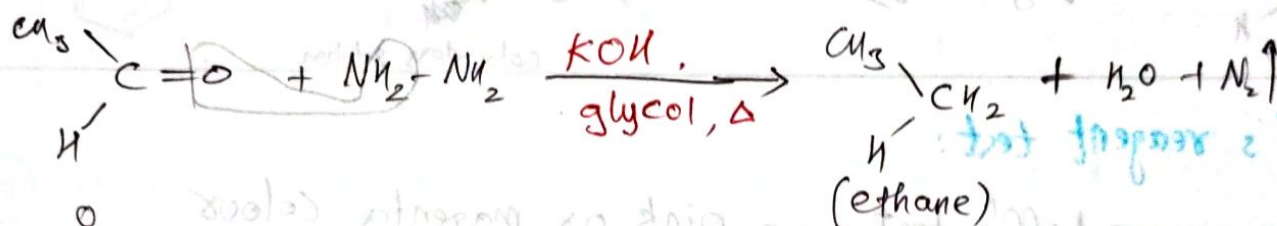
③ Clemmenson Reduction

test 100 points ③

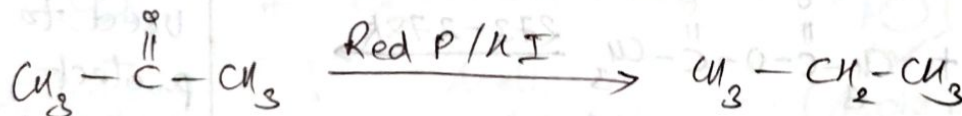
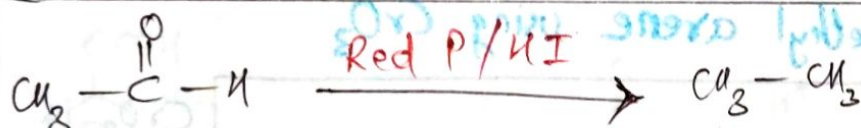


Reduction
of Aldehyde
&
ketone

③ Wolf-Kishner Reduction

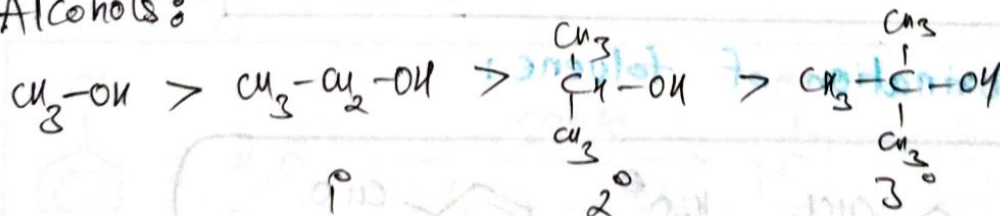


③ Red Phosphorous (Red P/HI) \rightarrow very strong Reducing agent



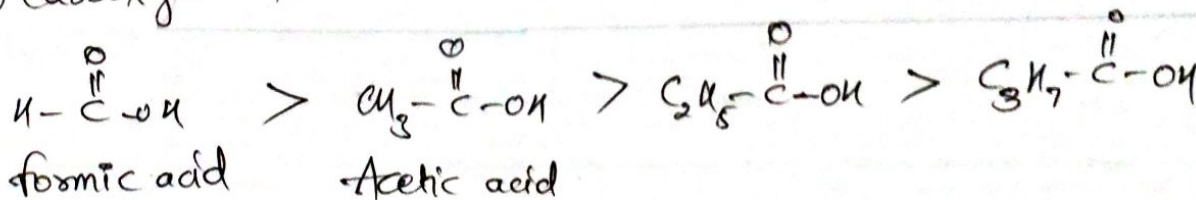
Rate of Esterification $\propto \frac{1}{\text{steric hindrance}}$

① Alcohols:



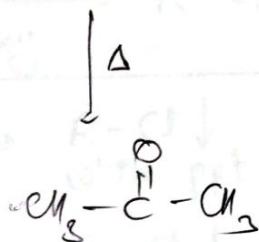
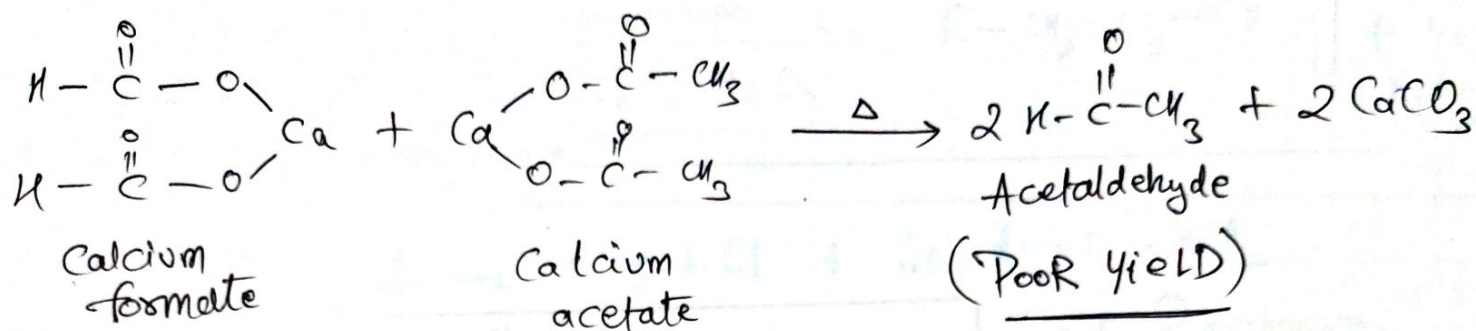
No Esterification in case of 3° Alcohol

② Carboxylic Acid:



from Carboxylic Acids

D) By Dry Distillation of calcium salts of carboxylic acids.



33) FORMATION of geminal DIHALIDES:

