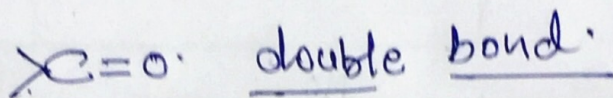
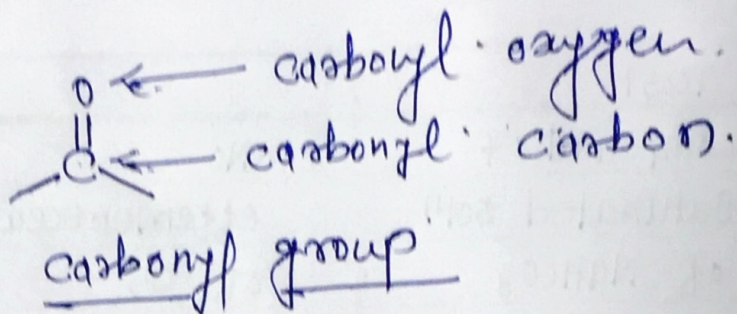


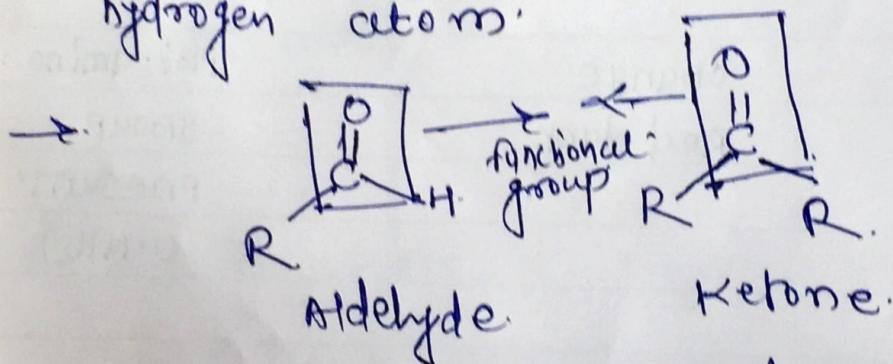
Aldehyde and ketones

Carboxylic acid

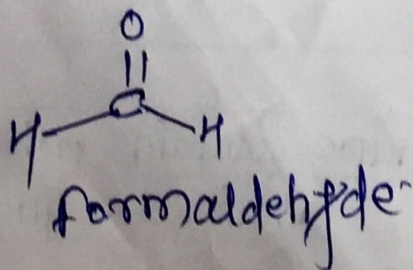
Introduction :-



⇒ Aldehyde are easily oxidised and more reactive towards Nucleophilic addition than ketone because of the presence of free hydrogen atom.



R → Alkyl group or aryl group

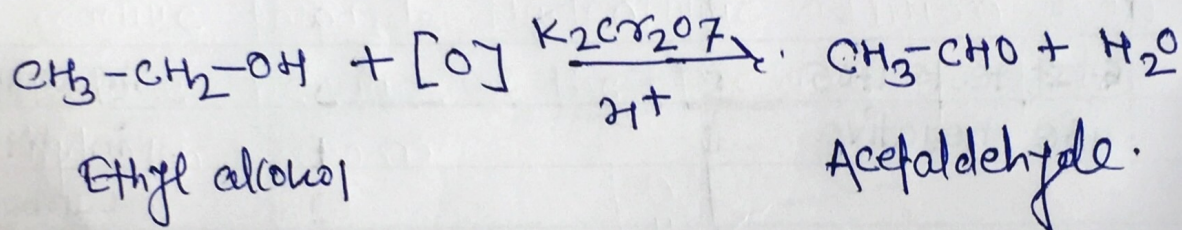


→ formaldehyde. HCHO , in which the carbonyl carbon is bonded to two hydrogen atoms.

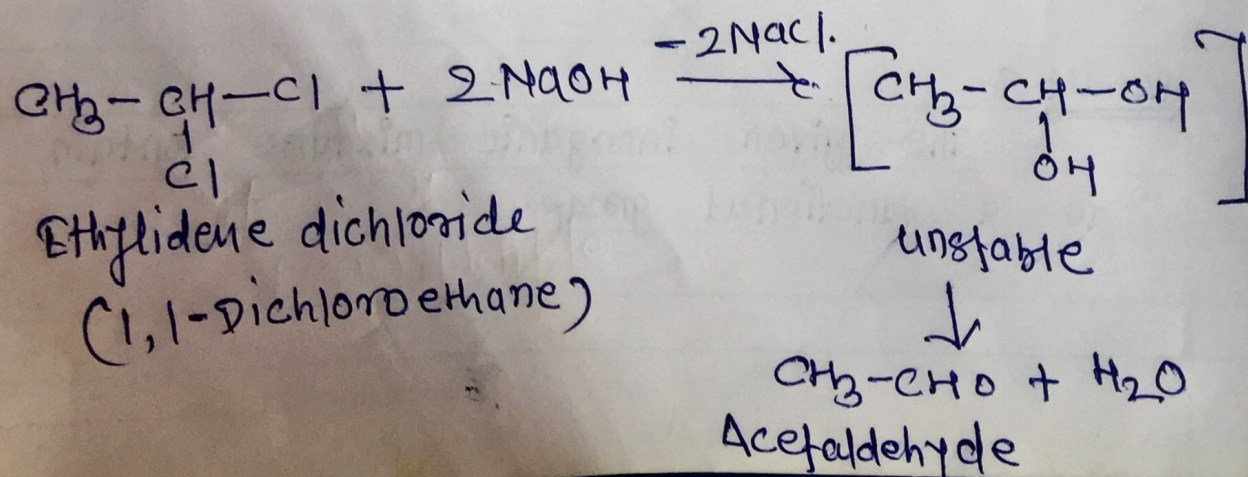
Preparation of Aldehyde and Ketone

① Acetaldehyde or Ethanal ($\text{CH}_3\text{-CHO}$)

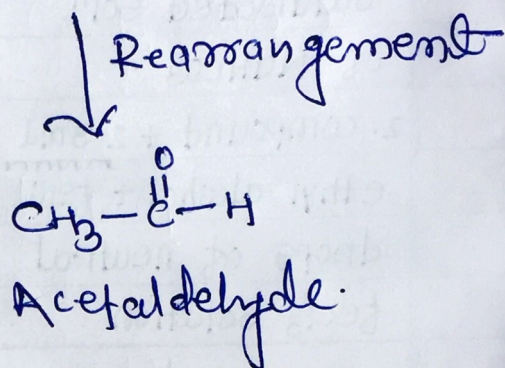
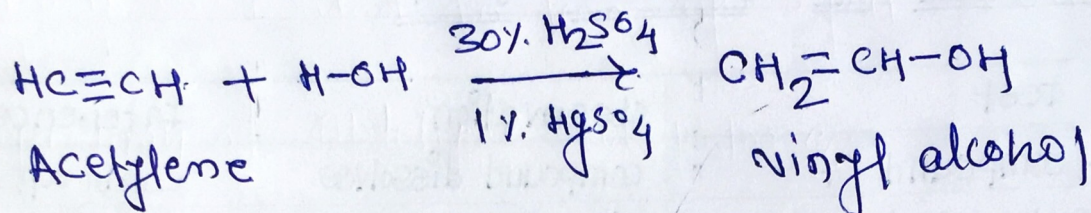
② By oxidation of ethyl alcohol.
(primary alcohol)



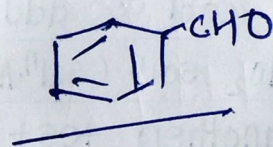
③ By hydrolysis of ethylidene dichloride.
(geminal dihalide)



(5) By hydration of acetylene (alkyne)

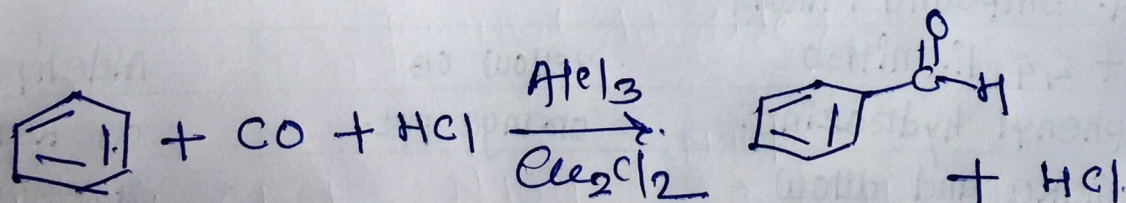


(6) Benzaldehyde (C₆H₅-CHO)



(7) Formylation of benzene

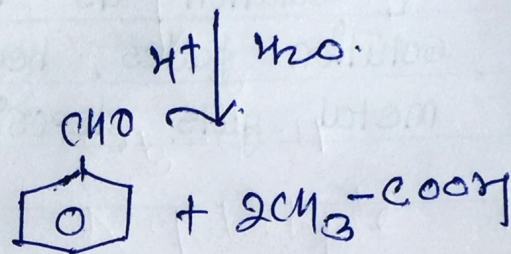
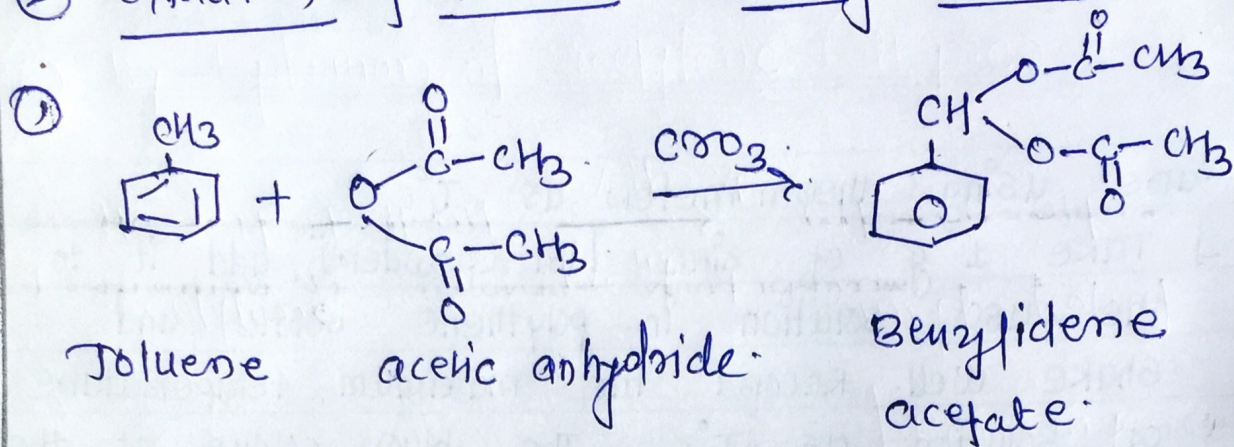
(Catterman - Koch reaction)



(Cuprous chloride)

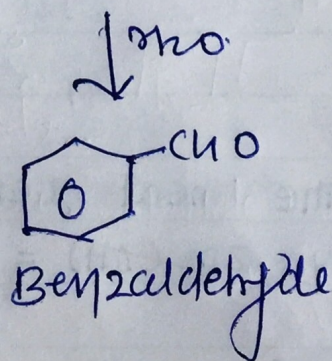
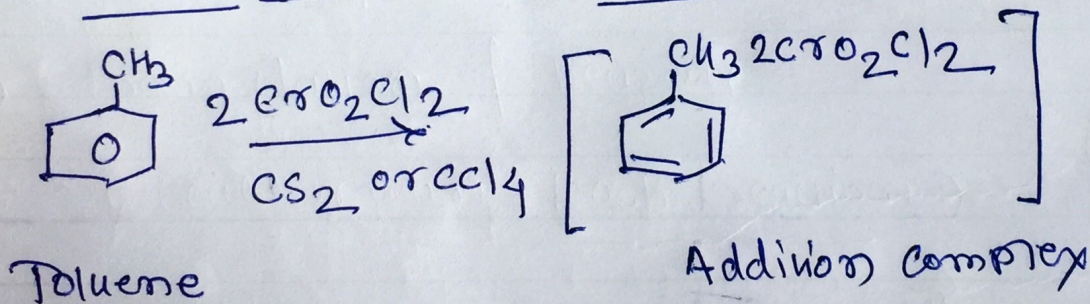
Benzaldehyde.

② oxidation of Toluene (methyl benzene)



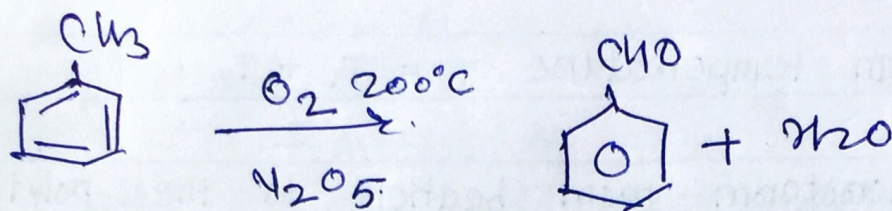
Benzaldehyde

② Etard reaction (oxidation of toluene)



CrO_2Cl_2
 \downarrow
 chromyl chloride

③ oxidation of toluene (vapour phase oxidation)

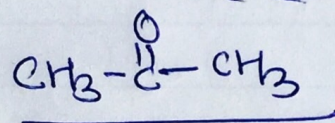


toluene

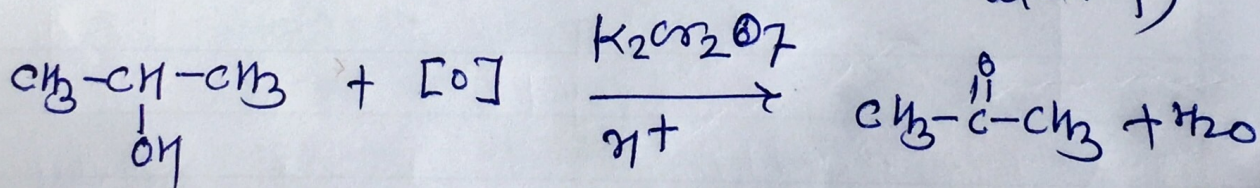
Benzaldehyde

passing vapour of toluene with oxygen.

preparation of Acetone (propanone)



④ oxidation of isopropyl alcohol (secondary alcohol)

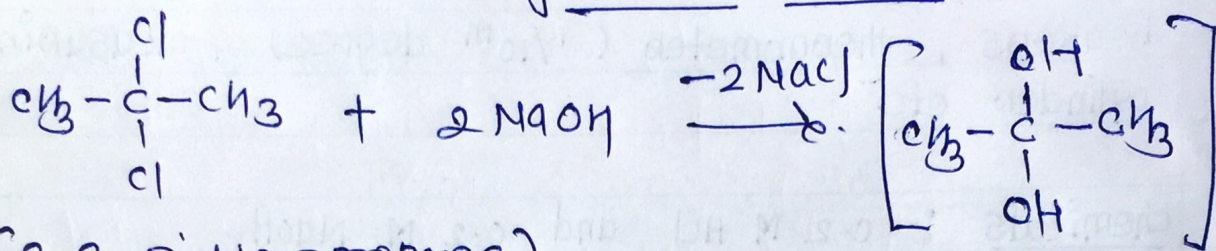


Isopropyl alcohol

Acetone

(2-propanol)

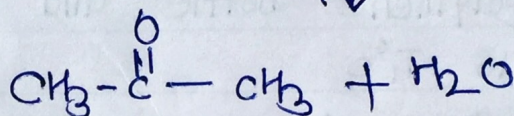
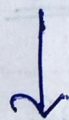
② Hydrolysis of Isopropylidene dichloride
(geminal dihalide)



(2,2-Dichloropropane)

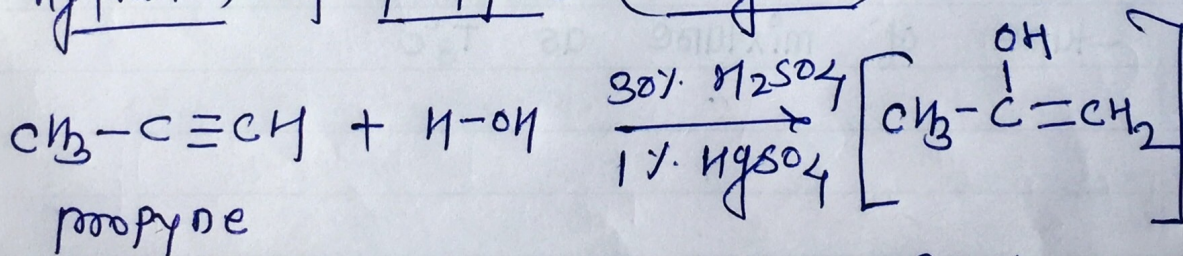
Isopropylidene dichloride

unstable.



Acetone

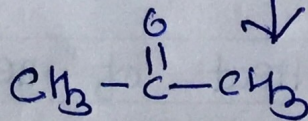
③ Hydration of propyne (alkyne)



propyne

Enol

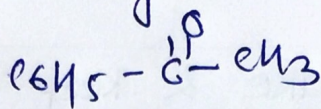
↓ Rearrangement



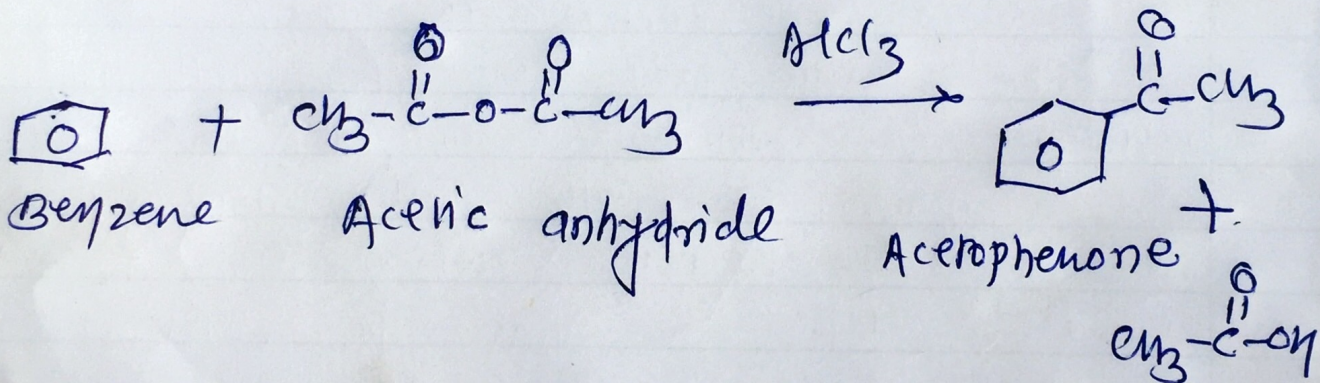
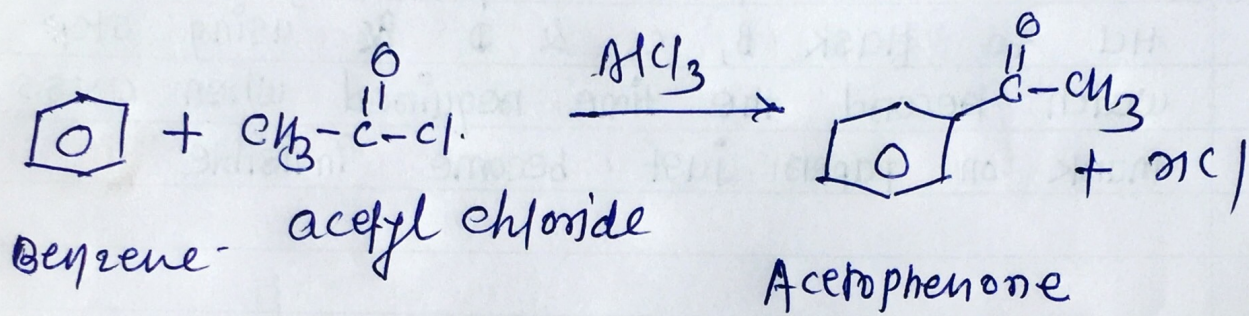
Acetone

Addition of water molecule as per Markovnik rule.

Acetophenone or methyl phenyl ketone



① Acetylation of benzene (Friedel craft reaction)



② oxidation of ethyl benzene

