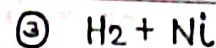
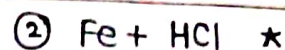
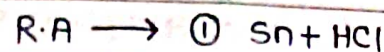
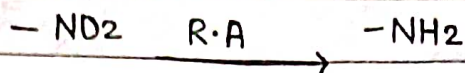


Amines

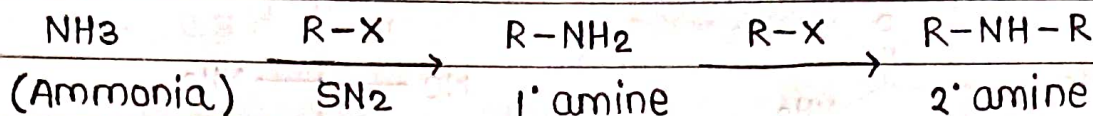
① Reduction of nitro compounds.



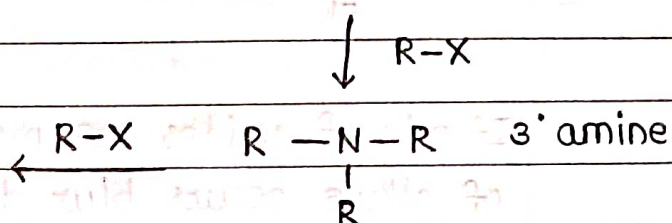
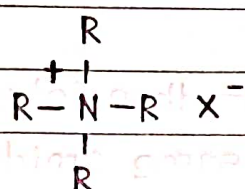
Alcohol (ROH)



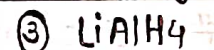
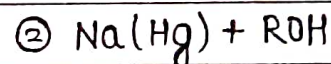
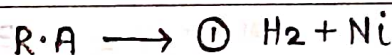
② Ammonolysis of alkyl halide.



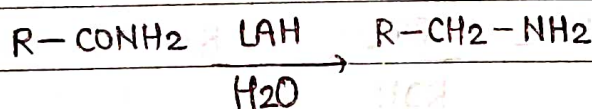
Quaternary
ammonium
salt



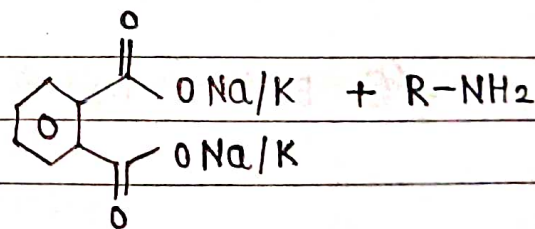
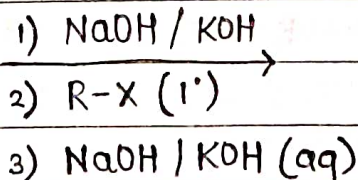
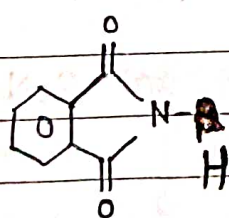
③ Reduction of Nitriles.



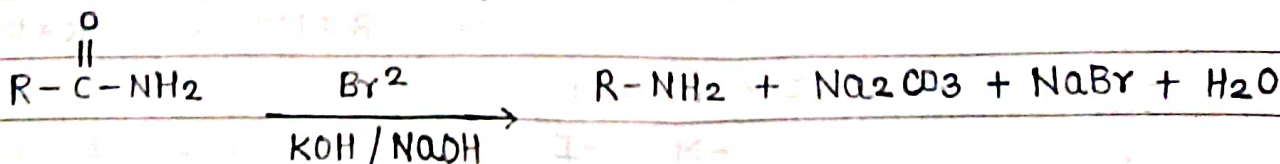
④ Reduction of Amides:

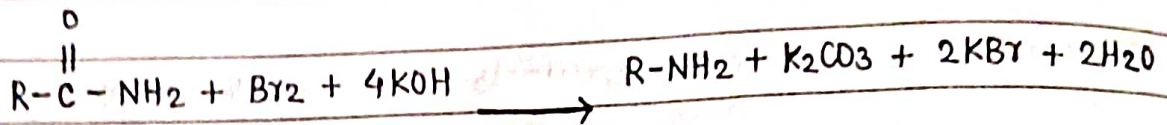


⑤ Gabriel phthalamide synthesis. (For aliphatic 1° amine)



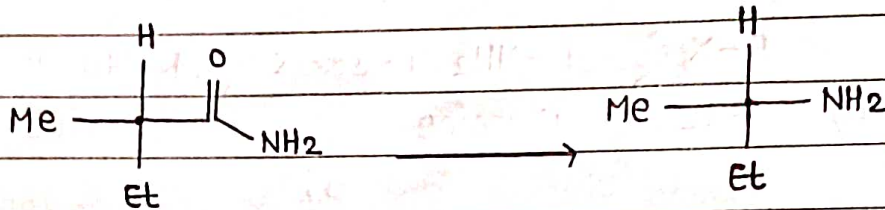
⑥ Hoffman Bromamide degradation.



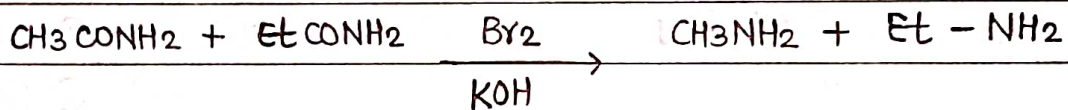


OP POINTS :

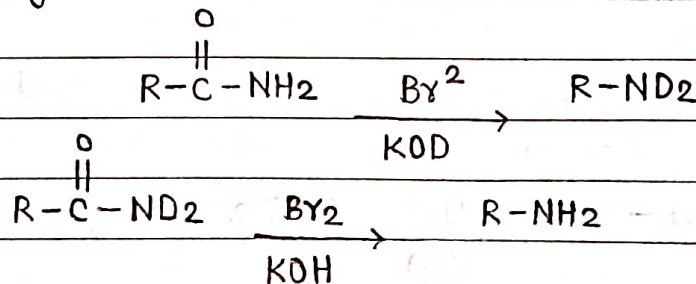
- ① Rearrangement of R is purely intramolecular (stereochemistry remains same)



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



Isotopic change :



Properties of Amines :

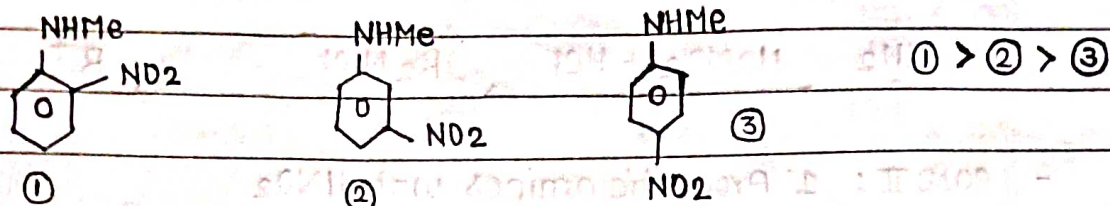
✓ ① Basic strength	$\text{R}-\text{NH}_2$	R_2NH	R_3N
	1° amine	2° amine	3° amine

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

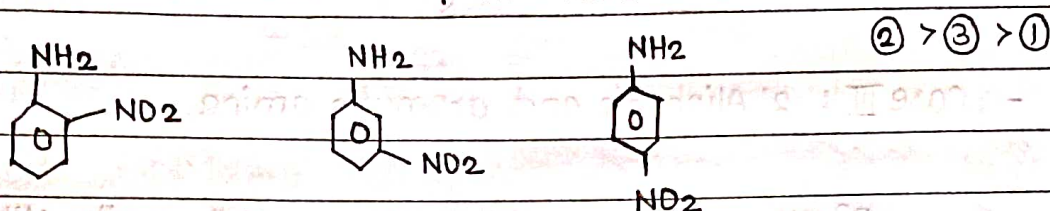
Case II : In aqueous medium, $2^\circ > 1^\circ > 3^\circ$ $2^\circ > 3^\circ > 1^\circ$
 $\text{R} = \text{Me}$ $\text{R} = \text{Et}$

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

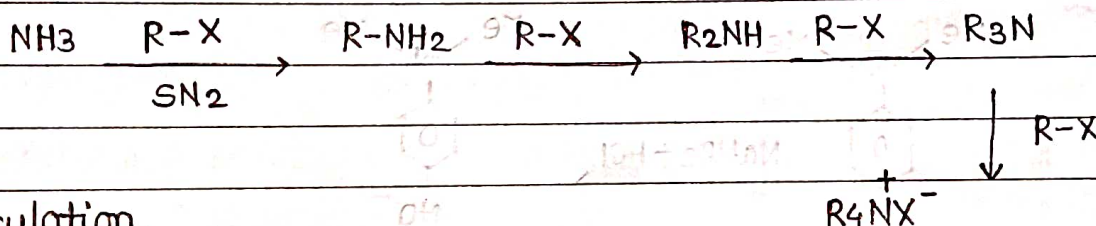
- SIR — B.S Increases — 2' and 3' Aromatic amines.



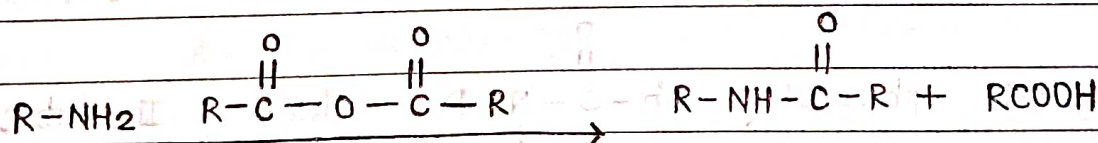
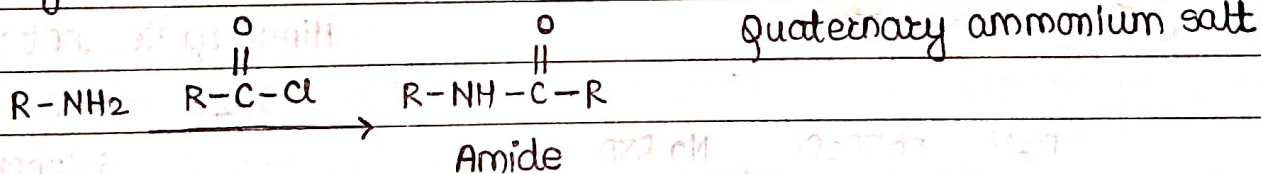
- SIP — B.S decreases — 1' Aromatic amines.



② Alkylation or Ammonolysis:

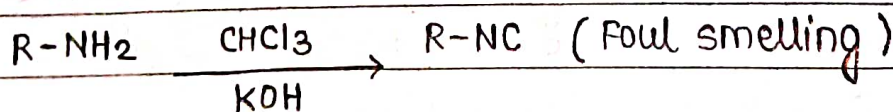


③ Acylation.



Quaternary ammonium salt

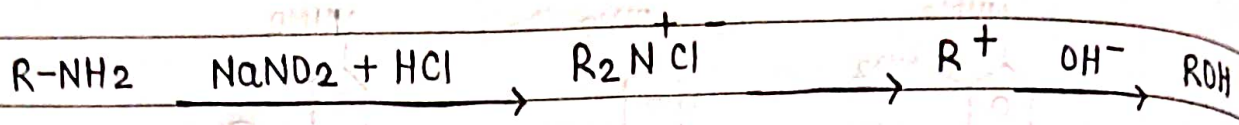
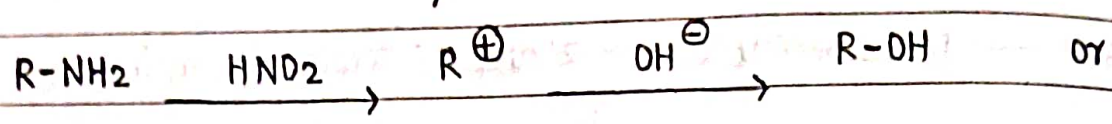
④ Carbyl amine reaction. (Isocyanide Test for Both Aliphatic and aromatic 1' amine)



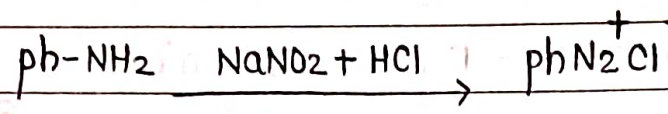
⑤ Reaction with nitrous acid.

- Case I: 1' Aliphatic amine with HNO_2

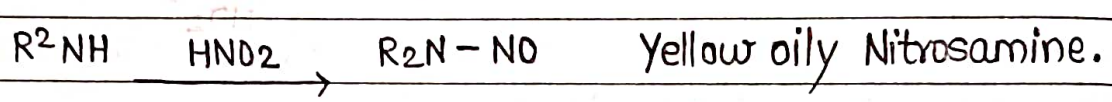
Rearrange if possible



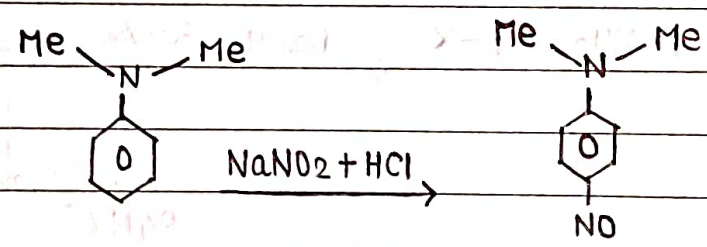
- Case II: 1° Aromatic amines with HNO_2



- Case III: 2° Aliphatic and aromatic amine.



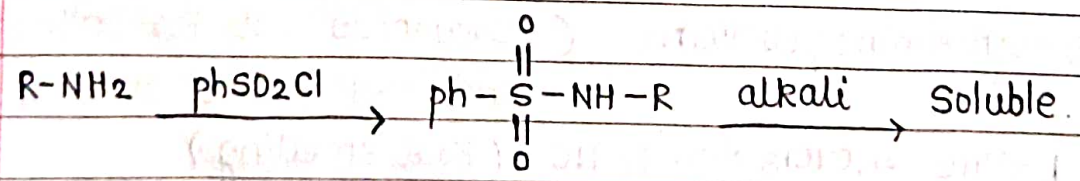
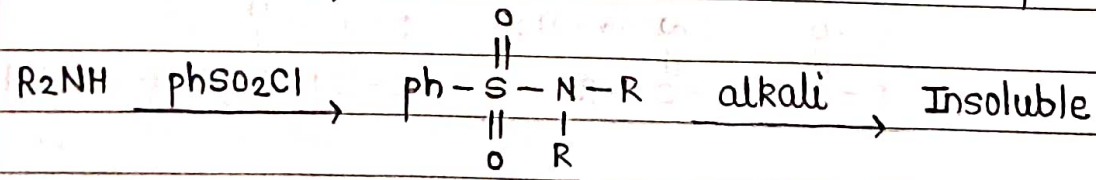
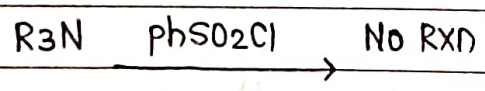
- Case IV: 3° Aromatic amine.



⑥ Hinsberg's Test.

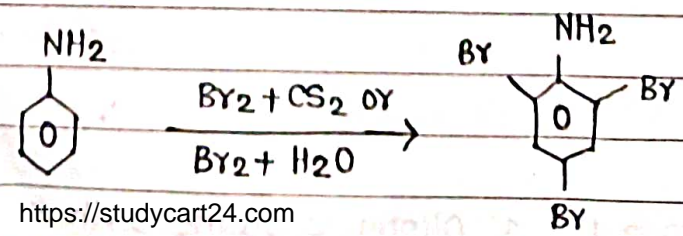
Hinsberg Reagent:

$PhSO_2Cl$ - Benzene Sulphonyl chloride

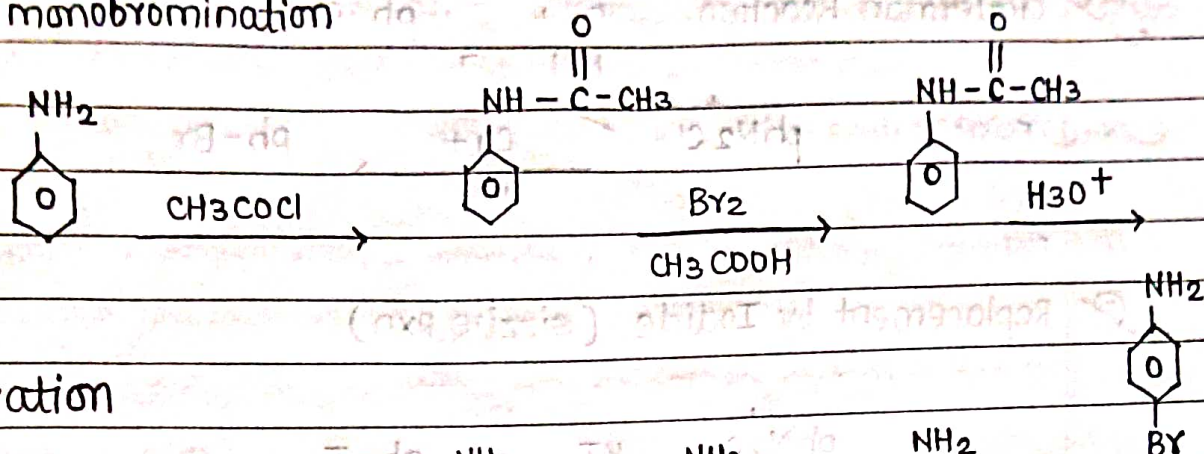


⑦ ESR

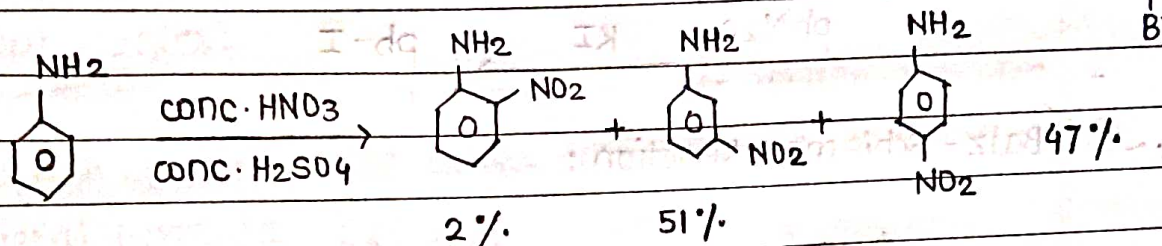
⑧ Bromination



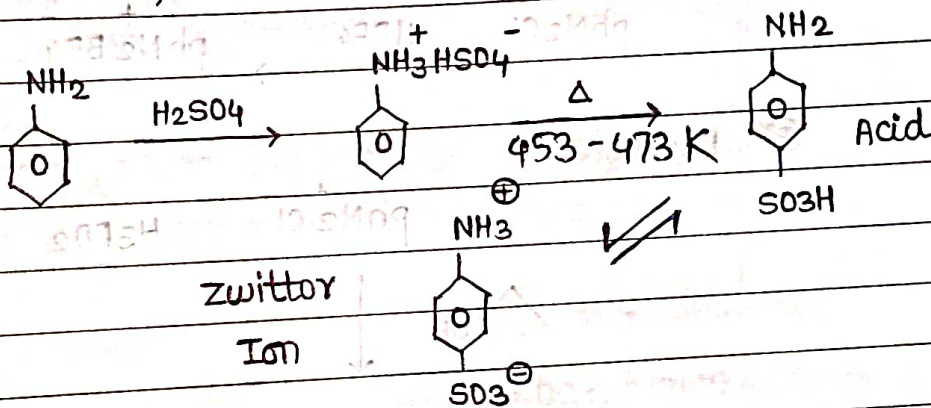
✓ For monobromination



② Nitration



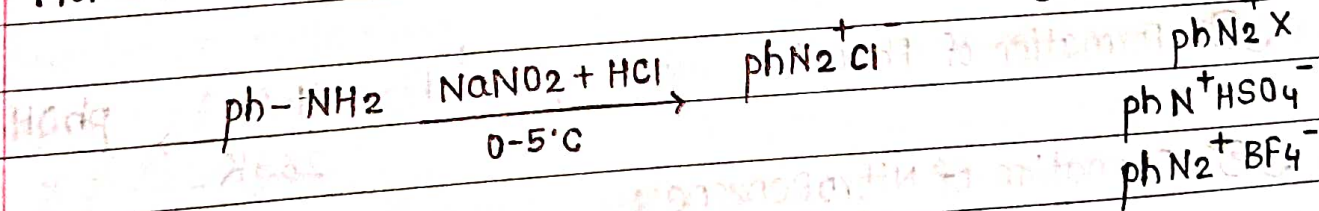
③ Sulphonation



- Aniline does not undergo FCR.

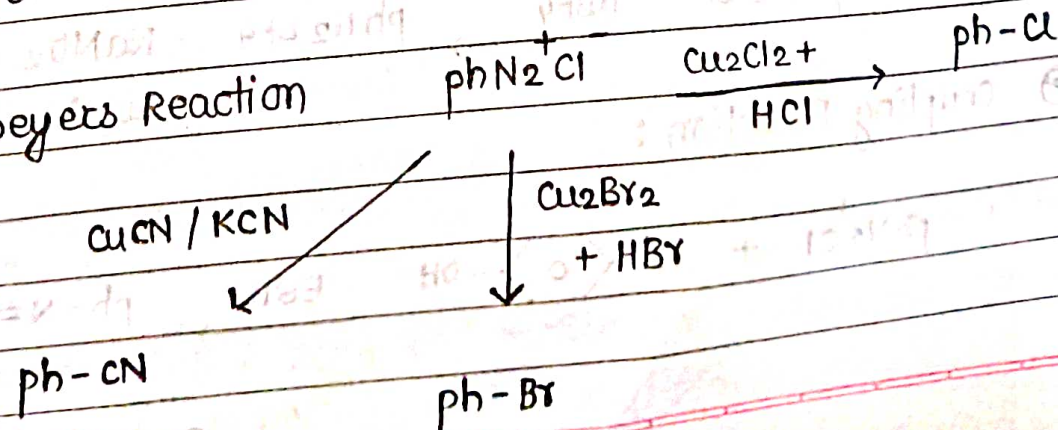
MOP of Diazonium salts:

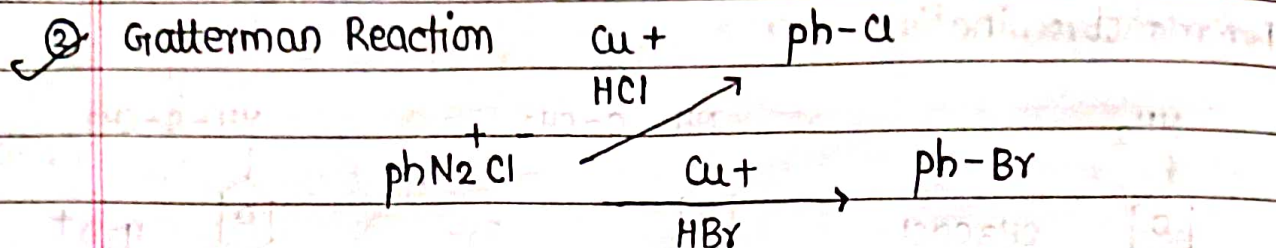
- Other Diazonium salts:



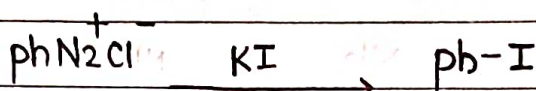
Properties of diazonium salt

① Sandmeyer's Reaction

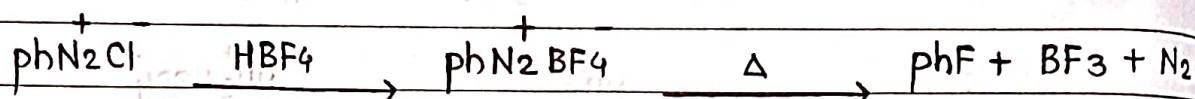




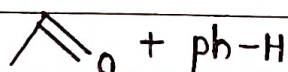
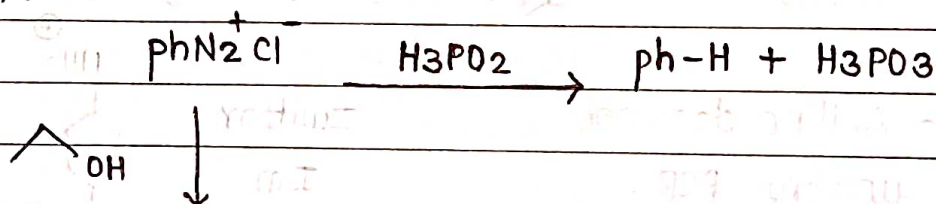
③ Replacement by Iodide (Sizz's Rxn)



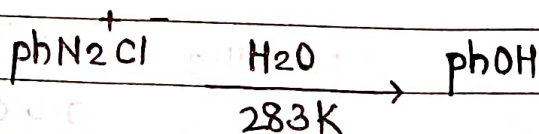
④ Balz-Schieman Reaction:



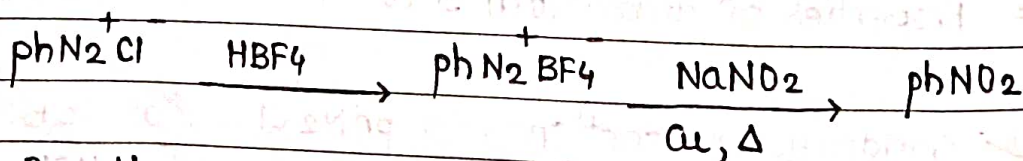
⑤ Reduction:



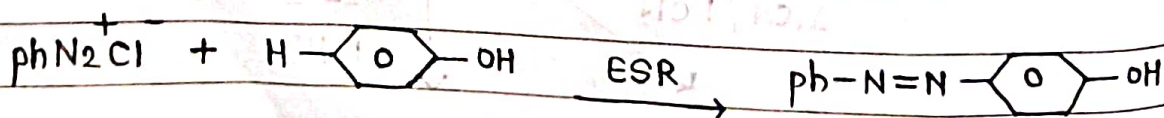
⑥ Formation of Phenol:



⑦ Formation of Nitrobenzene:



⑧ Coupling Reaction:



p-hydroxy azobenzene
(Orange dye)

Page No.			
Date			



p-Amino Azobenzene
(Yellow Dye)