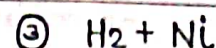
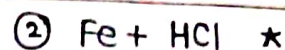
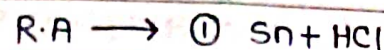
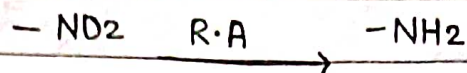


# Amines

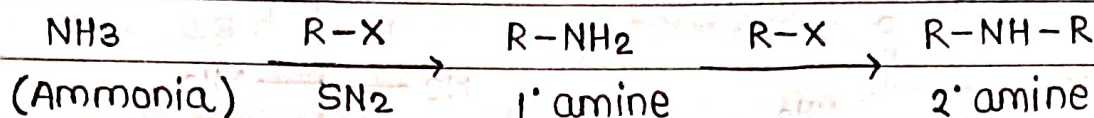
## ① Reduction of nitro compounds.



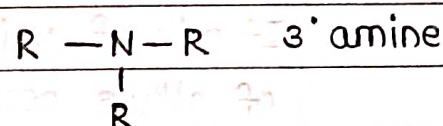
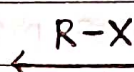
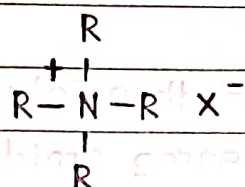
Alcohol (ROH)



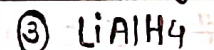
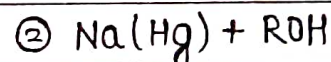
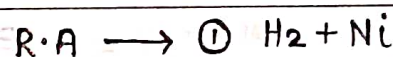
## ② Ammonolysis of alkyl halide.



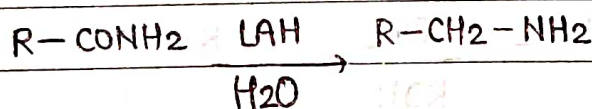
Quaternary  
ammonium  
salt



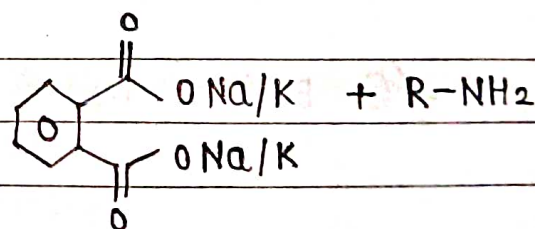
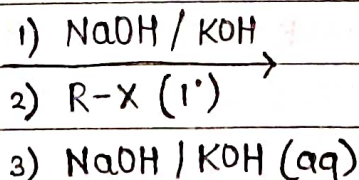
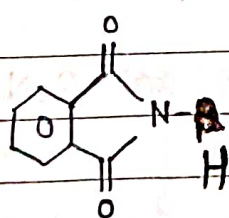
## ③ Reduction of Nitriles.



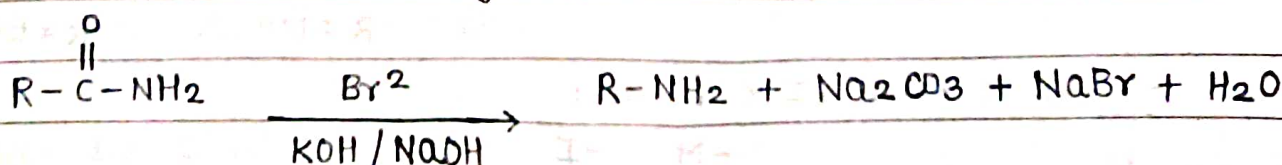
## ④ Reduction of Amides:

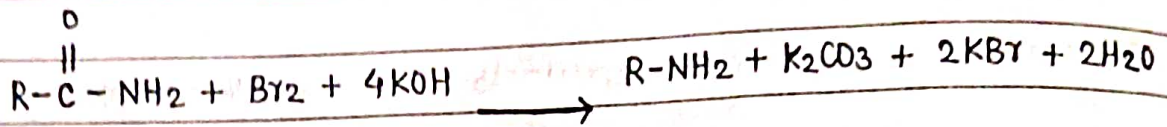


## ⑤ Gabriel phthalamide synthesis. (For aliphatic 1° amine)



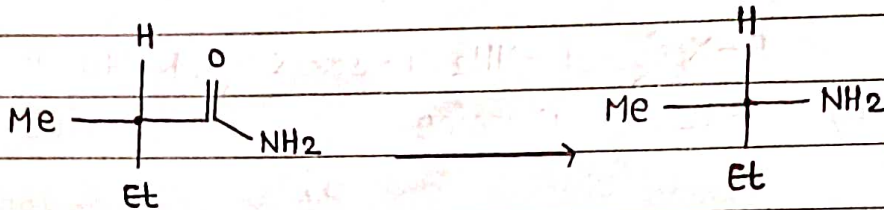
## ⑥ Hoffman Bromamide degradation.



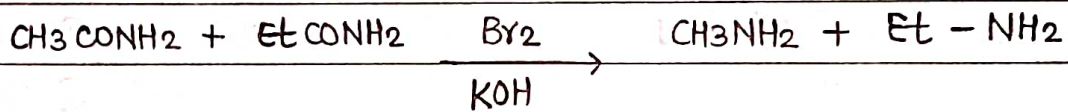


# OP POINTS :

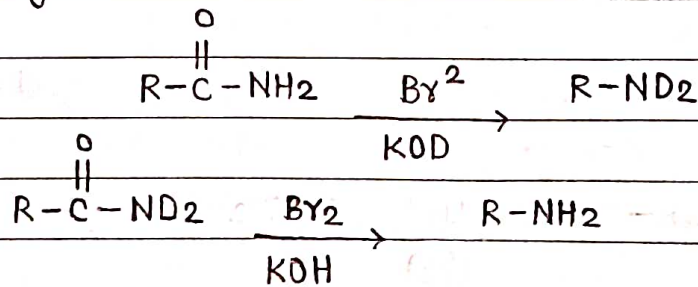
- ① Rearrangement of R is purely intramolecular (stereochemistry remains same)



- ② If mix of amides are present then intramolecular migration of alkyls occurs b/w the same amide.



# Isotopic change :



# Properties of Amines :

✓ ① Basic strength	$\text{R}-\text{NH}_2$	$\text{R}_2\text{NH}$	$\text{R}_3\text{N}$
	1° amine	2° amine	3° amine

Case I : In Gas phase,  $3^\circ > 2^\circ > 1^\circ$

Case II : In aqueous medium,  $2^\circ > 1^\circ > 3^\circ$   $2^\circ > 3^\circ > 1^\circ$

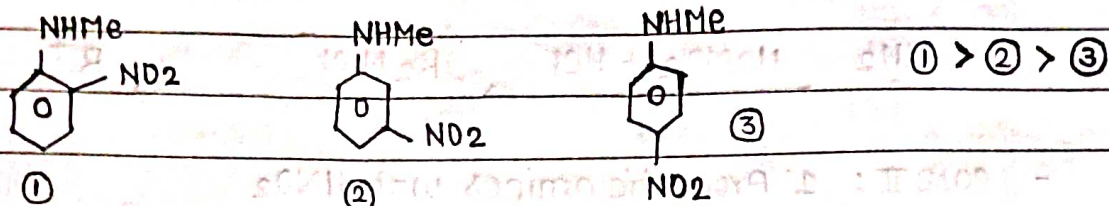
R = Me

R = Et

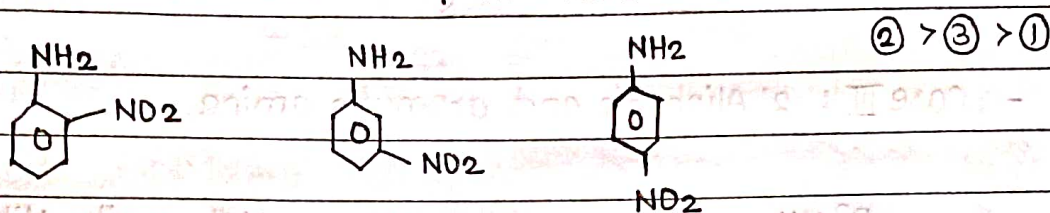
$$- \text{B.S} \propto +\text{M} \propto +\text{I} \propto \frac{1}{-M} \propto \frac{1}{-I}$$



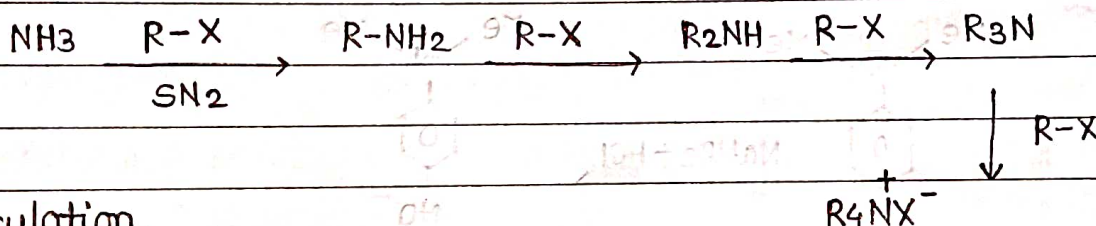
- SIR — B.S Increases — 2' and 3' Aromatic amines.



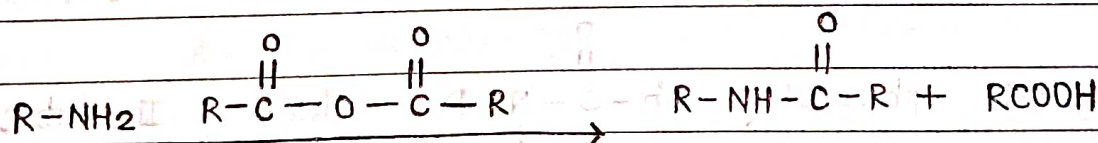
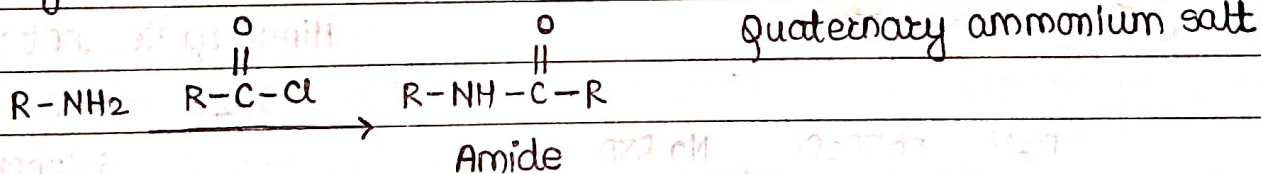
- SIP — B.S decreases — 1' Aromatic amines.



## ② Alkylation or Ammonolysis:

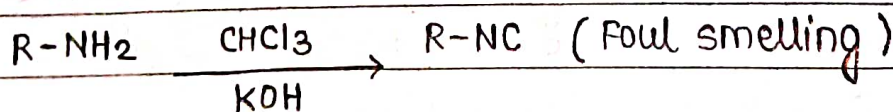


## ③ Acylation.



Quaternary ammonium salt

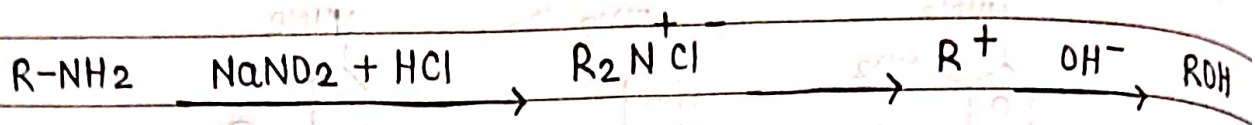
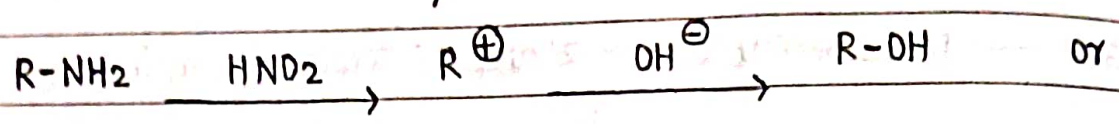
## ④ Carbyl amine reaction. (Isocyanide Test for Both Aliphatic and aromatic 1' amine)



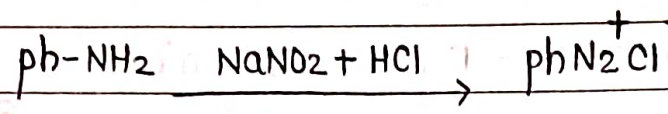
## ⑤ Reaction with nitrous acid.

- Case I: 1' Aliphatic amine with  $\text{HNO}_2$

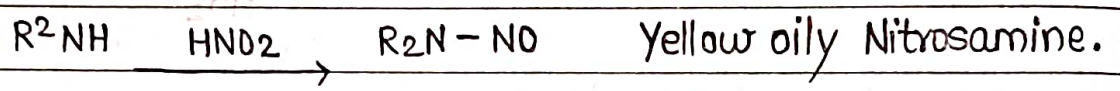
Rearrange if possible



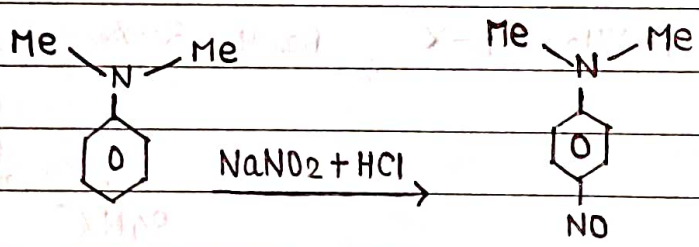
- Case II: 1° Aromatic amines with  $HNO_2$



- Case III: 2° Aliphatic and aromatic amine.



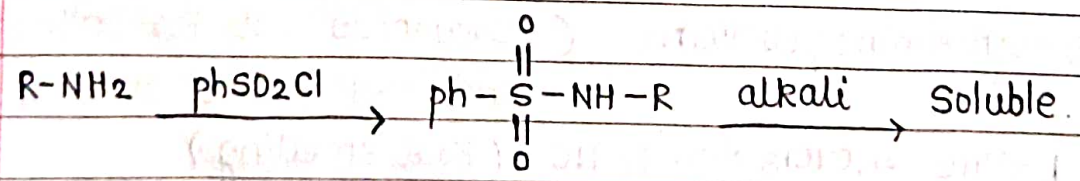
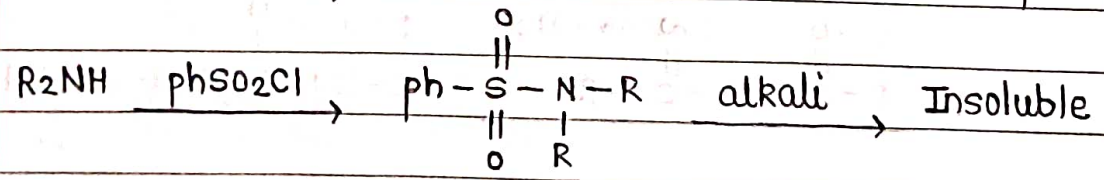
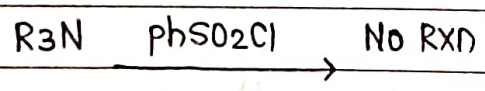
- Case IV: 3° Aromatic amine.



⑥ Hinsberg's Test.

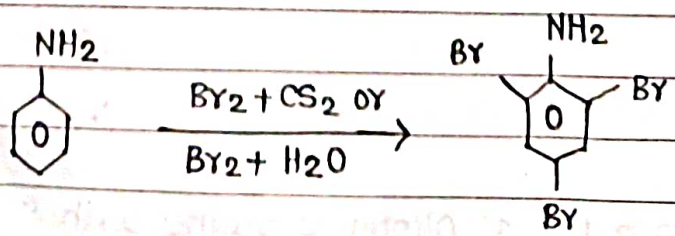
Hinsberg Reagent:

$PhSO_2Cl$  - Benzene Sulphonyl chloride



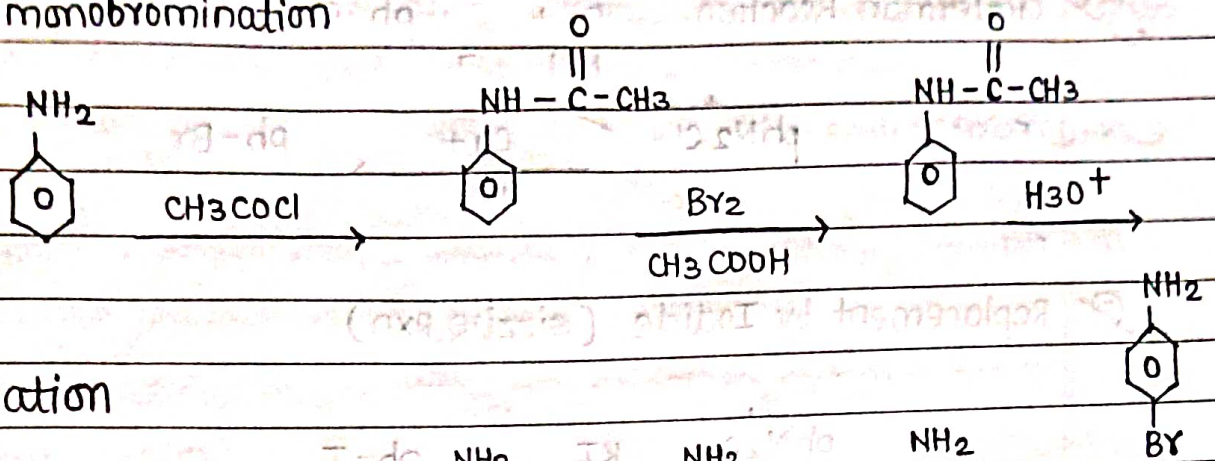
⑦ ESR

⑧ Bromination

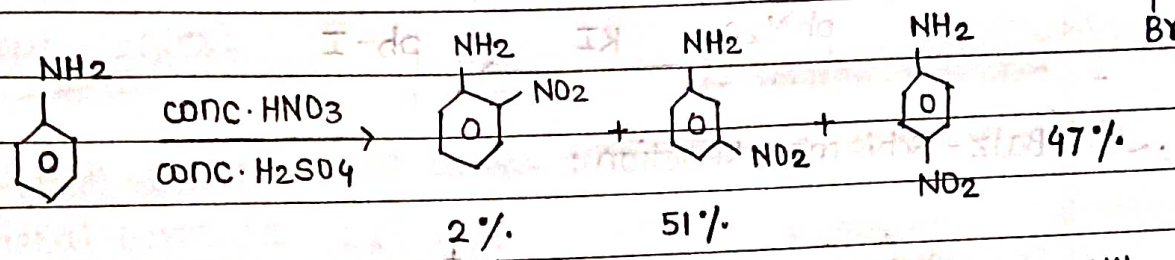




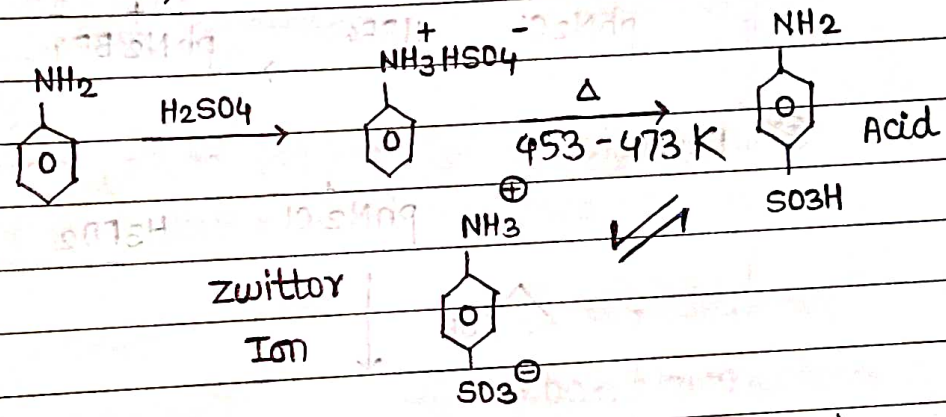
✓ For monobromination



② Nitration



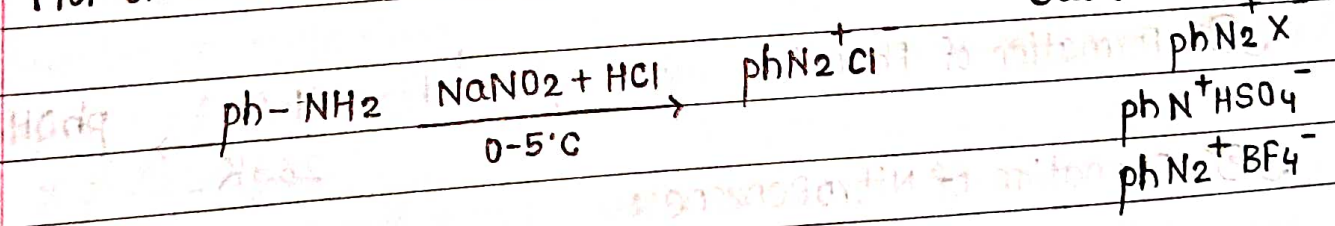
③ Sulphonation



- Aniline does not undergo FCR.

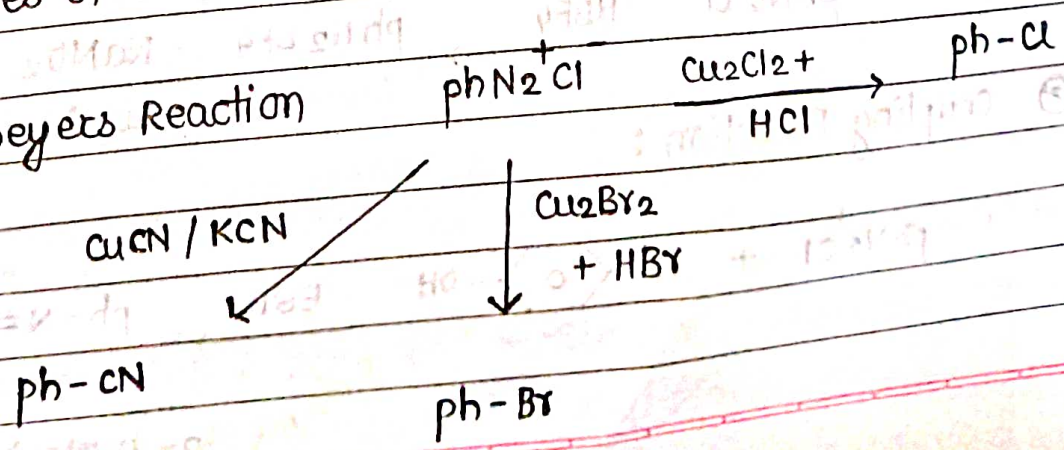
# MOP of Diazonium salts:

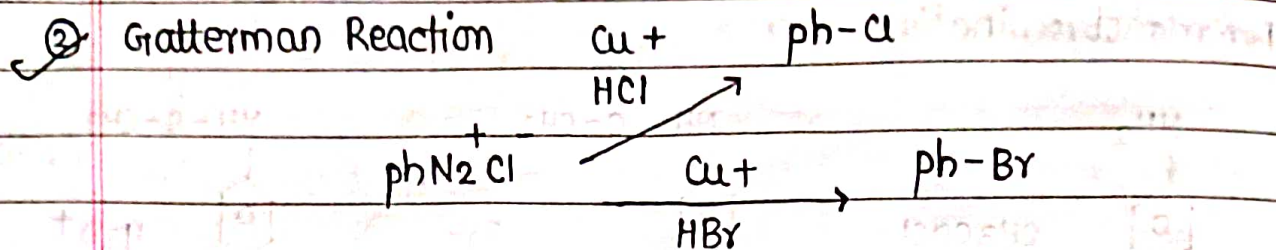
- Other Diazonium salts:



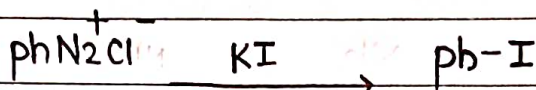
# Properties of diazonium salt

① Sandmeyer's Reaction

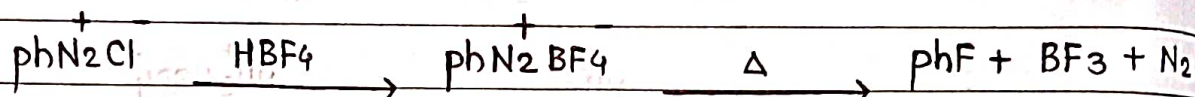




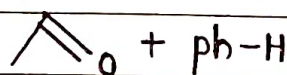
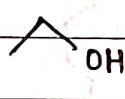
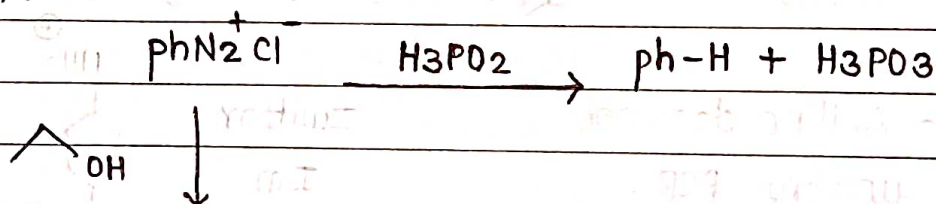
③ Replacement by Iodide (Sizz's Rxn)



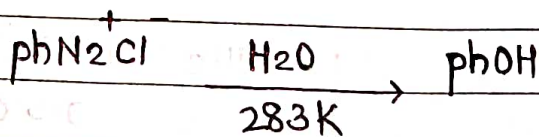
④ Balz-Schieman Reaction:



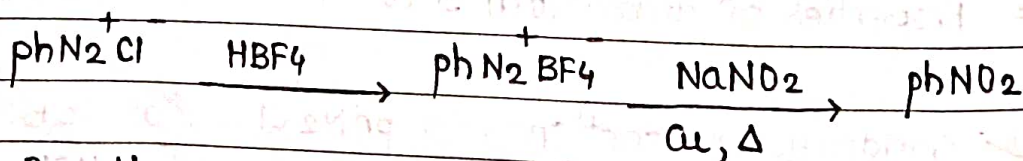
⑤ Reduction:



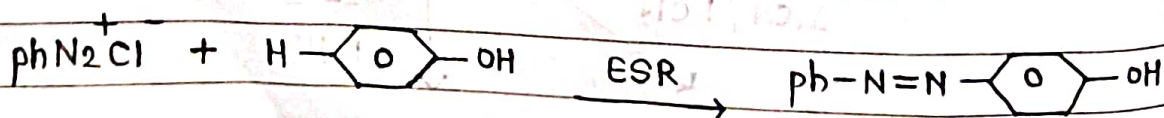
⑥ Formation of Phenol:



⑦ Formation of NitroBenzene:



⑧ Coupling Reaction:



p-hydroxy azobenzene  
(Orange dye)



Page No.			
Date			



p-Amino Azobenzene  
(Yellow Dye)