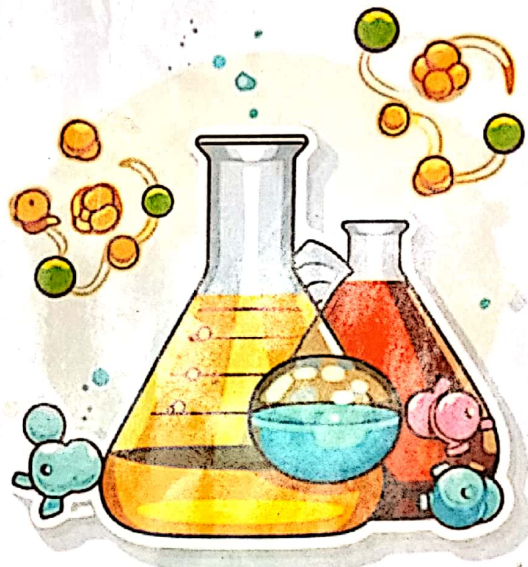
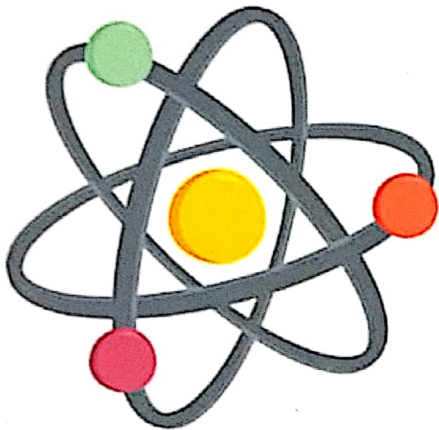
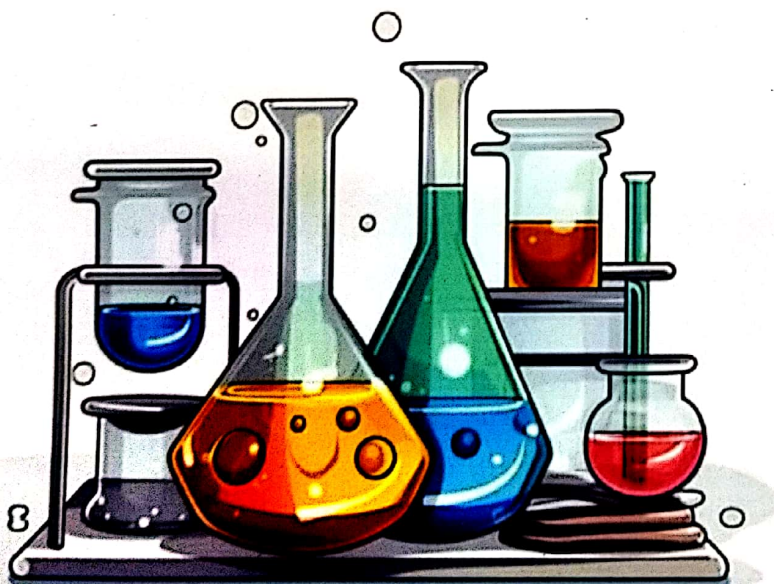
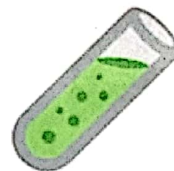


# VICTORY ZONE CLASSES



## CHEMISTRY



**CLASS :- XII**



# VICTORY ZONE CHEMISTRY CLASSES

ADDRESS - 1<sup>ST</sup> FLOOR PRADEEP PLAZA, IN FRONT OF CHOPRA PALACE, ADARSH NAGAR DURG

MO 9424168056, 8269055301

## CHAPTER SCHEDULE

### AMINES

2 DECEMBER TO 21 DECEMBER

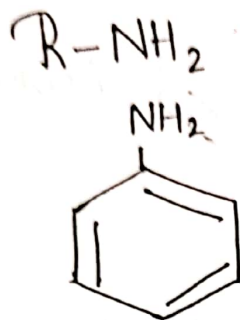
| S. NO | CLASS DETAIL   | TOPICS DETAILS                              | CHECK LIST |
|-------|----------------|---------------------------------------------|------------|
| 1.    | LECTURE NO. 1  | GOC BASIC IUPAC NAME 20 Q                   |            |
| 2.    | LECTURE NO. 2  | METHOD OF PREPARATION 10Q                   |            |
| 3.    | LECTURE NO. 3  | PHYSICAL & CHEMICAL PROPERTY 20Q            |            |
| 4.    | LECTURE NO. 4  | CHEMICAL PROPERTIES & DIAZONIUM PREPARATION |            |
| 5.    | LECTURE NO. 5  | DIAZONIUM CHEMICAL PROPERTIES & TESTS       |            |
| 6.    | LECTURE NO. 6  | PYQS FROM DIFFERENT EXAMS                   |            |
| 7.    | LECTURE NO. 7  | CONVERSIONS 10Q                             |            |
| 8.    | LECTURE NO. 8  | BOARDS PYQS DISCUSSION                      |            |
| 9.    | LECTURE NO. 9  | IDENTIFICATION QUESTIONS 10Q                |            |
| 10.   | LECTURE NO. 10 | SELF ANALYSIS PAPER IN CLASS                |            |
| 11.   | TEST NO. 17    | 20/12/2025 MCQS 30Q MM:120 (YOUR MARKS)     |            |
| 12.   | TEST NO. 18    | 21/12/2025 THEORY 16Q MM:30 (YOUR MARKS)    |            |
| 13.   | HOME WORK      | NUMBER OF QUESTION DONE BY YOUR SELF        |            |
| 14.   | HOME WORK      | NCERT BOOK READING & BACK QUESTIONS         |            |

JOIN 'VICTORY ZONE' FOR BEST CONTENT AND CONCEPT

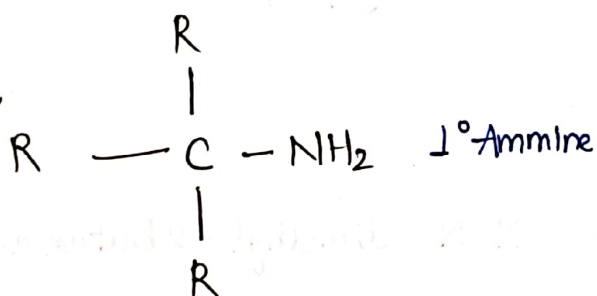
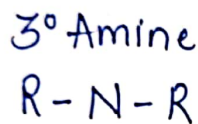
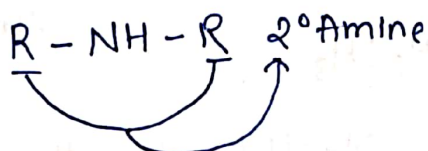
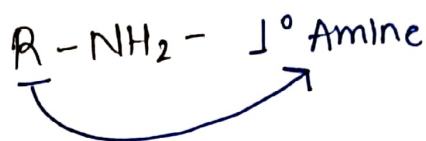


Amnes

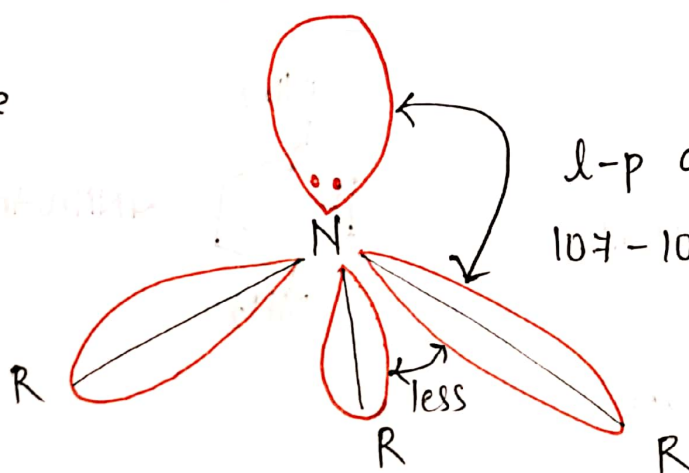
# Amines



## Classification

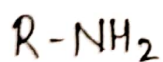


## Structure



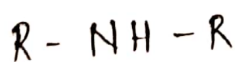
l-p and b-p repulsion  
 $107 - 109^\circ$

$R \propto \text{Bond Angle}$



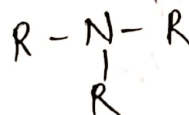
$107^\circ$

1° Amine



$108^\circ$

2° Amine



$109^\circ$

3° Amine

NAME

$\text{CH}_3\text{-NH}_2$  Methanamine



Aniline

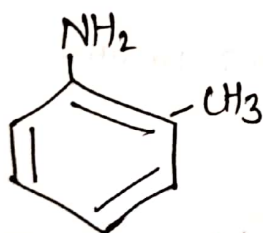
$\text{CH}_3\text{-NH-CH}_3$  N-methylmethanamine

$\text{CH}_3\text{-NH-CH}_2\text{-CH}_3$  N-methylethanamine

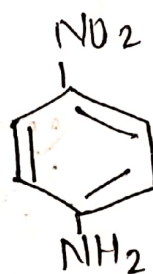
$\text{CH}_3\text{-N(CH}_3\text{)-CH}_2\text{-CH}_2\text{-CH}_3$   
N-ethyl, N-methylpropanamine

N-ethyl, N-methylpropanamine

$\text{CH}_3\text{-N(CH}_3\text{)-CH}_2\text{-CH}_2\text{-CH}_3$  N,N-dimethyl-2-butanamine



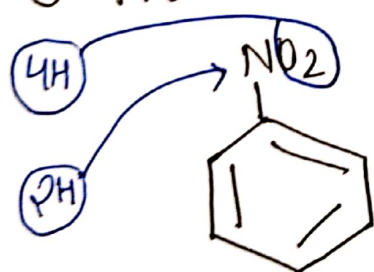
3-methylaniline



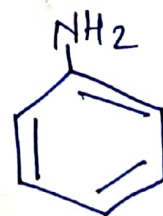
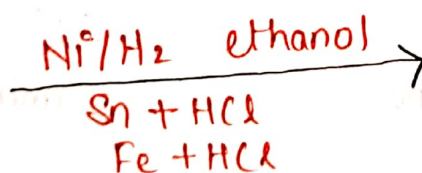
4-nitroaniline

\* Method of preparation

① From Nitro groups



Nitrobenzene

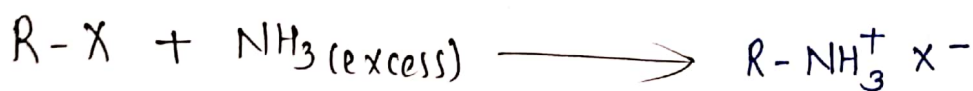
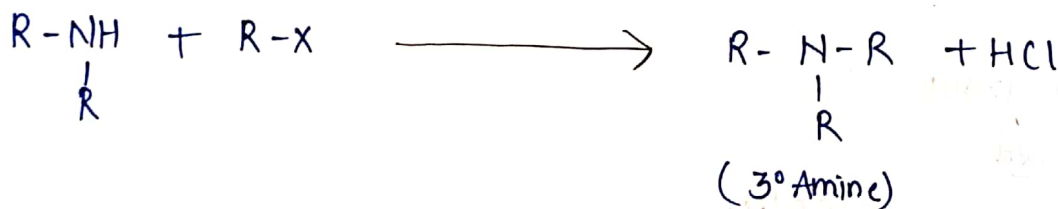
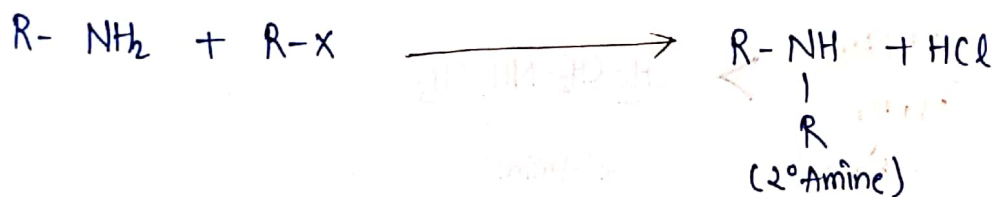
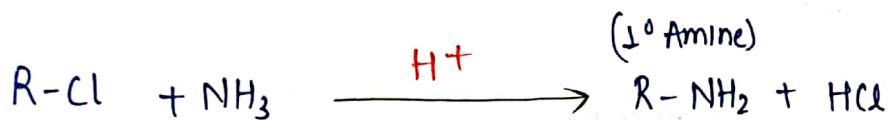


Aniline

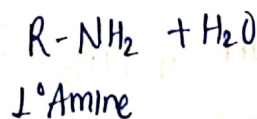


(2) Ammonolysis  $\longrightarrow$  Haloalkane

SN-1 Mechanism



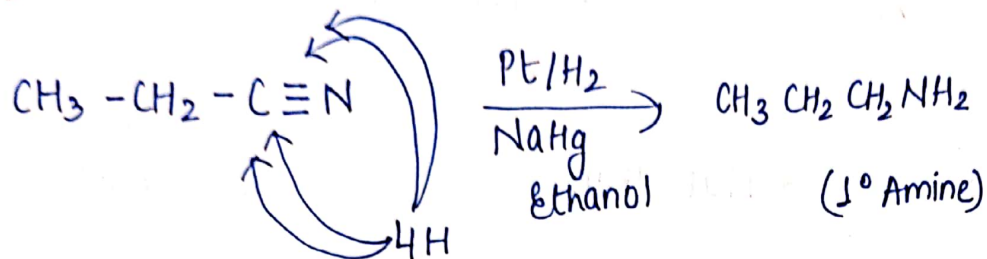
$\downarrow \text{NaOH (aq)}$



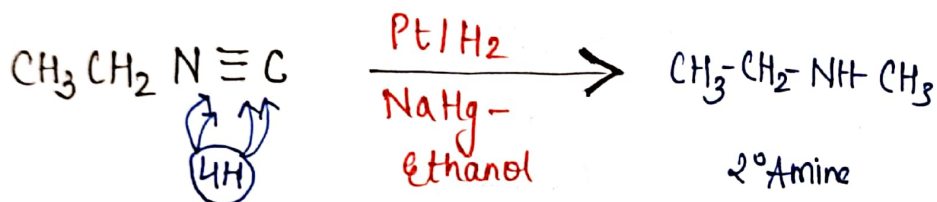
SN-1



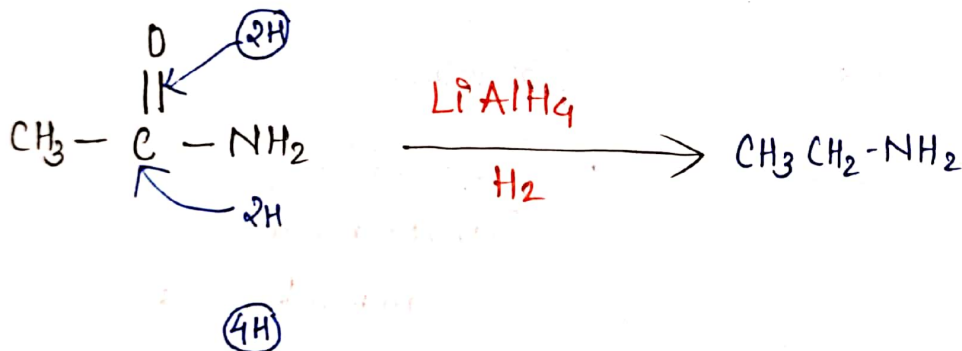
(3) From Nitrile  $\longrightarrow$  1° Amine



(4) From Iso Nitrile  $\longrightarrow$  2° Amine

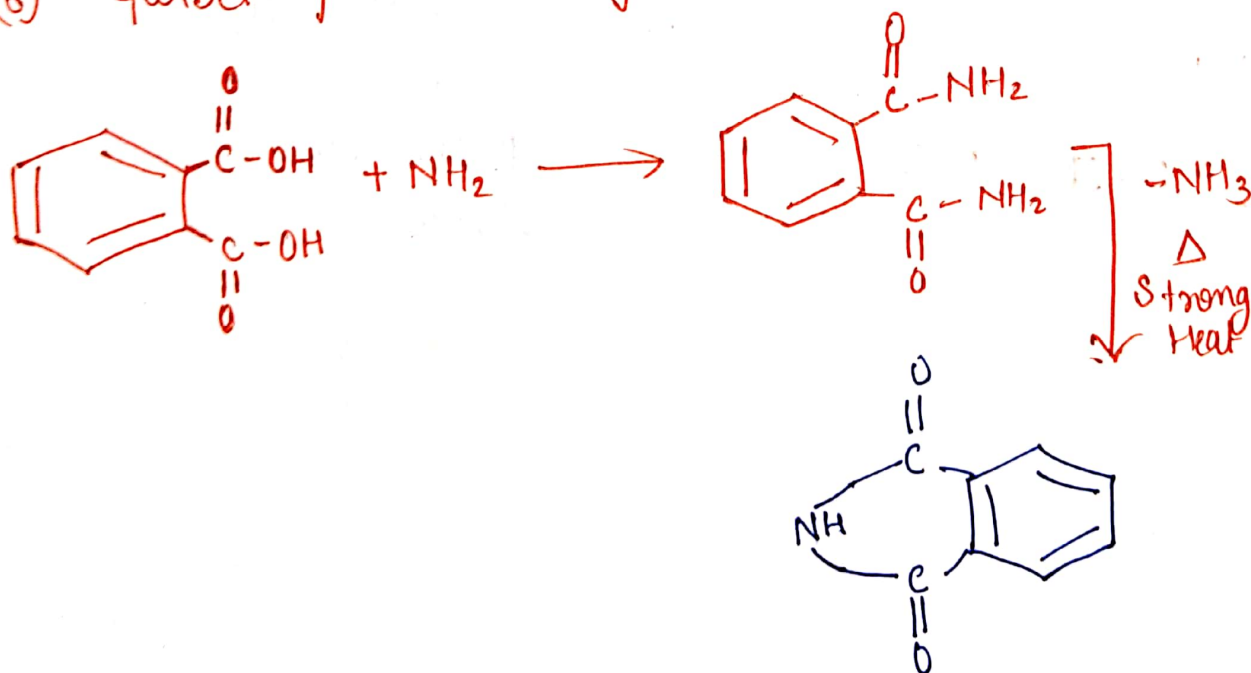


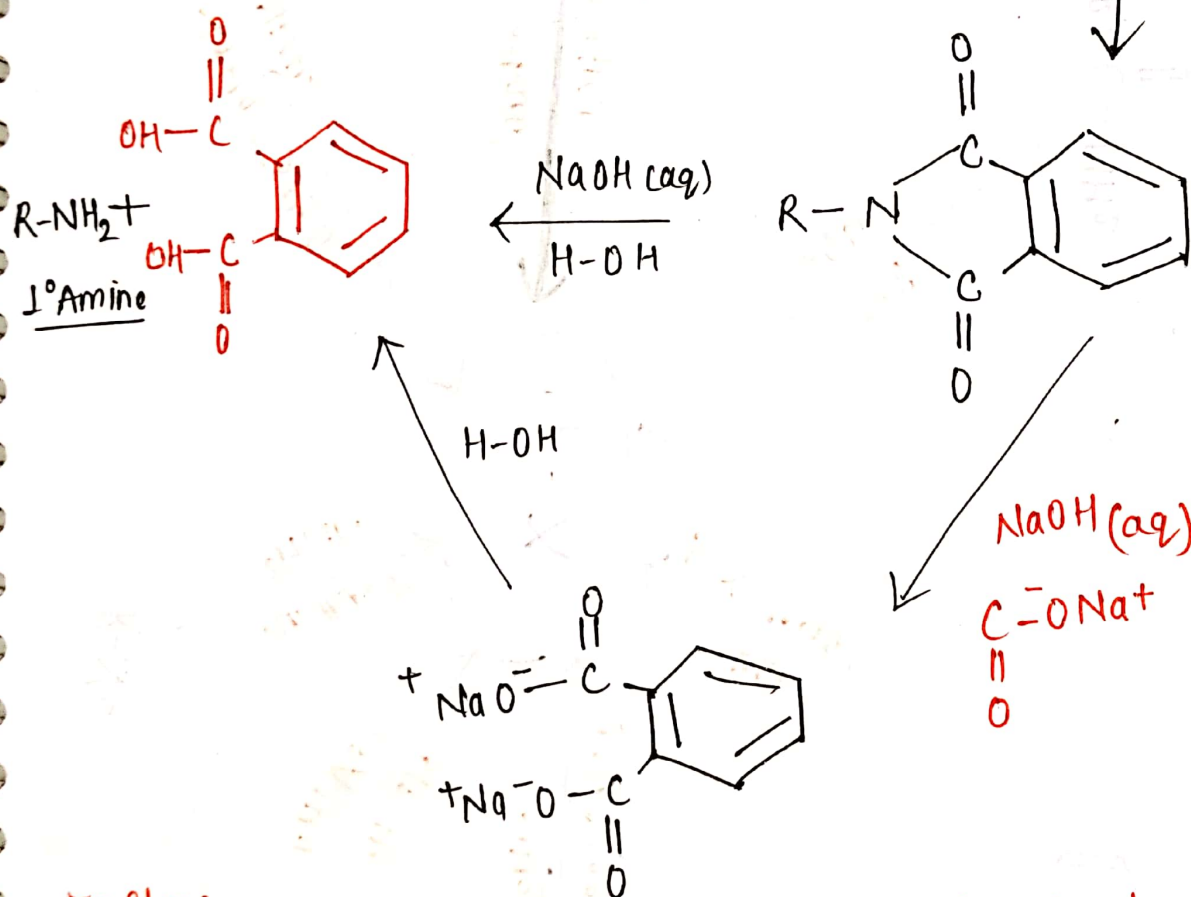
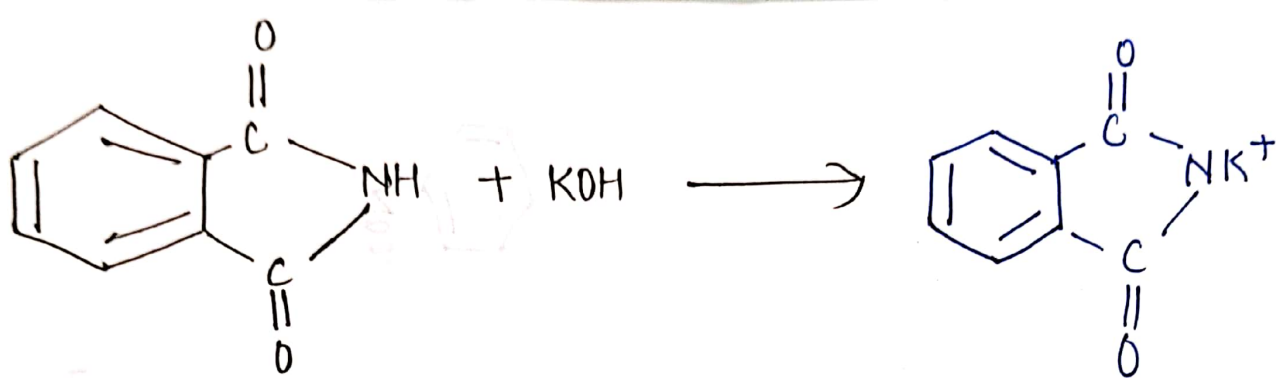
(5) From Amide Group



25 Stars

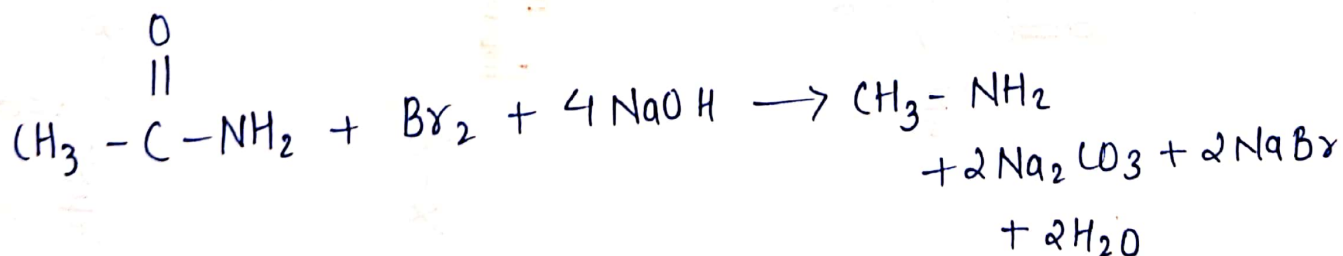
(6) Gabriel :- ph thalamide synthesis

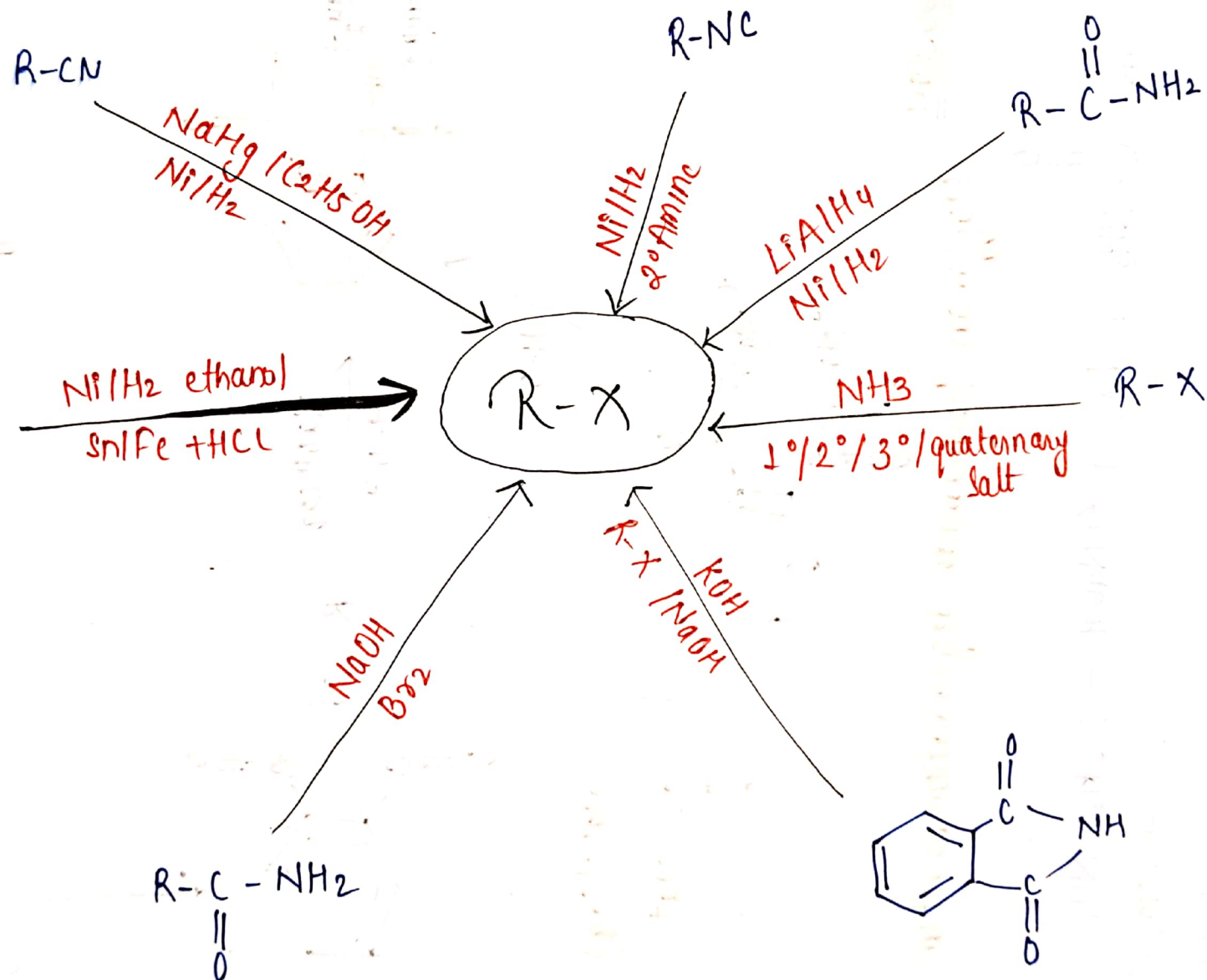
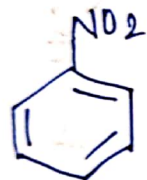




50 Stars

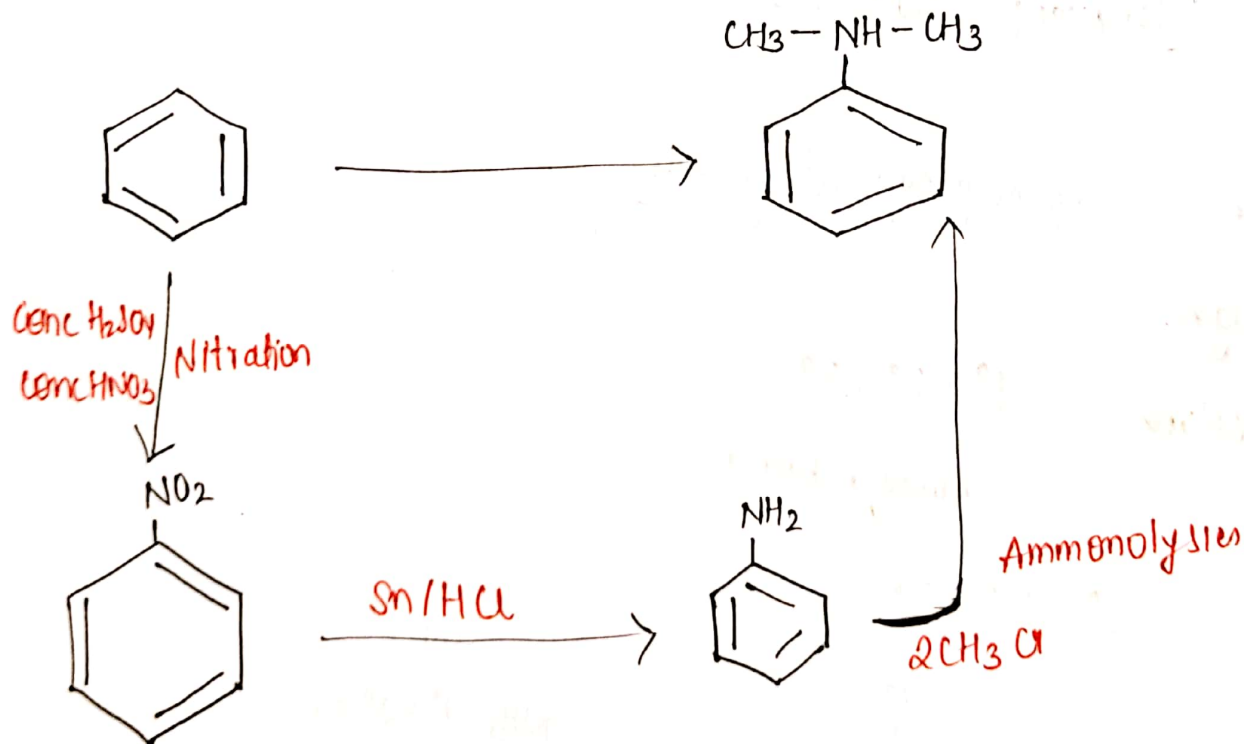
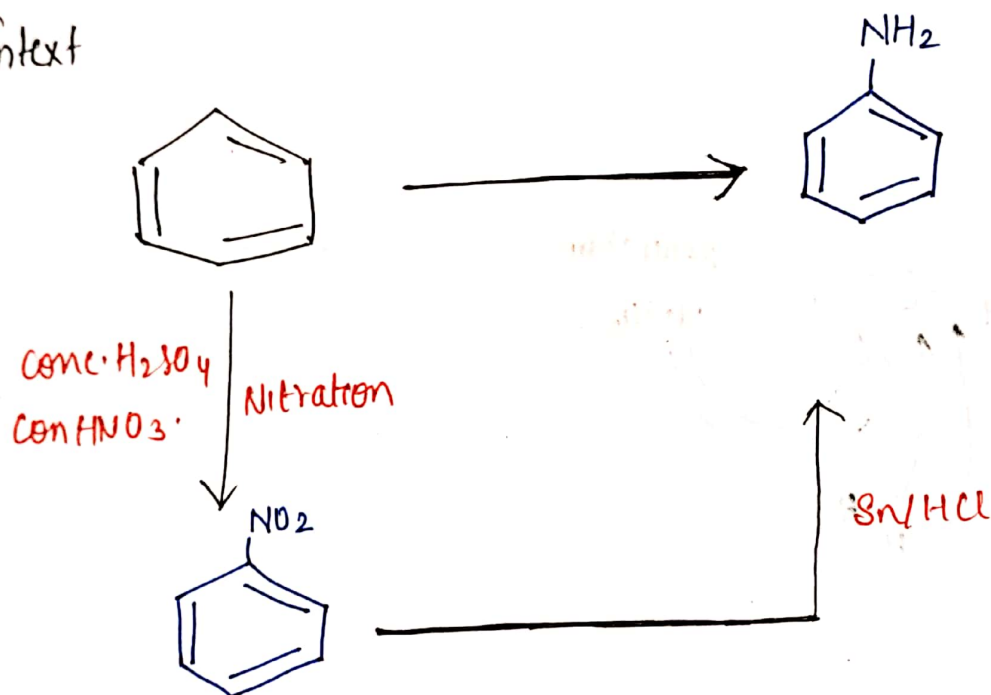
Hoffman Bromamide degradation Reaction

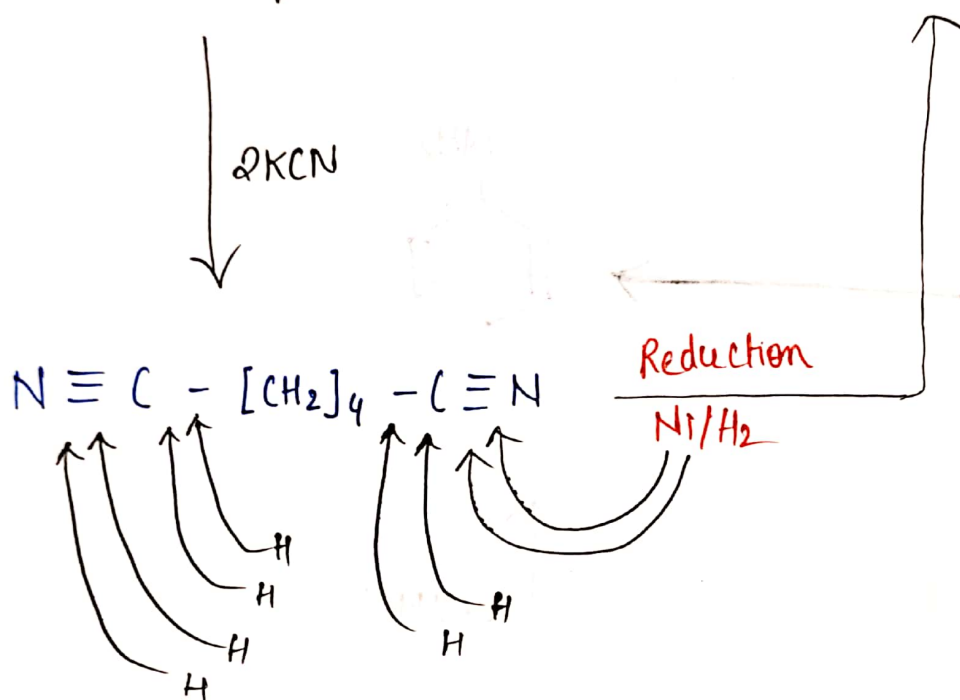




9.3

Intext





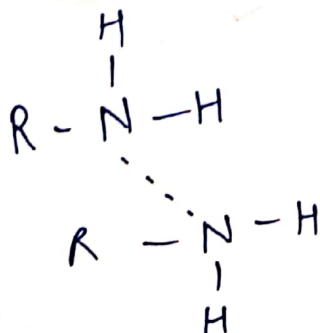
## PHYSICAL PROPERTIES

N ← pungent group [fishy odour]

Density- high

Water Soluble -  $1^\circ > 2^\circ > 3^\circ$   
no. of h-bond

BP -  $1^\circ > 2^\circ > 3^\circ$

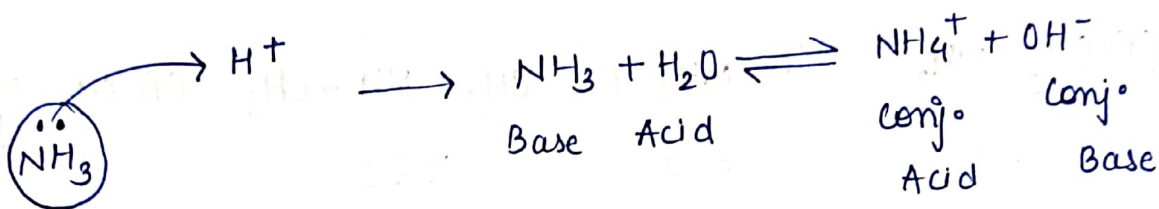


$\delta\text{N}-2$   
 $\text{NH}_3 > 1^\circ > 2^\circ > 3^\circ$

# Chemical Properties of Amines

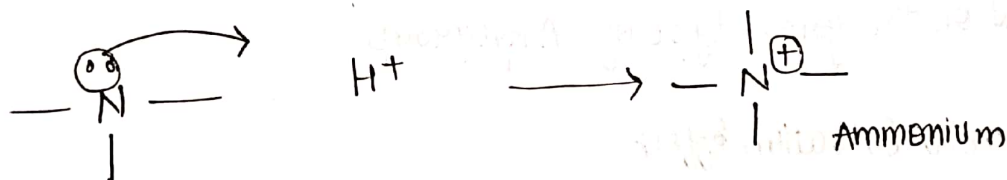
(50 stars)

## (1) Basic Effect



Lone pair donation = Basic effect

$$\text{Basic Effect} \propto \frac{+I}{-I} \propto \frac{+M}{-M} \propto \frac{1}{\text{Steric Hindrance}}$$



Nucleophile \* (e<sup>-</sup> dense)

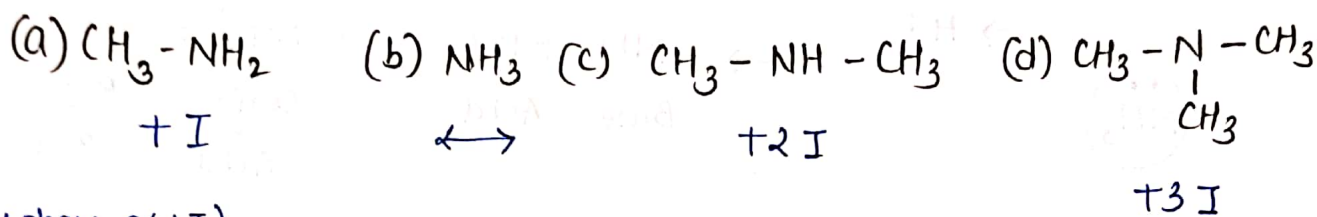
Basic Effect depends upon

- I or M effect
- Hydrate Solvation
- Steric hindrance

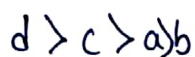
No steric hindrance on CH<sub>3</sub>  
and steric hindrance will be  
on CH<sub>3</sub>CH<sub>2</sub>-

- $3^\circ > 2^\circ > 1^\circ$  [due to I effect]
- $1^\circ > 2^\circ > 3^\circ$  [due to availability of more H]
- $3^\circ > 2^\circ > 1^\circ$  [more group more hindrance]

Ques. Arrange the order effect in gaseous phase



(gas phase  $\propto +I$ )

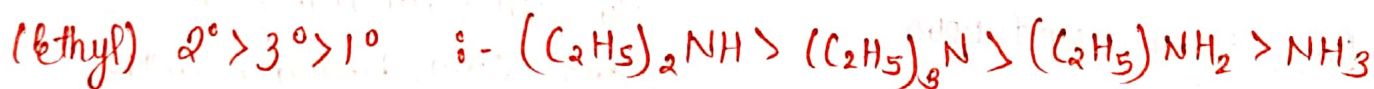
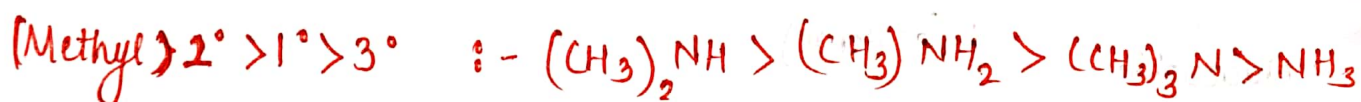


In aqueous phase

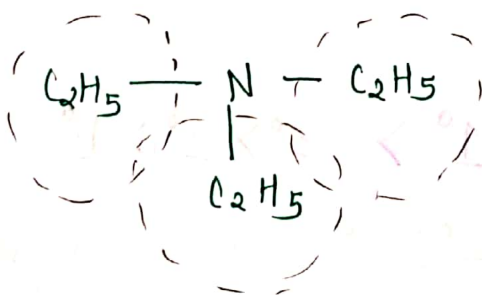
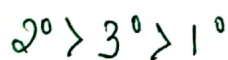
(1) Hydration and steric hindrance are winner

But also depend on the ~~group~~ type of Alkyl group

Remember, Due to Solvation effect



Ethyl  $\rightarrow$  Steric Hindrance



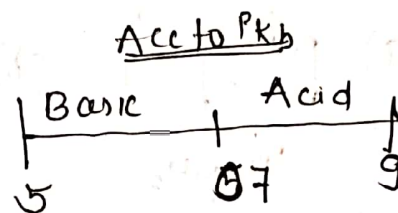
Due to Bulky R-Group

\* For Other Amine



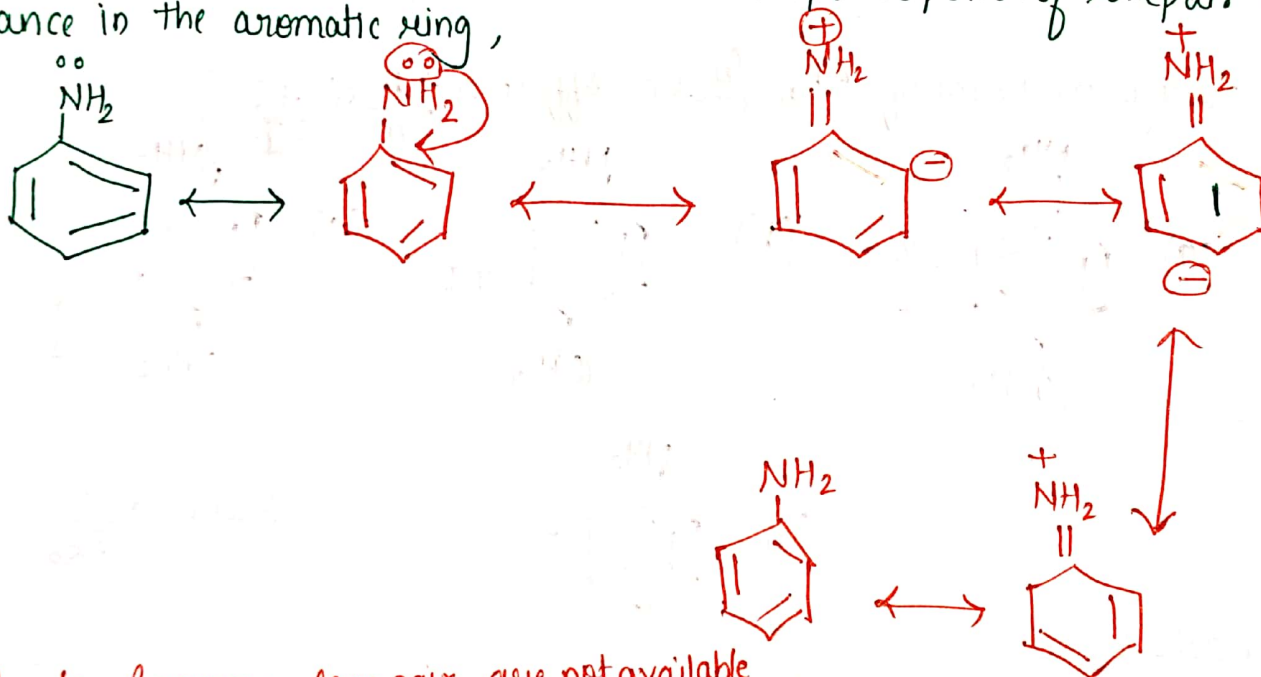
Concept of  $pK_b$  &  $\frac{1}{\text{Basic effect}}$

$$pK_b = -\log K_b$$

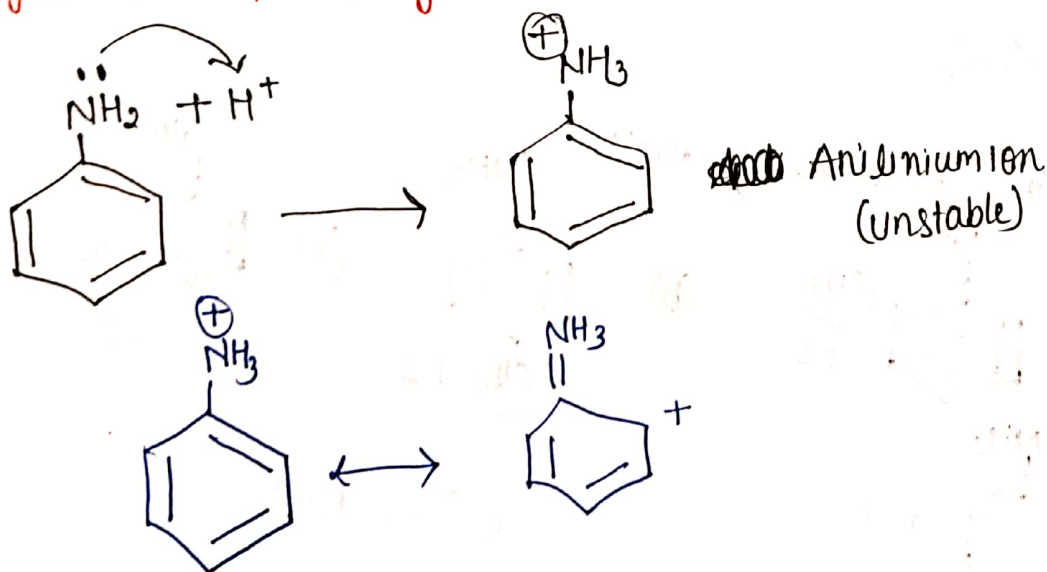


### 25 Stars

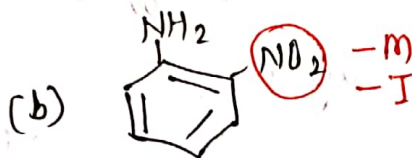
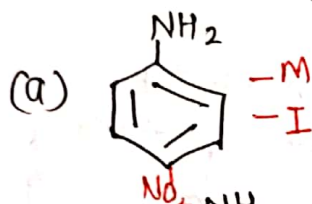
Aniline are not basic in nature due to the participation of lone pair in resonance in the aromatic ring,



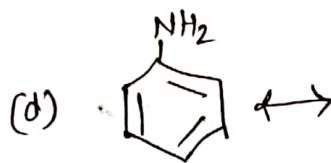
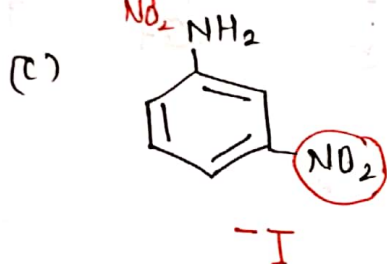
Due to Resonance lone pair are not available for given due to participating lone pair in the ring



Question ① Arrange in the order of Basic effect  $\propto \frac{+m}{-m} \propto \frac{+I}{-I}$

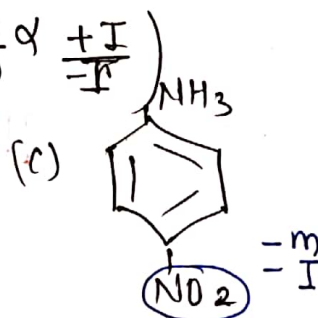
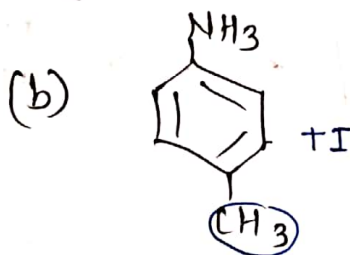
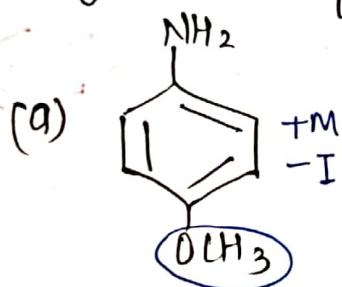


$m \gg \gg \gg I$



$d > c > a > b$

② Arrange in order of  $P_{K_b}$  (Basic effect  $\propto \frac{+m}{-m} \propto \frac{+I}{-I}$ )



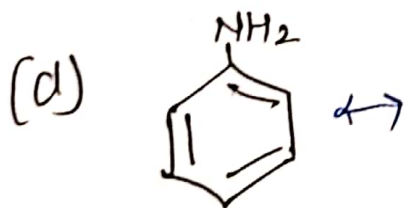
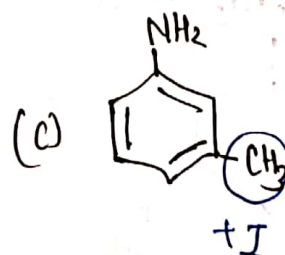
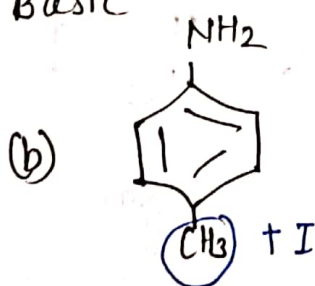
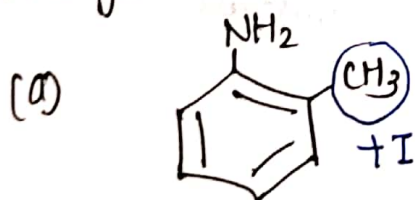
Basic  $\propto \frac{1}{P_{K_b}}$

Basic effect

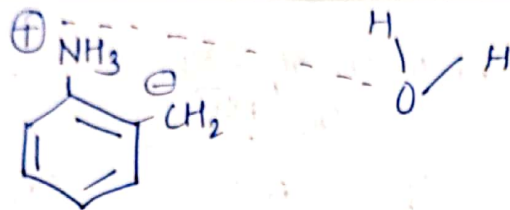
$a > b > d > c$

$P_{K_b} \quad a < b < d < c$

③\* Arrange in the order of Basic

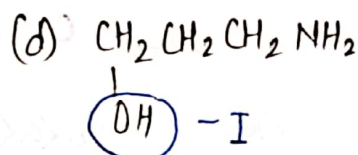
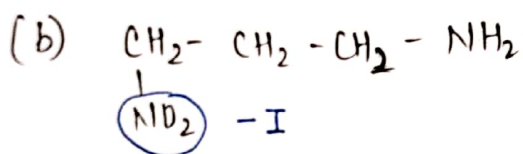
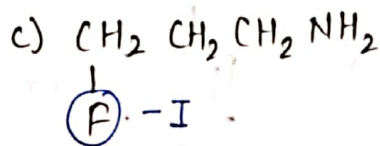
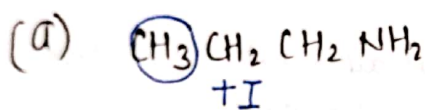


$c > b > d > a$



Ques. Arrange in the order of  $P_{K_b}$

Series  $NO_2 > F > OH$

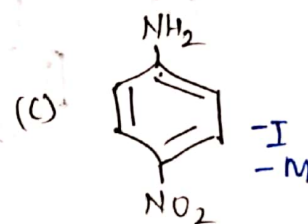
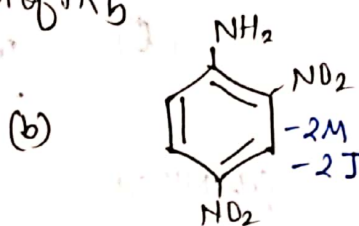
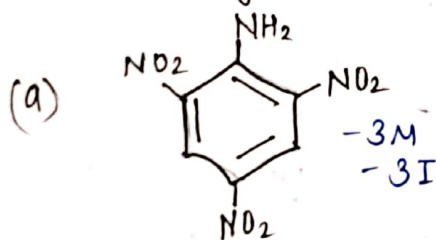


Basic  $a > d > c > b$

$P_{K_b}$   $a < d < c < b$

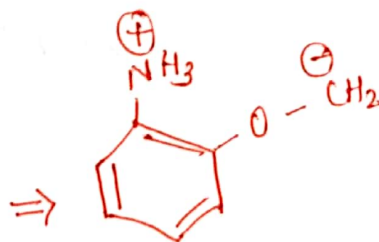
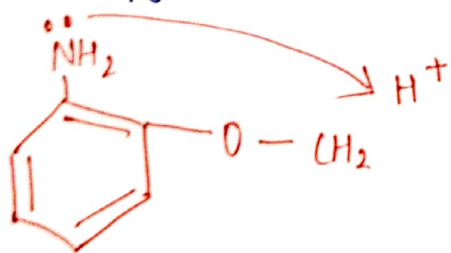
Ques.

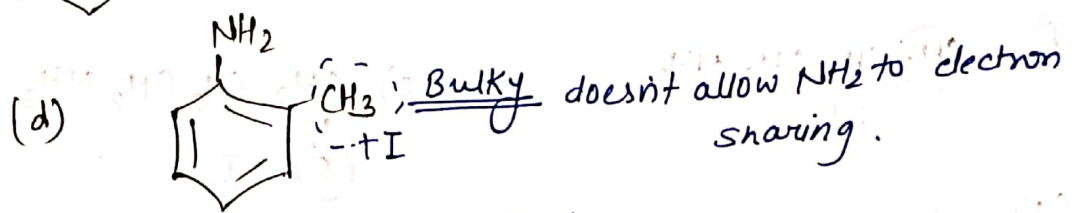
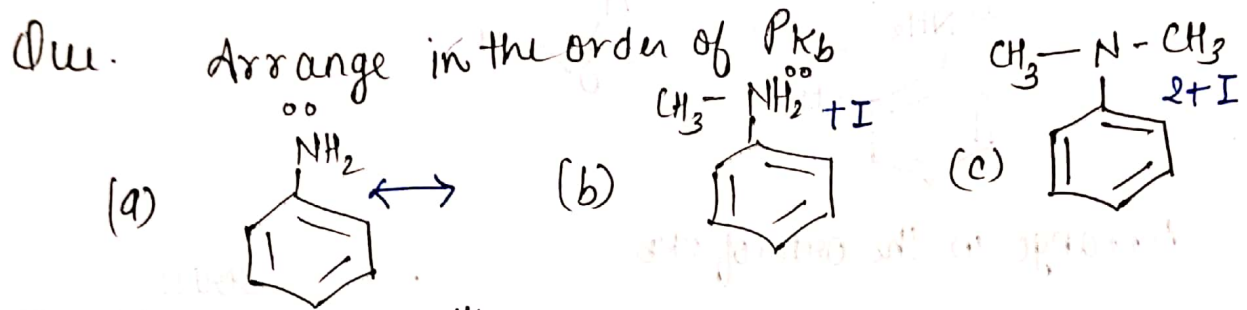
Arrange in order of  $P_{K_b}$



Basic -  $d > c > b > a$

$P_{K_b}$  -  $d < c < b < a$





Basic  $c > b > a > d$

$P_{K_b}$   $c < b < a < d$

Ques. Arrange in the order of Basic Effect

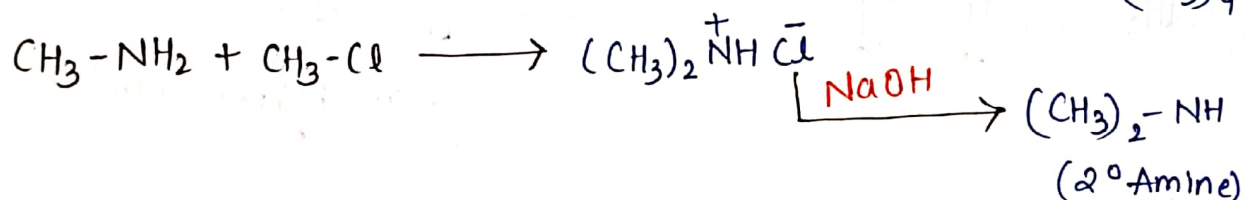
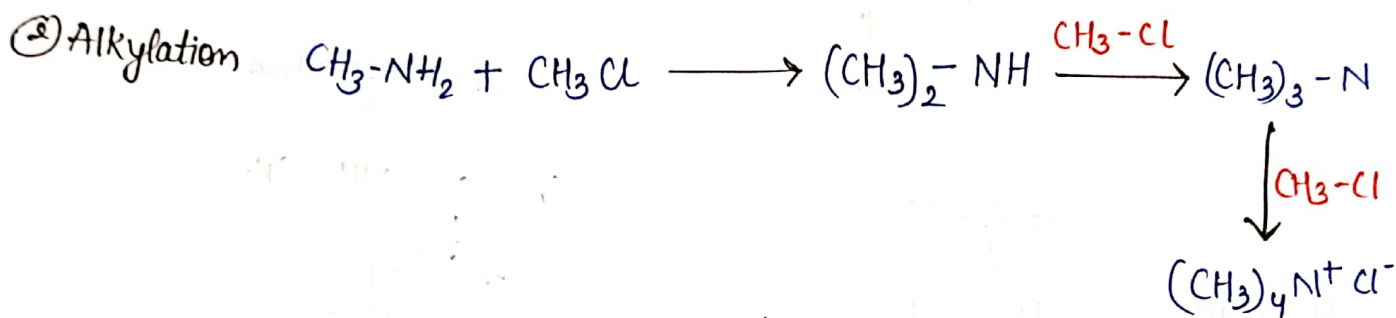


$c > d > a > b$

$3^\circ > 2^\circ > 1^\circ > mH.$

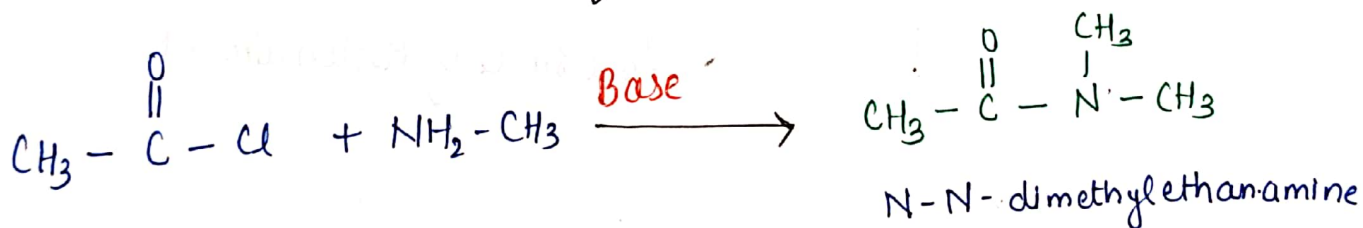
# Chemical Properties of Amines

① Basic Effect

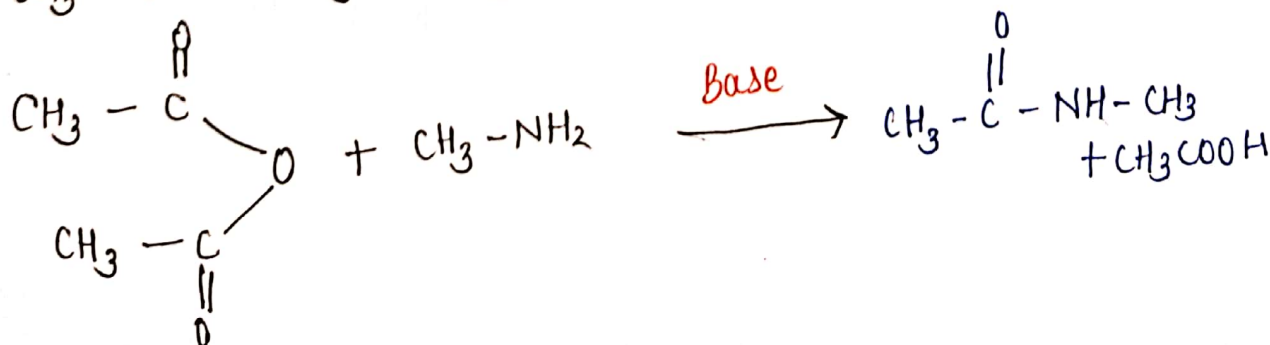
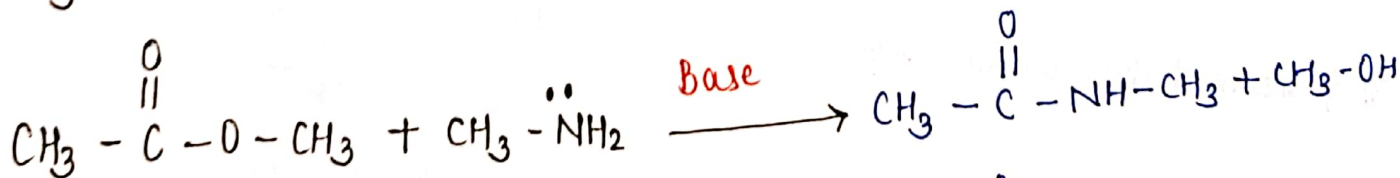


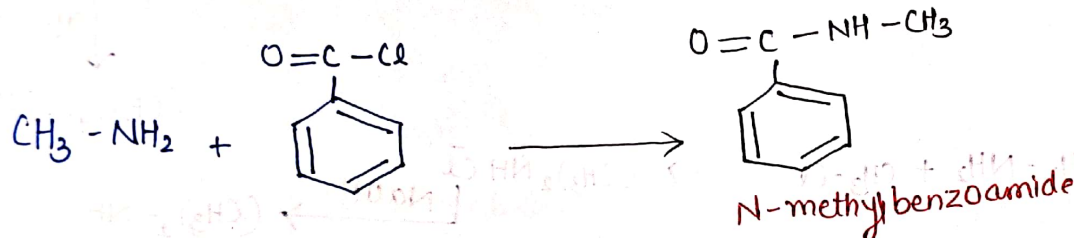
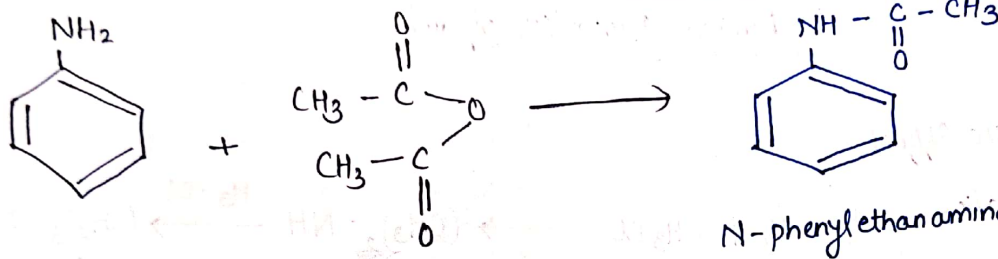
\* Acylation

Amine  $\xrightarrow{\text{Base}}$  Removal of H



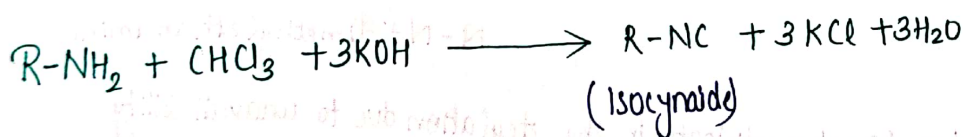
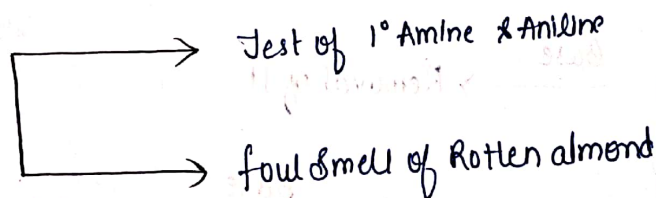
# 3° Reaction Amine do not participate in the Acylation due to unavailability of the Hydrogen



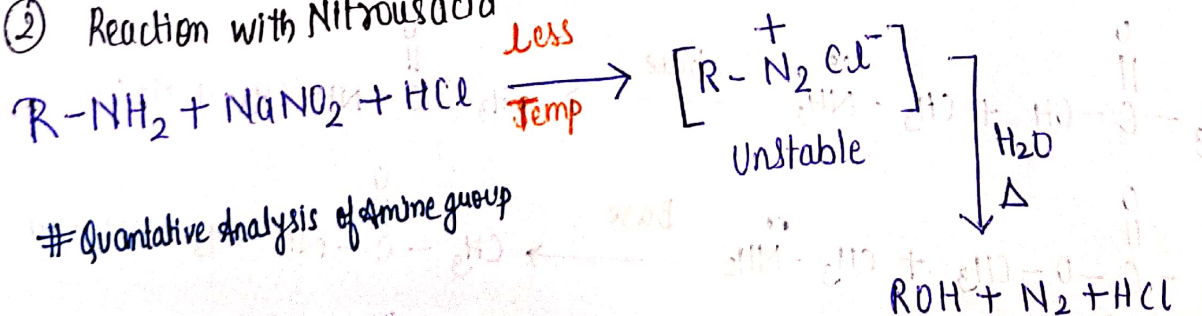


### \* Test of Amine

#### ① Carbyl Amine Test



#### ② Reaction with Nitrous acid



# Quantative Analysis of Amine group

③

1° Amine

2° Amine

3° Amine

No Reaction  
Unavailability  
of Hydrogen

### ③ Hinsberg Test

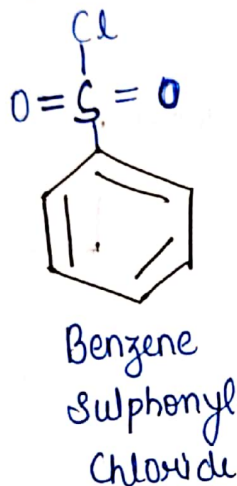
BSC - Benzene Sulphonyl Chloride

1° Amine

2° Amine

3° Amine

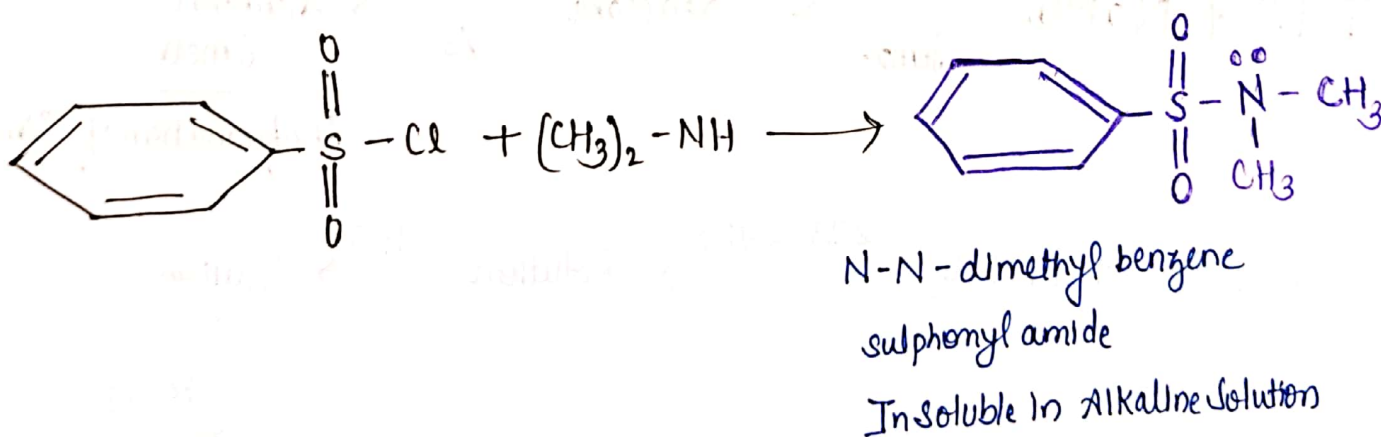
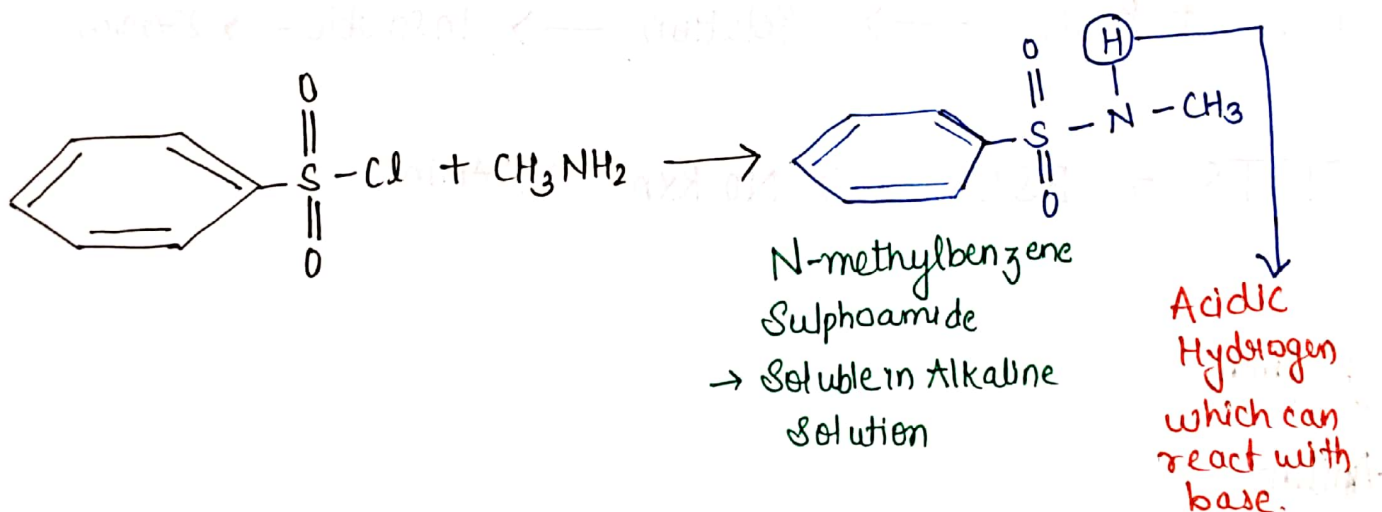
No Reaction  
Unavailability  
of Hydrogen



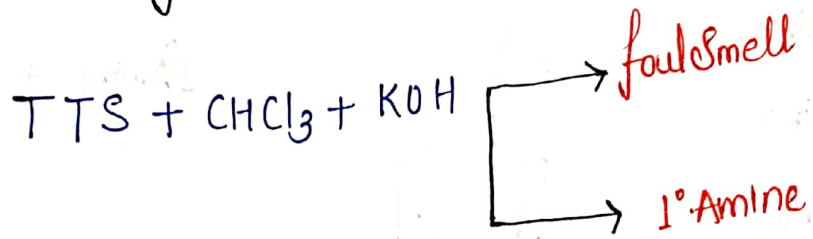
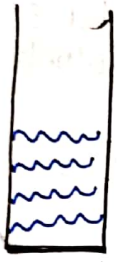
1° Amine + BSC  $\rightarrow$  ~~Alkaline~~ Alkaline  
Base Soluble

2° Amine + BSC  $\rightarrow$  Alkaline  
Base  
Insoluble

3° Amine + BSC  $\rightarrow$  No Reaction



# Summary

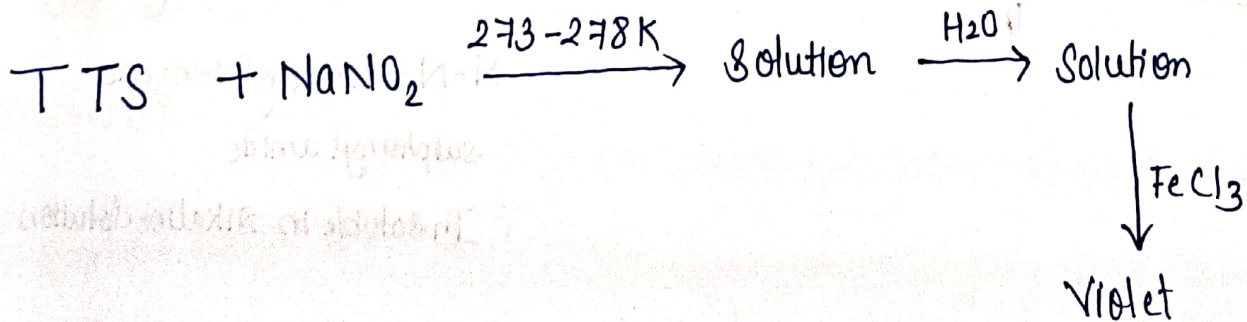
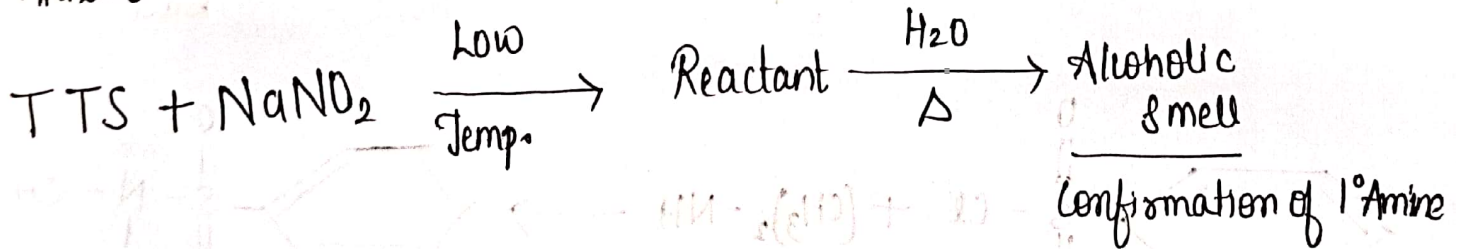


Test tube Solution :- TTS

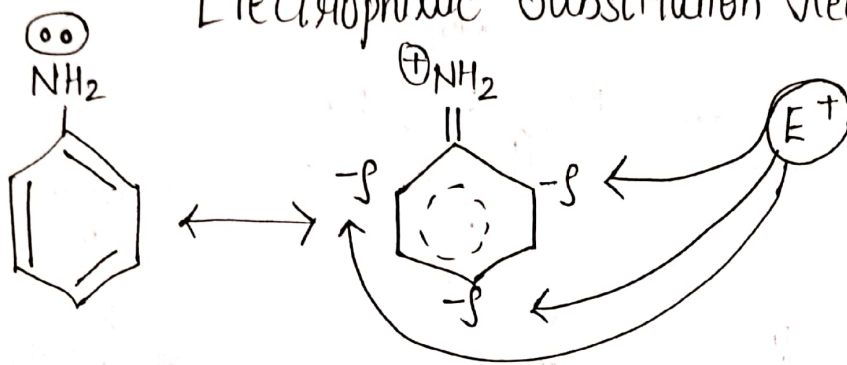


1° Amine

Aniline



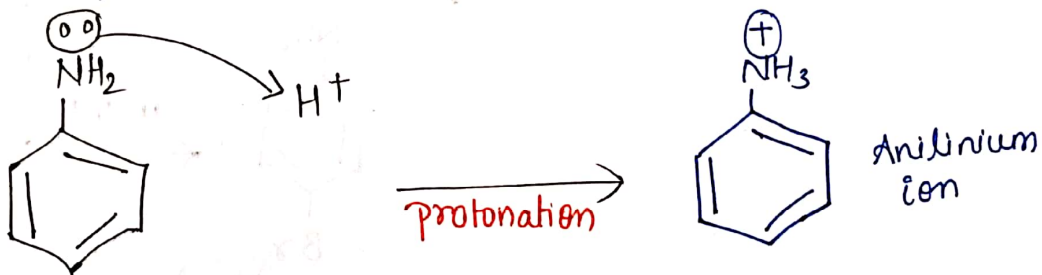
# Electrophillic Substitution Reaction



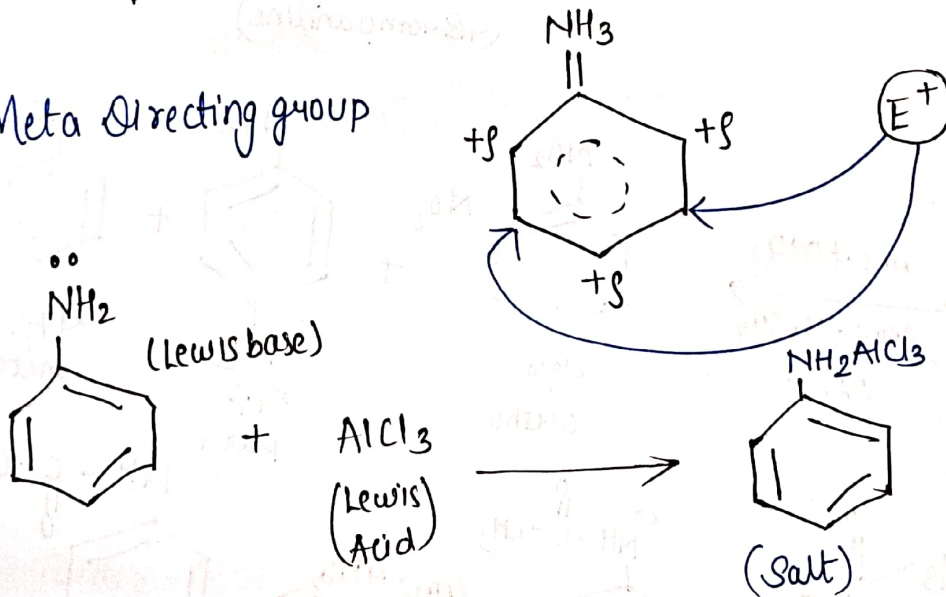
~~Delocal~~ Delocalisation of lp

It is highly reactive and similar to phenol

Ortho/para directing group

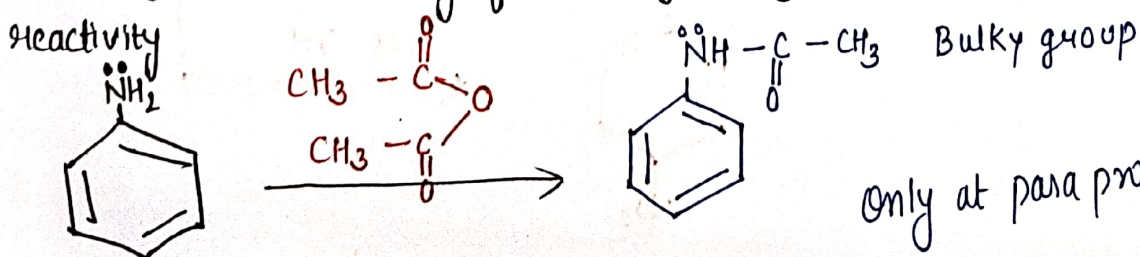


Meta Directing group



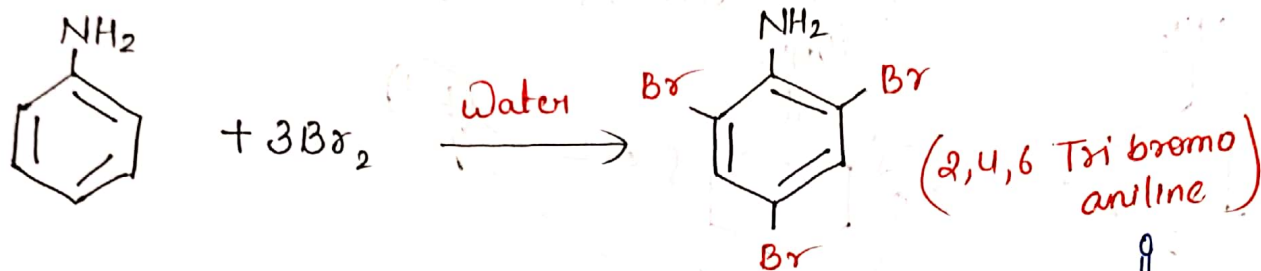
That's why Aniline do not undergoes with Friedel Craft Alkylation and Acylation Reaction.

We can slow the reactivity of Aniline by mixing of Acid we can slow there reactivity

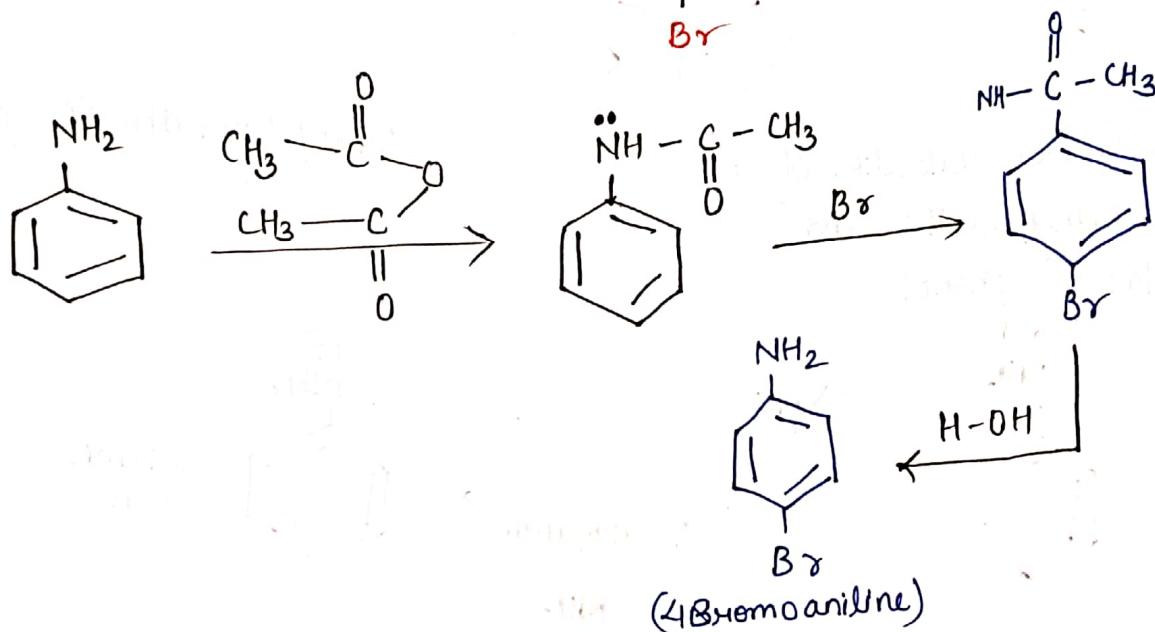


only at para product form

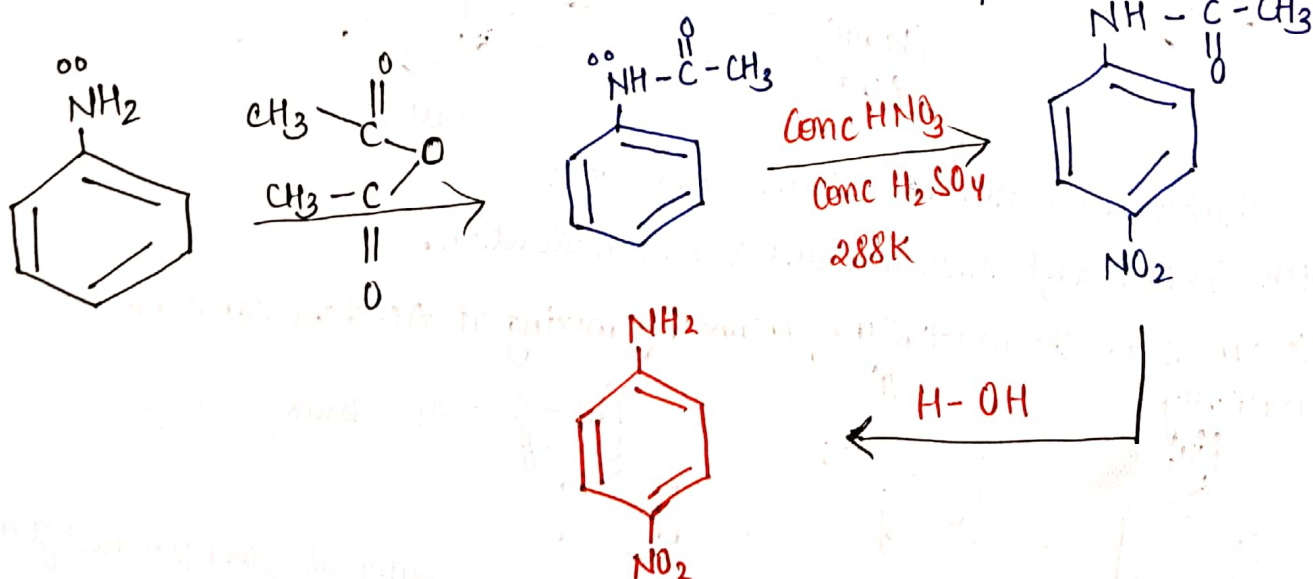
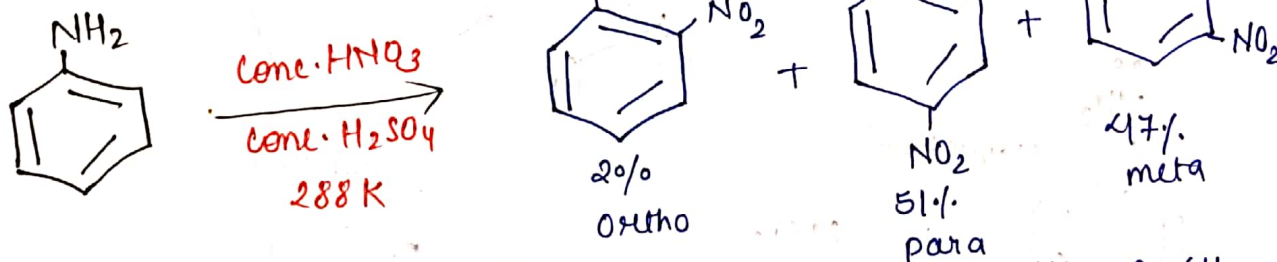
# ① Halogenation



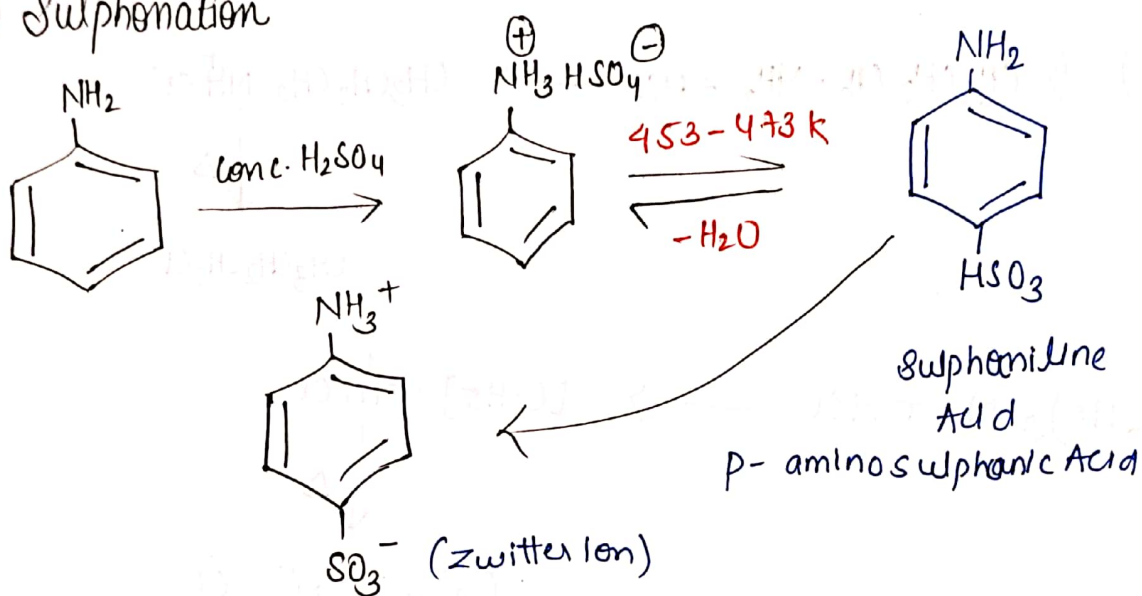
②



# ③ Nitration



### ③ Sulphonation



### Intext

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9.4) Basic Order

$\text{C}_2\text{H}_5-\text{NH}_2$  ( $1^\circ$  Amine),  $\text{C}_6\text{H}_5-\text{NH}_2$  (Aniline),  $\text{C}_6\text{H}_5-\text{CH}_2-\text{NH}_2$  (Benzylamine)

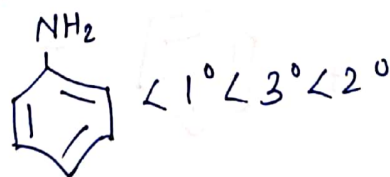
$(\text{C}_2\text{H}_5)_2-\text{NH}$  ( $2^\circ$  Amine)

Basic Order :- Aniline  $< \text{NH}_3 < \text{Benzylamine} < 1^\circ \text{Amine} < 2^\circ \text{Amine}$

(ii)  $\text{C}_2\text{H}_5-\text{NH}_2 - 1^\circ$

$(\text{C}_2\text{H}_5)_2-\text{NH}_2 - 2^\circ$

$(\text{C}_2\text{H}_5)_3-\text{NH}_2 - 3^\circ$

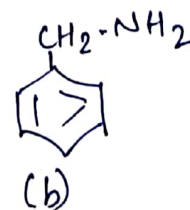


(iii)

$\text{CH}_3-\text{NH}_2 - 1^\circ$

$(\text{CH}_3)_2-\text{NH} - 2^\circ$

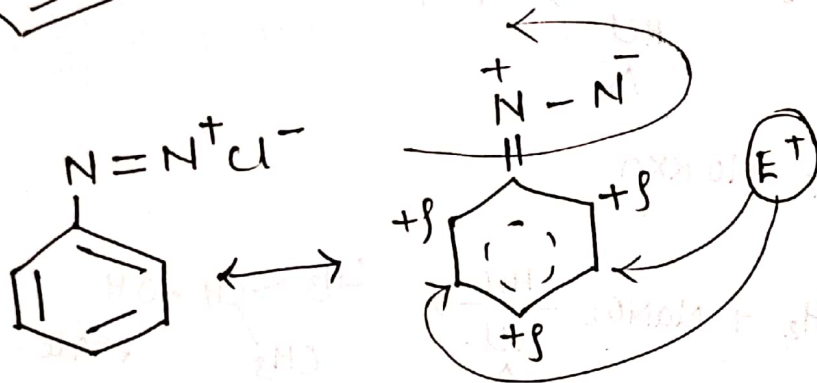
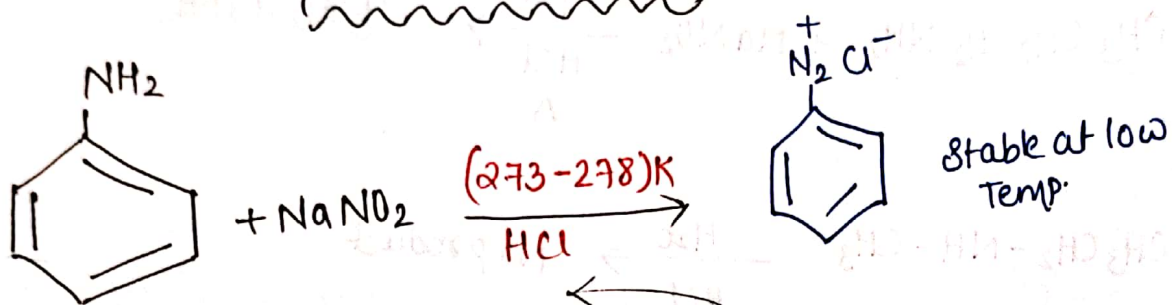
$(\text{CH}_3)_3-\text{N} - 3^\circ$



Order

$a < b < 3^\circ < 1^\circ < 2^\circ$

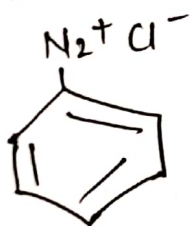
# Diazonium Salts



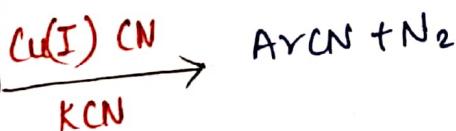
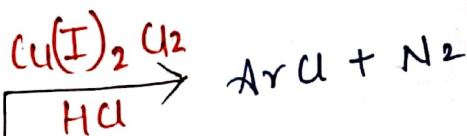
$\text{Cl}^-, \text{BF}_4^-, \text{Br}^-, \text{HSO}_4^-$

## \* Chemical Properties

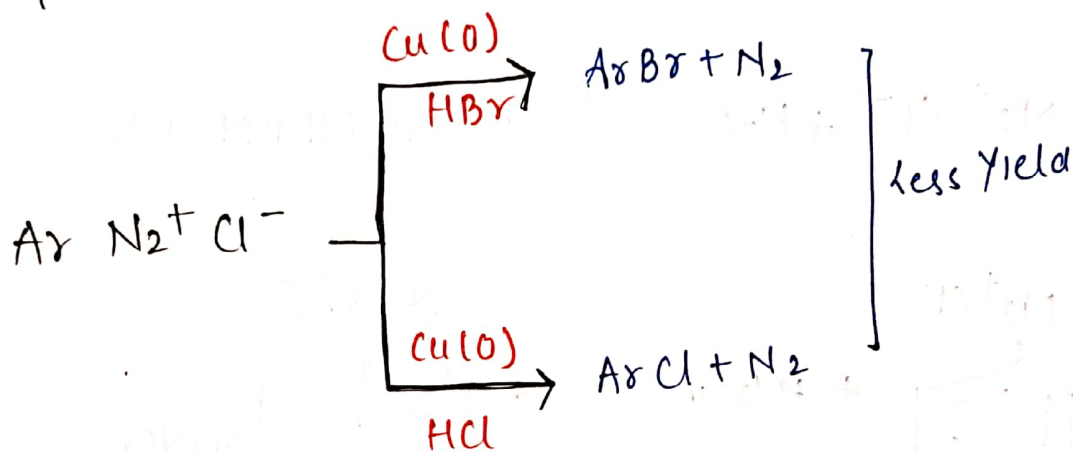
Better Yield



①  $\text{Ar}-\text{N}_2^+\text{Cl}^-$



## ② Gatterman Reaction

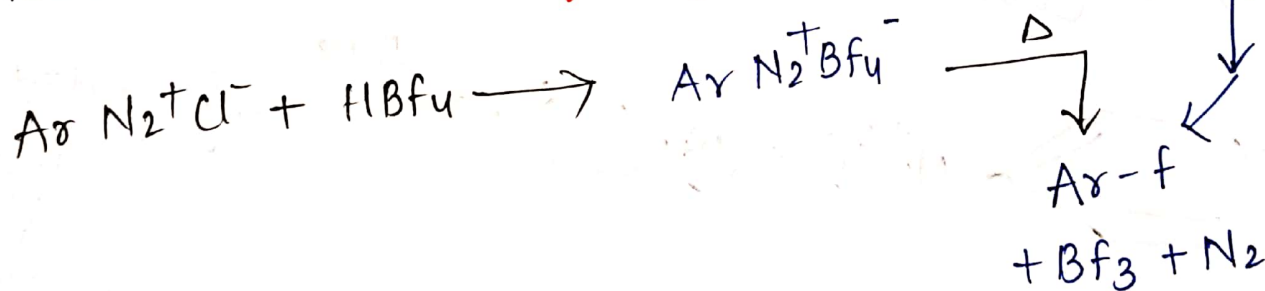


→ Reaction with KI

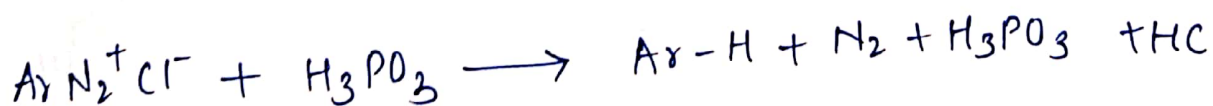
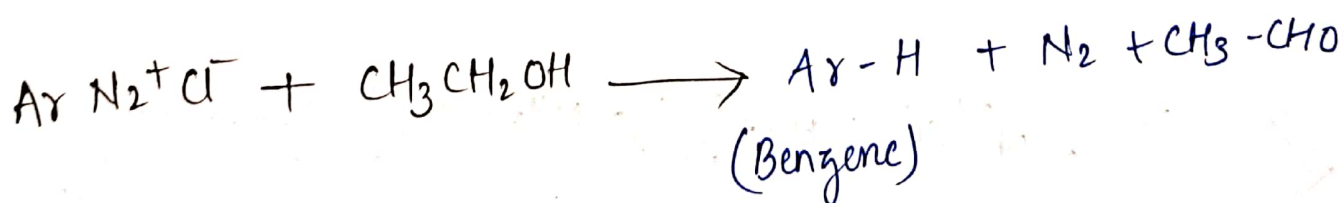


→ Reaction with  $\text{HBF}_4$

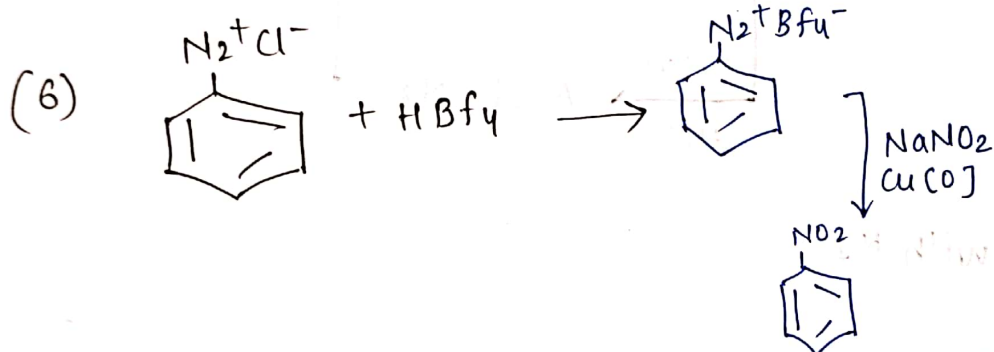
**Balz Schiemann Reaction** Only method to prepare



→ Reaction with Acid (Weak)  
( $\text{H}^+$ )



Reaction with water



## \* COUPLE REACTION

