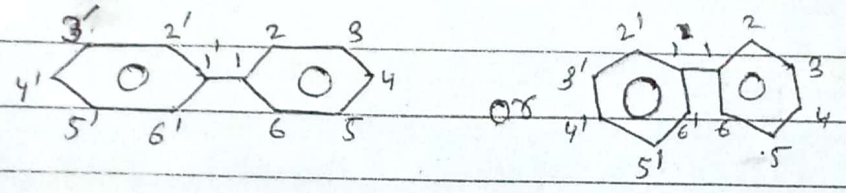
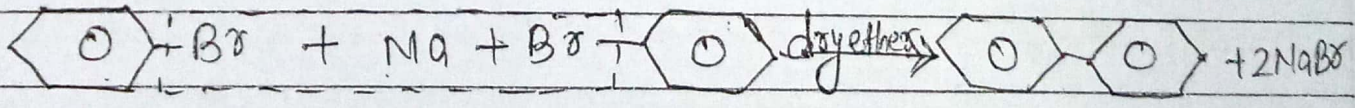
Biphenyl or Diphenyl



Preparation of Biphenyl :-

1) Fittig Reaction :-

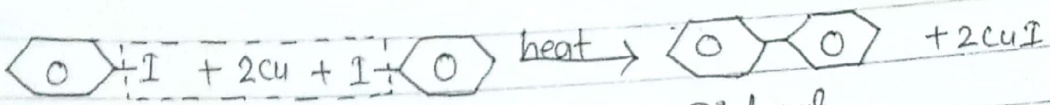
Aryl halide are converted into biphenyl by action of sodium metal in presence of dry ether.



Biphenyl

2) Ullaman Reaction :-

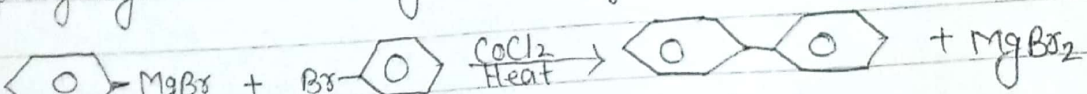
Iodobenzene is converted into biphenyl by heating with copper.



Iodobenzene Iodobenzene Biphenyl

3) By Grignard Reagent :-

Biphenyl are synthesis from Grignard reagent from phenylmagnesium halides by action of halobenzene.

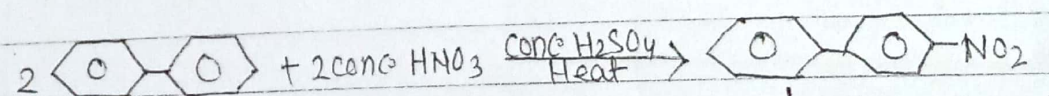


Phenyl Mag. bromide Bromobenzene Biphenyl

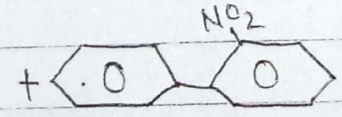
* Chemical properties of biphenyl :-

Biphenyl are aromatic compound therefore readily undergo to electrophilic substitution reaction and gives a mixture of ortho & para substituted biphenyl derivatives.

1) Nitration :- (Conc. HNO_3 + Conc. H_2SO_4)

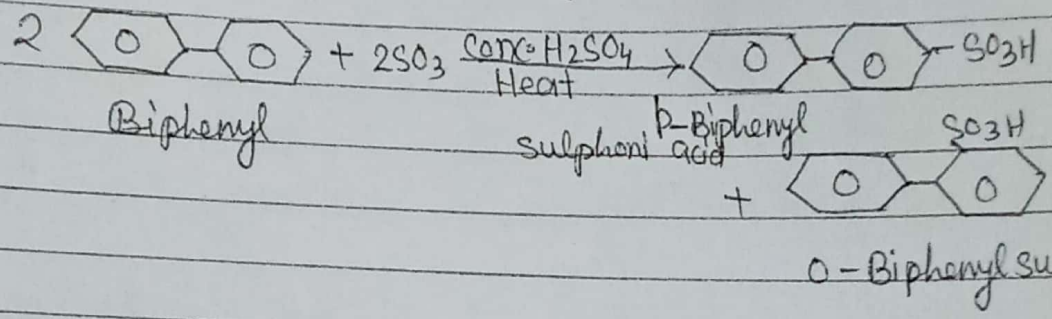


p-nitrobiphenyl (Major)



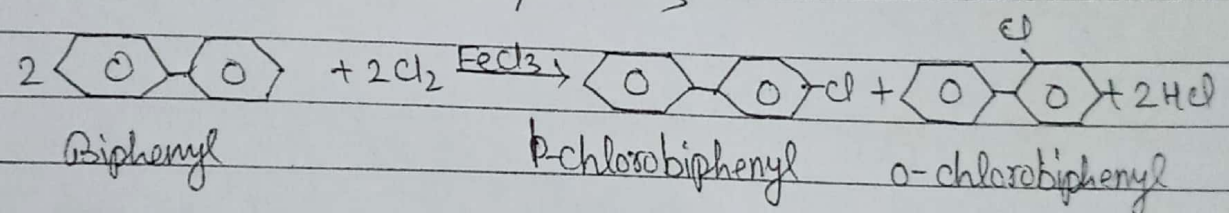
o-nitrobiphenyl

2) Sulphonation :- Fuming H_2SO_4



3) Halogenation :-

a) chlorination :- $Cl_2 / FeCl_3$



b) Bromination :- $Br_2 / FeBr_3$