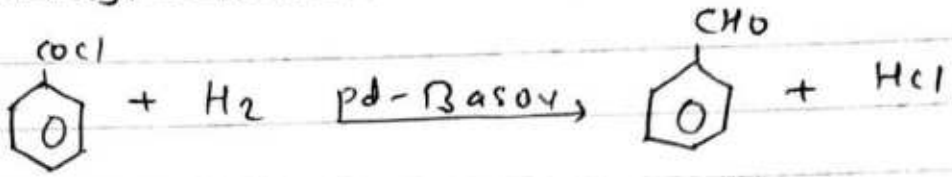
Aeromatic aldehyde and Ketone

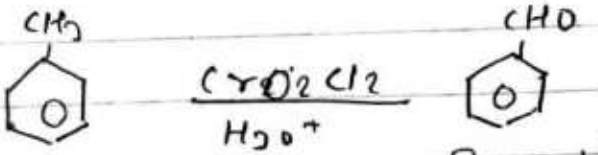
→ General method of preparation.

(1) From Benzoyl chloride.



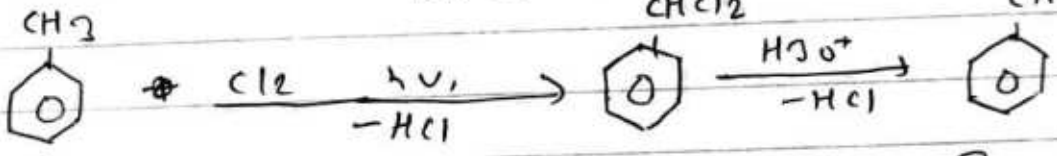
Benzaldehyde

(2) From toluene.



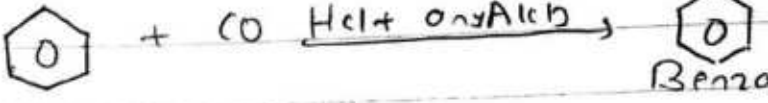
Benzaldehyde.

CrO2Cl ⇒ chromyl chloride



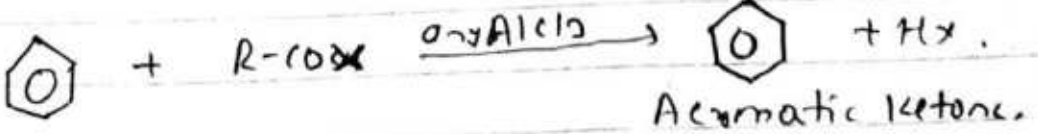
Benzaldehyde.

(3) Gattermann Koch reaction:

(a) 

Benzaldehyde.

(11) friedal craft acylation.



Aromatic ketone.

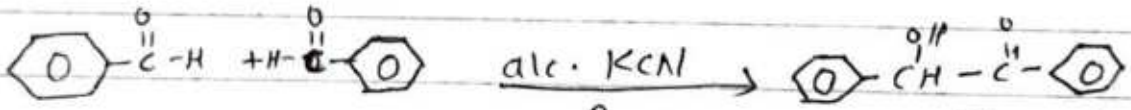
properties :-

properties of aromatic aldehyde and Ketone is similar to that of aliphatic aldehyde and Ketone expect ~~for~~ few expection.

(i) Aromatic aldehyde cannot reduce fehling's solution.
(ii) Aromatic Ketone doesnot react with sodium hydrogen sulphite

(3) Benzoine condensation reaction :-

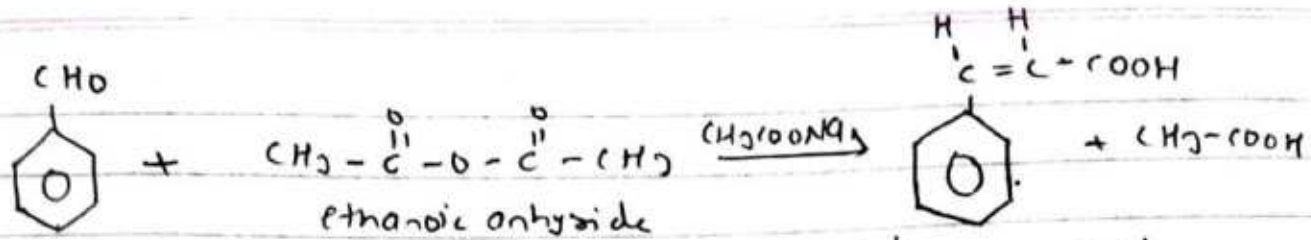
when benzaldehyde is treated with ~~alcoholic~~ alcholic potassium cyanide it produces Benzoine.



Benzoine.

(iv) perkin's condensation reaction :-

when benzaldehyde is treated with acetic anhydride in presence of sodium acetate, cinnamic acid is formed. This reaction is called perkin's condensation reaction.



ethanoic anhydride

Acetic o ||

Cinnamic acid.

(v) Electrophilic substitution reaction:-

In aromatic aldehyde and ketone electrophilic substitution reaction takes place at meta position because resonance caused by electron with drawing carbonyl group generates positive charge at ortho and para position so, electron density is comparitively higher at meta position. Therefore carbony group in aromatic aldehyde and ketone is called meta directing and ring de-activating group.

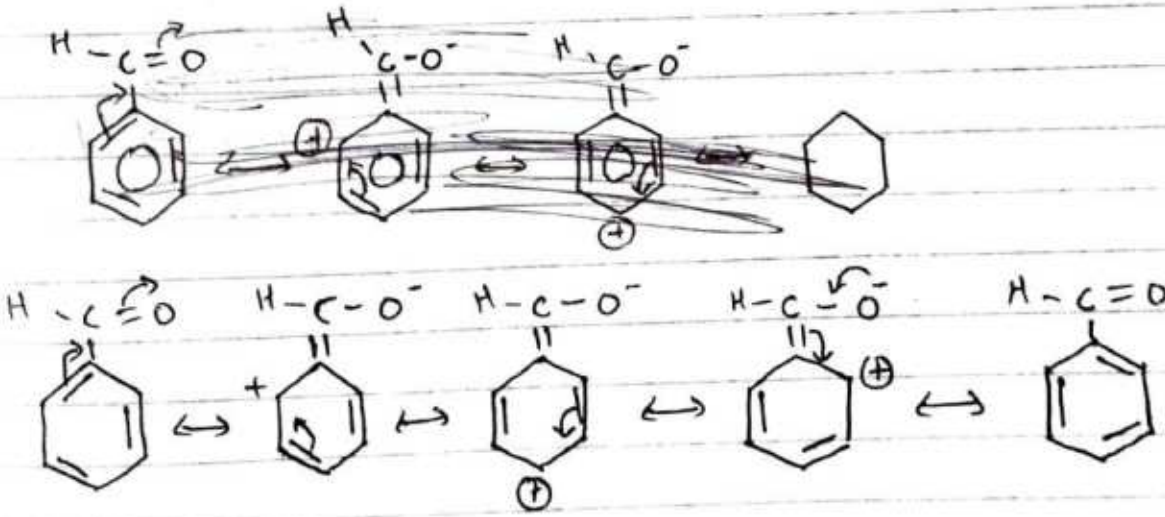
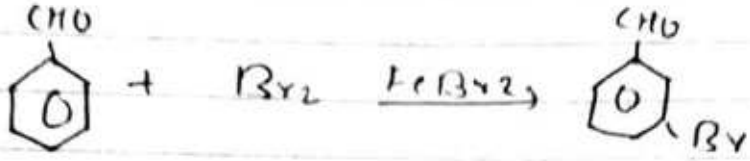


Fig Resonance str. of benaldehyde.

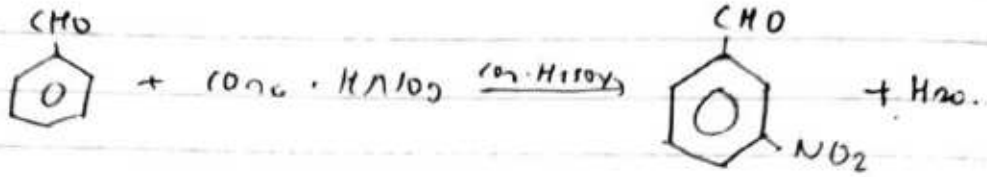
Rexn.

① Halogenation:-



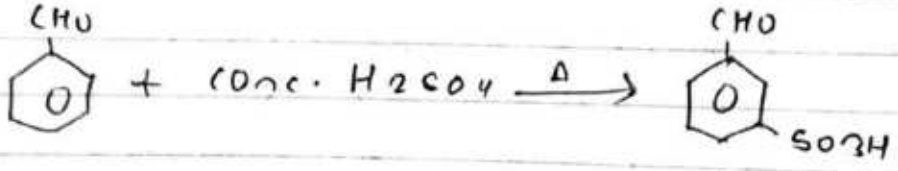
m-Bromobenzaldehyde.

② Nitration:-



m-Nitrobenzaldehyde.

③ Sulphonation:-



m-formylbenzene sulphonic acid.