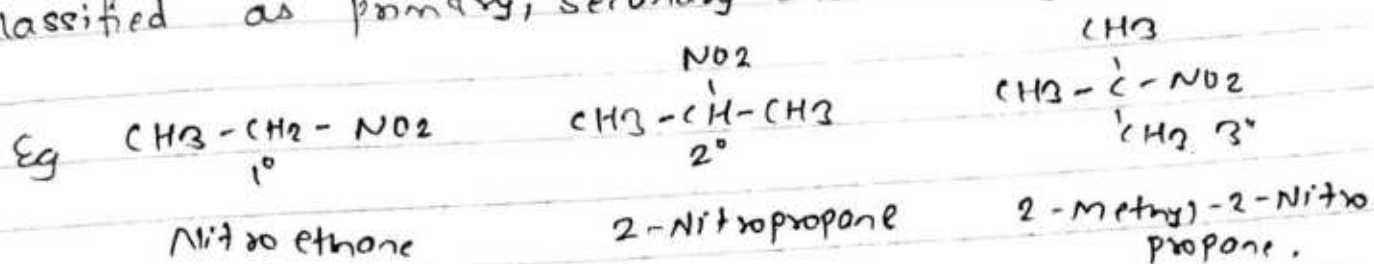


Unit :- Nitro compound.

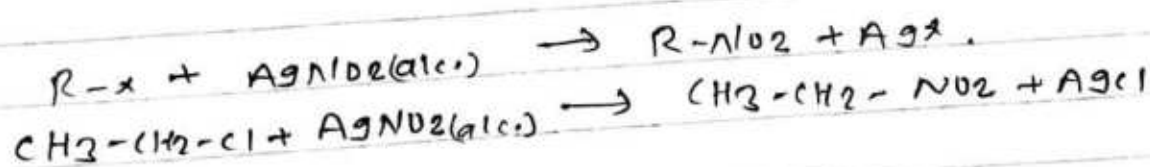
The saturated hydrocarbon containing nitro group are called Nitro compound.

Depending on nature of carbon to which nitro group is attached, nitro compound are classified as primary, secondary and tertiary nitro compound.



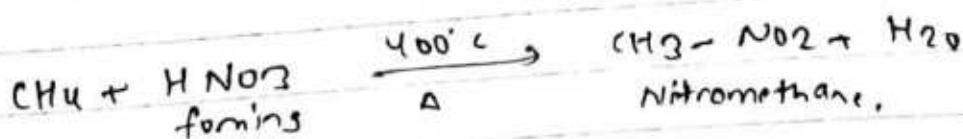
General Method of preparation

① From Haloalkane.

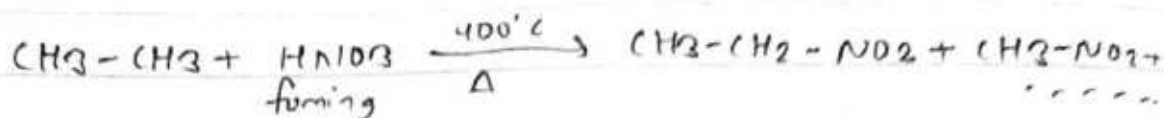


② From alkane:

When alkane is heated with fuming nitric acid, nitro alkane is formed.



if alkane containing more than one carbon atom is present, mixture of Nitro alkane along with some other compound like CO_2 , NO_2 etc are formed.

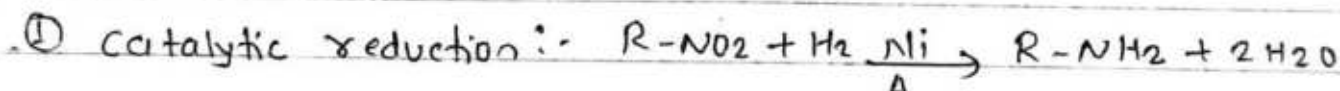


physical properties of Nitro compound.

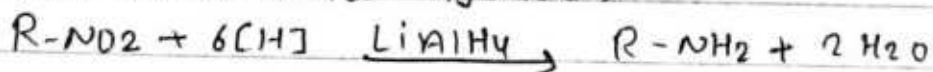
- ① Nitroalkanes are colourless liquid with sweet smell.
- ② Nitroalkanes have high boiling point than alkane because they are polar compound.
- ③ Nitroalkanes are sparingly or slightly soluble in water.

chemical properties of Nitroalkanes

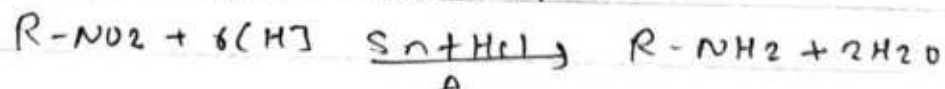
→ Reduction.



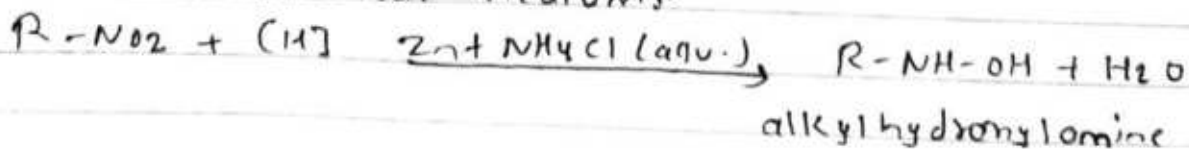
② Reduction with metal hydride:-



③ Reaction in acidic medium:-

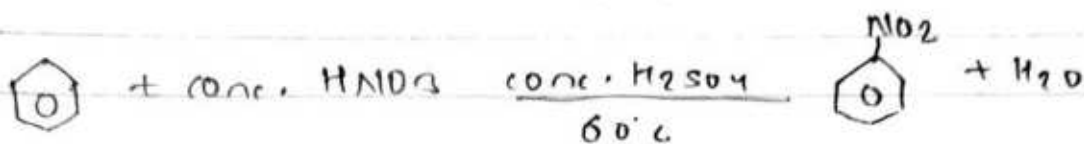


④ Reduction in Neutral medium:-



Nitrobenzene

→ Reaction for laboratory preparation.

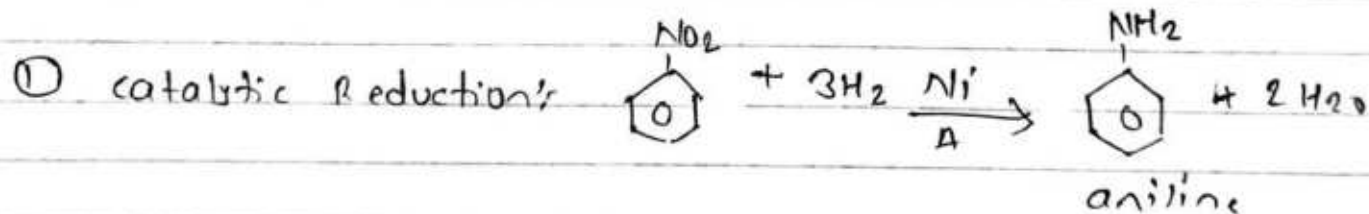


Physical properties.

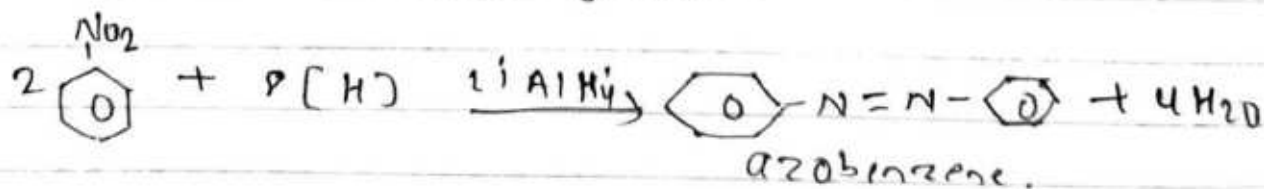
- ① It is pale yellow coloured oily liquid with bitter almond smell.
- ② It is soluble in water.
- ③ It's boiling point is 210°C

Chemical properties

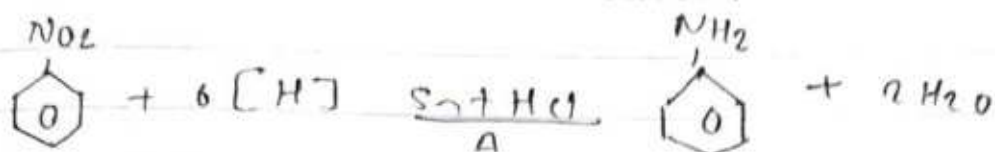
① Reduction:



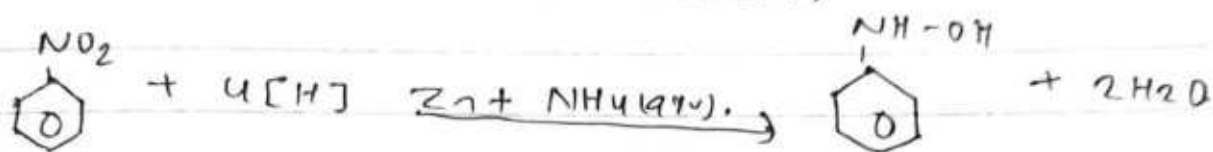
② Reduction with metal hydride.



(ii) Reduction in acidic medium:-



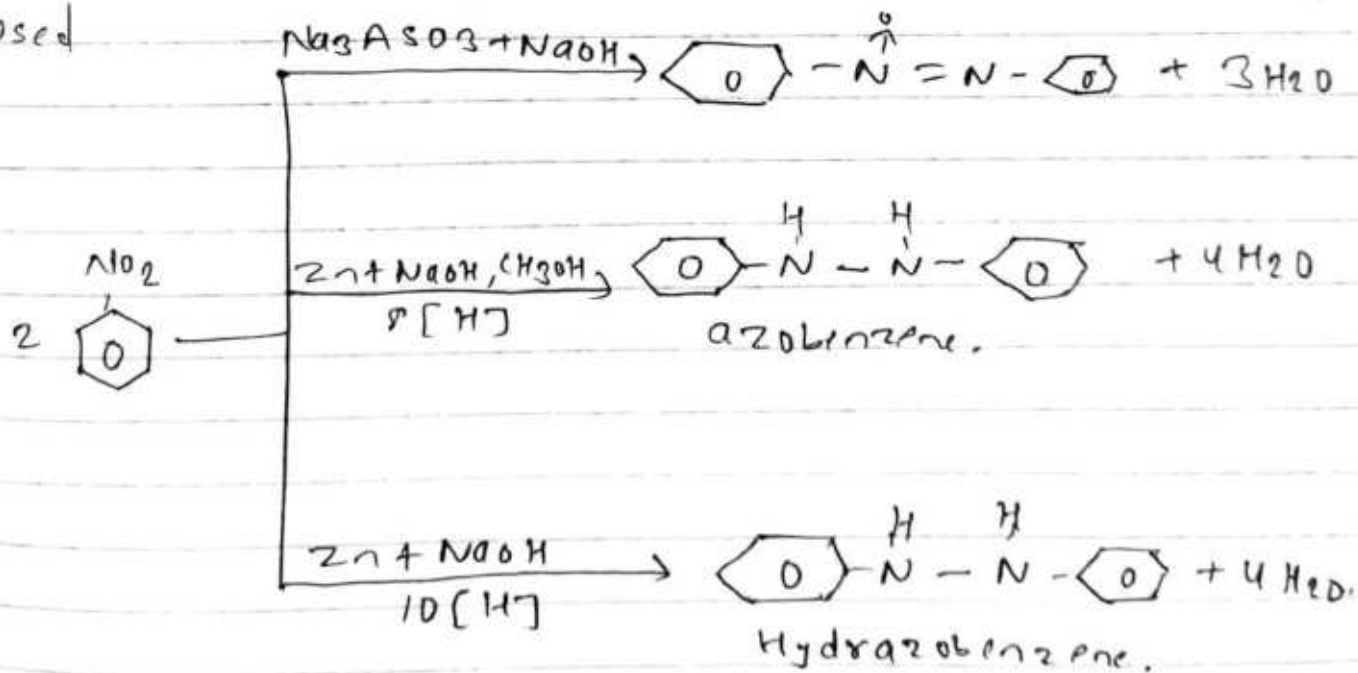
(iv) Reduction in Neutral medium.



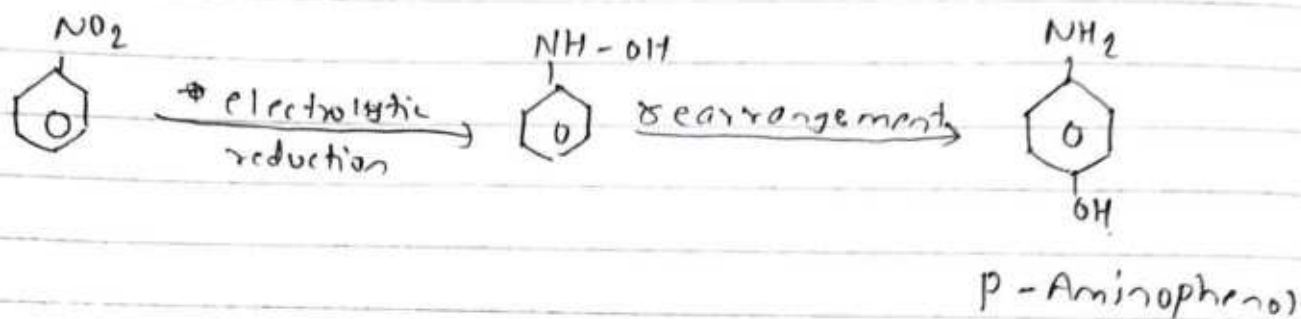
Hydroxyphenylamine.

(v) Reduction in alkaline medium:-

In alkaline medium Nitrobenzene undergoes by molecular reduction producing different reduced product depending on reducing agent used



vi) Electrolytic reduction:-



Electrophilic substitution reaction:-

In nitrobenzene

electrophilic substitution reaction occurs at meta position because resonance caused by electron withdrawing nitro group generates positive charge at ortho and para position so electron density is comparatively higher at meta position. Therefore nitro group in Nitro benzene is called meta directing & ring deactivating group.

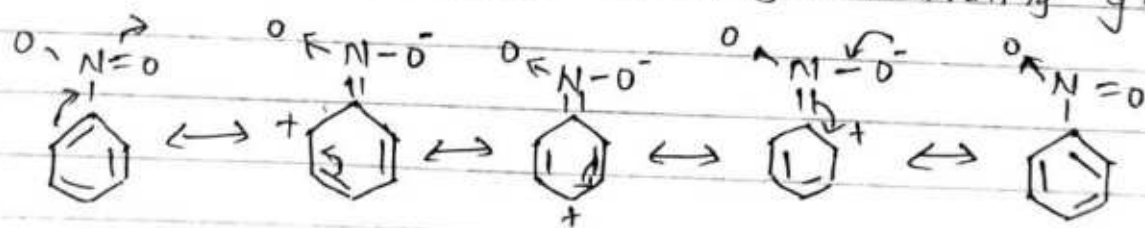
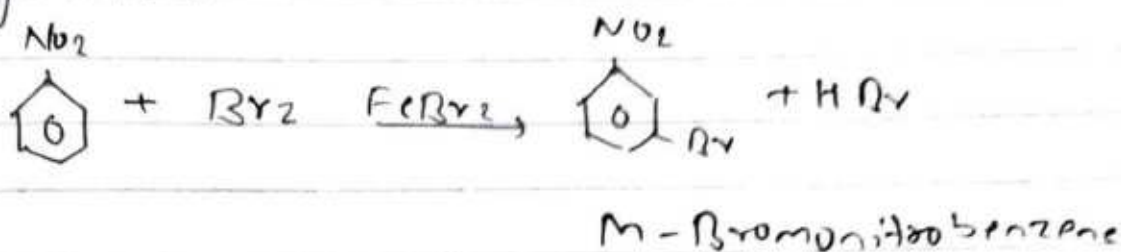


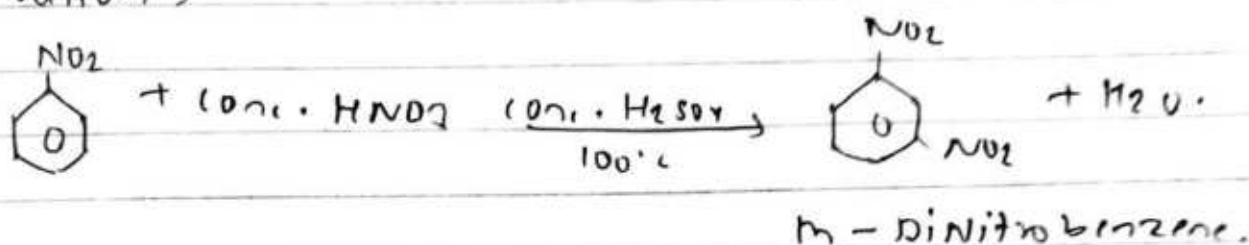
Fig: Resonance str. of Nitro benzene

Reaction.

(i) Halogenation:-



(ii) Nitration:-



(iii) Sulphonation:-

