13 AUG. 2020

SHORT NOTES

(From Previous Year)

Degree-I (Hons.)

By -Dr.Rinky ,Dept.of Chemistry,J.N.C ,Mdb.

Carbyl Amine Reaction

* When aliphatic/aromatic primary amines are heated with chloroform and alc. KOH, foul smelling alkyl isocyanides or Carbyl amines are obtained.
* secondary or tertiary amines do not give this test.
* This reaction is used to distinguish primary amine.

$$R-NH_2 + CHCl_3 + 3KOH \xrightarrow{\Delta} R-NC + 3KCl + 3H_2O$$

1° amine — Alkyl isocyanide

$$Ph-NH_2 + CHCl_3 + 3KOH \xrightarrow{\Delta} Ph-NC + 3KCl + 3H_2O$$

End

Wurtz Reaction

Wurtz reaction is a reaction of producing saturated hydrocarbons from alkyl halides. This reaction is done with solid sodium in the presence of dry ether.

ie; Wurtz reaction is an organic chemical coupling reaction where in sodium metal is treated with two alkyl halides in the environment provided by a solution of dry ether in order to form a higher alkane along with a compound containing sodium and the halogen.

This reaction is named after the French chemism Charles Adolphe Wurtz.

Apart from sodium, metals like silver, indium, activated copper, zinc and iron can also be used in the Wurtz reaction, in order to obtain alkanes.

* The mechanism of this reaction involves free radicals.

$$2\,R-X + 2\,Na \longrightarrow \boxed{R-R} + 2\,NaX$$

End.

Hoffmann Bromamide Reaction

* When an amide is treated with bromine in an aqueous or ethanolic solution of sodium hydroxide, degradation of amide takes place leading to the formation of primary amine. This reaction involving degradation of amide and is popularly known as Hoffmann bromamide degradation reaction.

* The primary amine thus formed contains one carbon less than the number of carbon atom in that amide.

$$R-CONH_2 + Br_2 + 4NaOH \longrightarrow R-NH_2 + Na_2CO_3 + 2NaBr + 2H_2O.$$

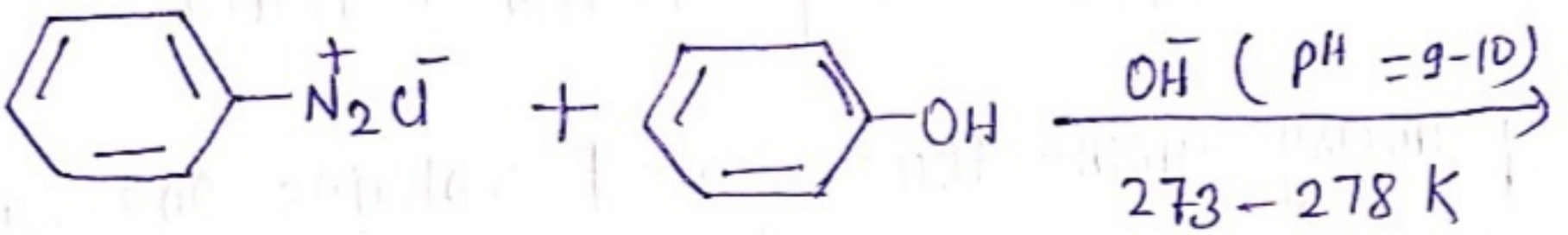
End

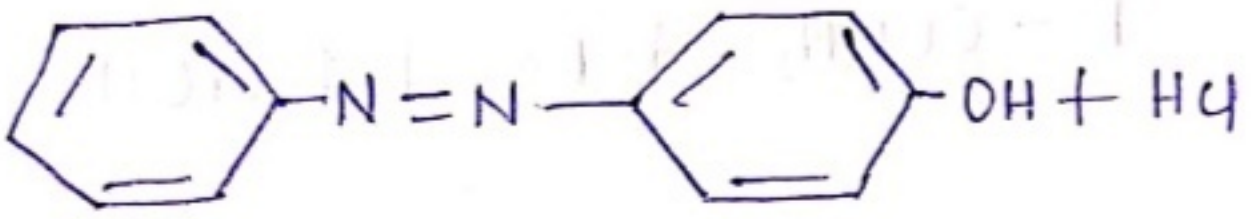
Diazocoupling Reaction

* In this reaction, arene diazonium salt reacts with aromatic amino compound (in acidic medium) or a phenol (in alkaline medium) to form brightly coloured azo compounds.

The reaction generally takes place at para position to the hydroxy or amino group.

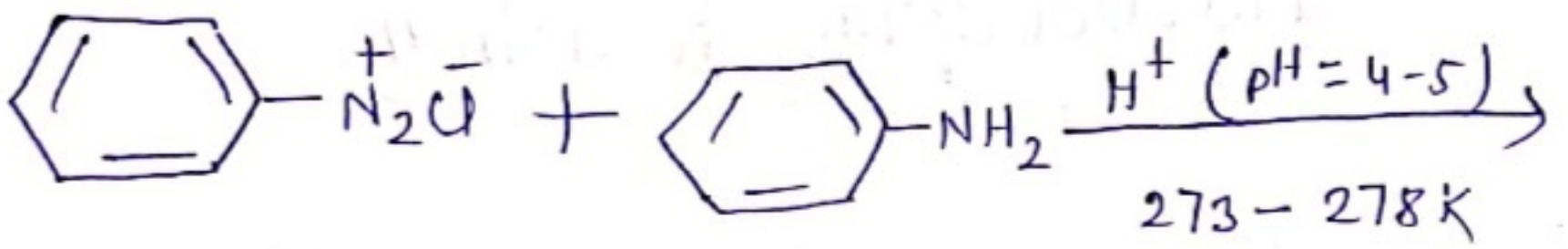
If para position is blocked, it occurs at ortho position and if both ortho and para positions are occupied, then no coupling takes place.

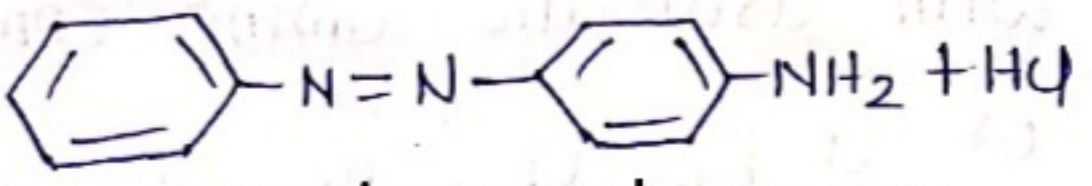




P-hydroxy azobenzene

(Orange dye)





p-amino azobenzene

(Yellow dye)

Completed..