

23/11/2020

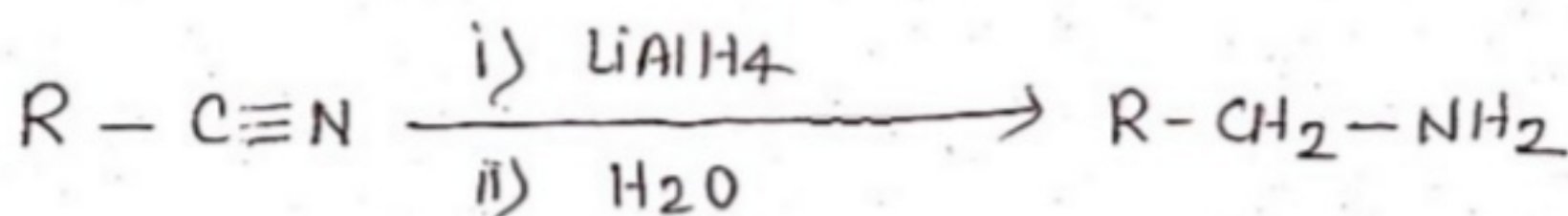
## Topic - Preparation & Properties of

## "AMINES"

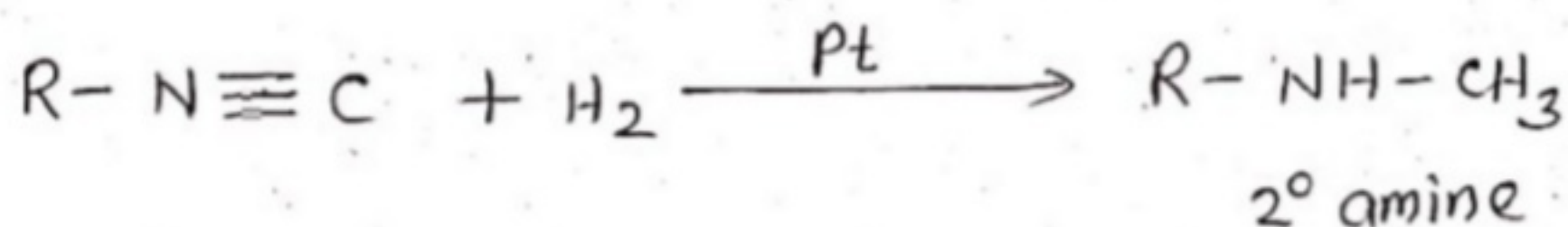
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### PREPARATION

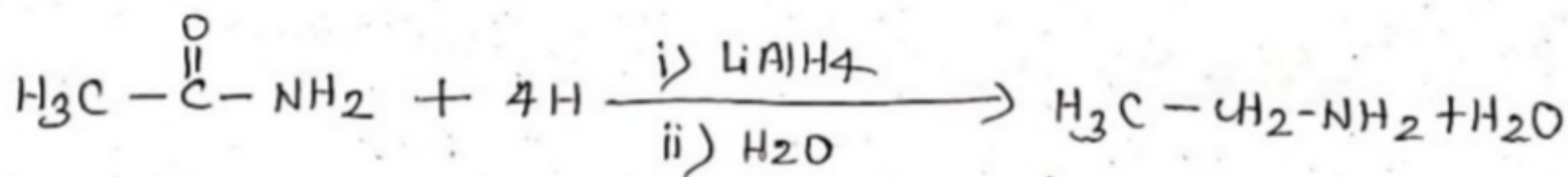
#### 1. By Reduction of Nitriles



#### 2. By Reduction of Isonitriles



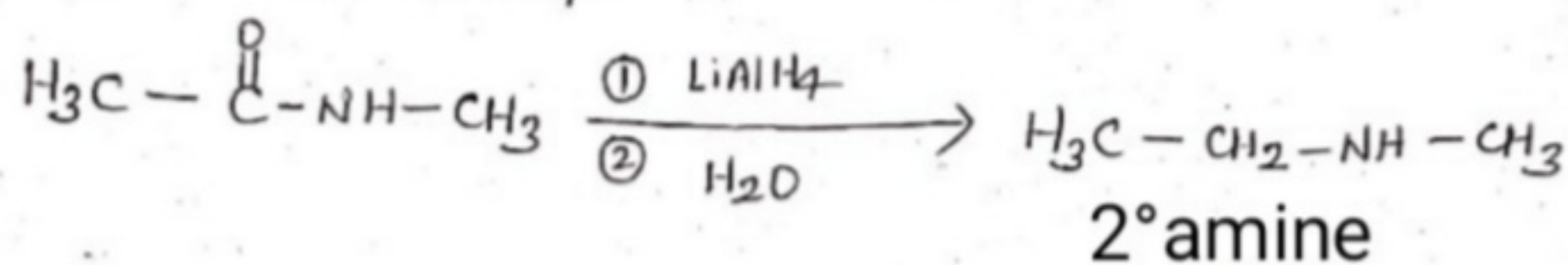
#### 3. By Reduction of Amides



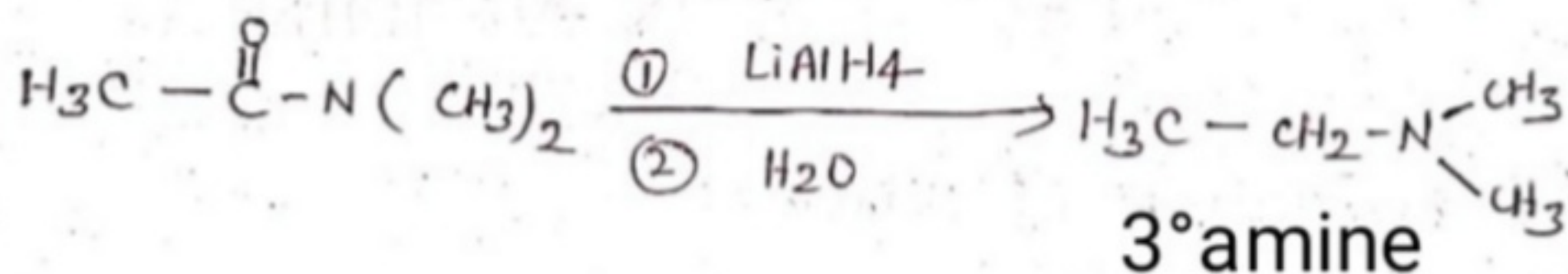
\* 1° amine can be obtained by reduction of simple amides with  $LiAlH_4$ .

\* The product has same no. of carbon as the original amide.

\* 2° amine can be obtained by reduction of N-substituted amides with  $\text{LiAlH}_4$ .

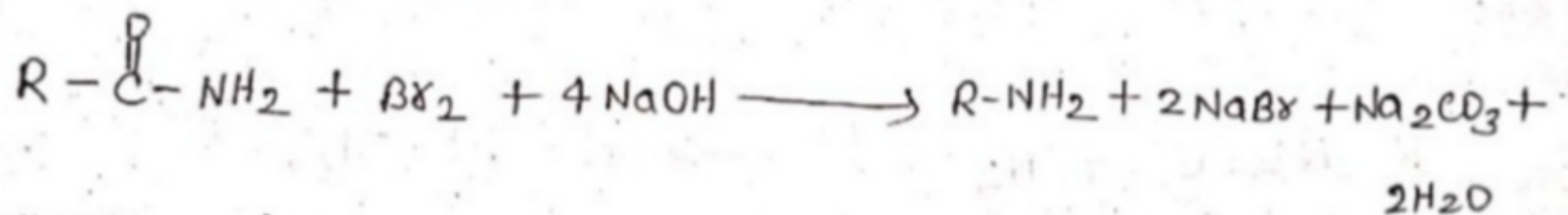


\* 3° amine may be obtained by reduction of N,N-disubstituted amides with  $\text{LiAlH}_4$ .



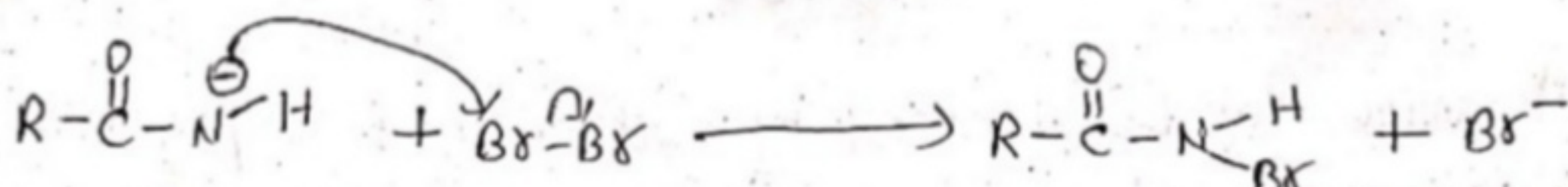
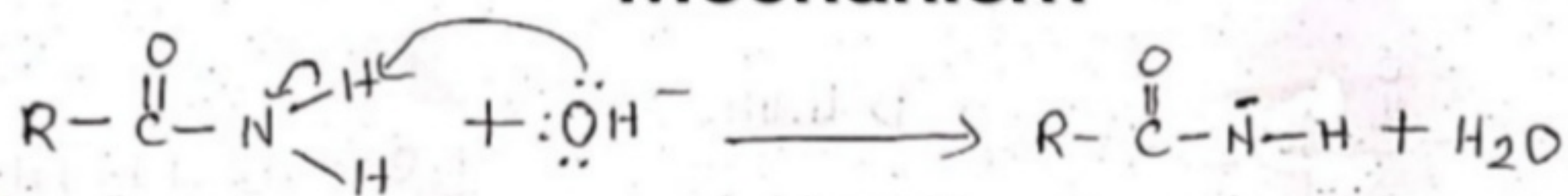
## 4. By Hoffman's Bromamide Reaction

The amide is warmed with bromine and concentrated aqueous  $\text{NaOH}$  solution.

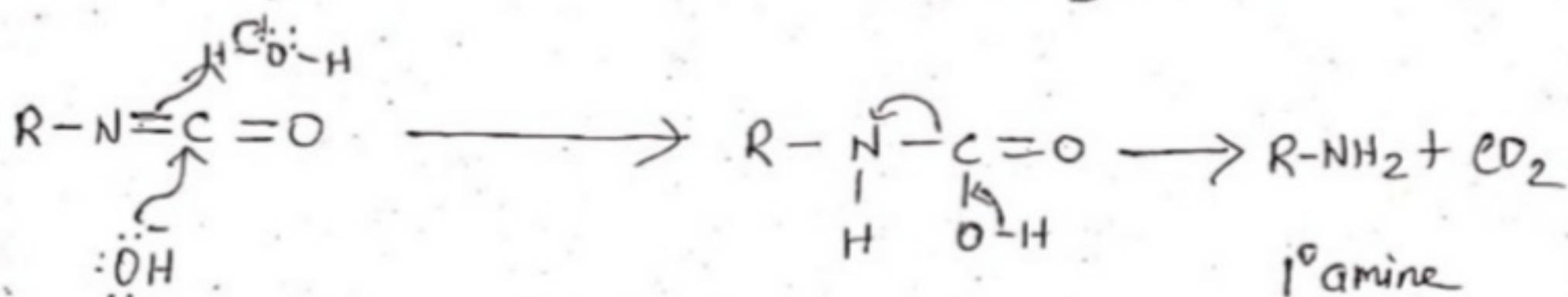
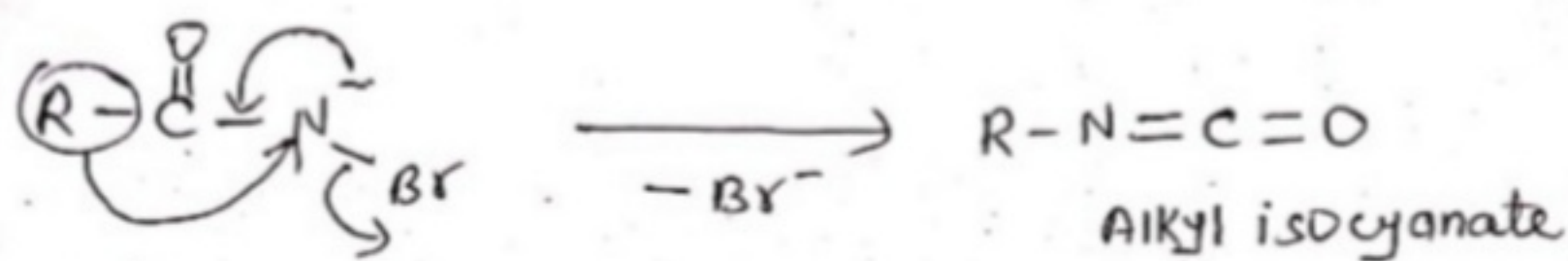
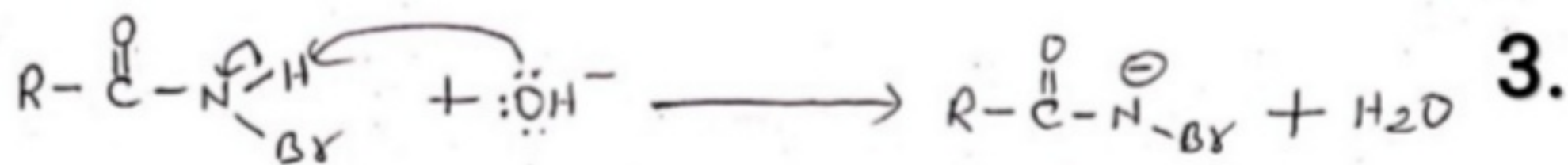


\* This reaction is also called Hofmann's Rearrangement.

### Mechanism



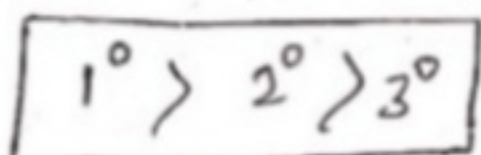
N-Bromamide



## PHYSICAL PROPERTIES

1. Lower amines are gases or low boiling liquids and possess a characteristic ammonia-like smell.

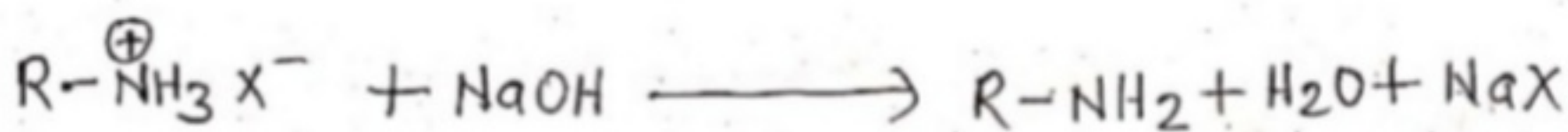
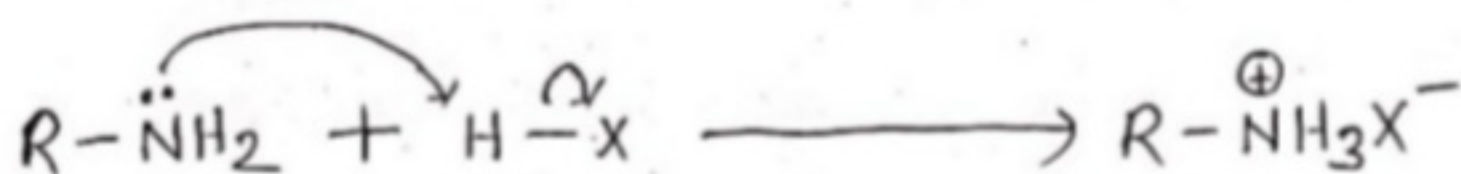
2. Boiling point



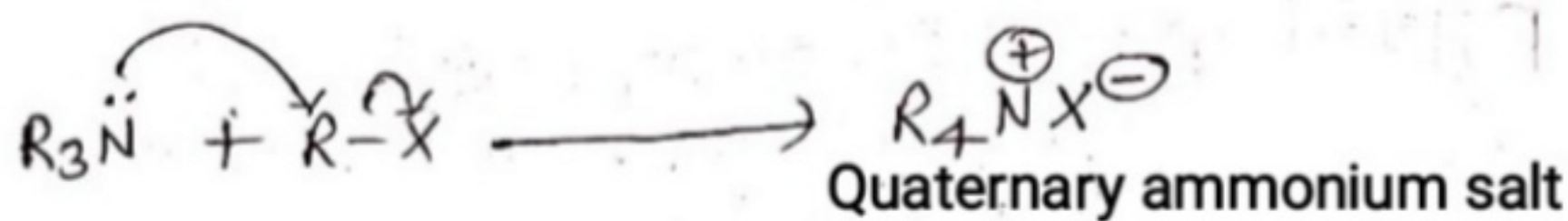
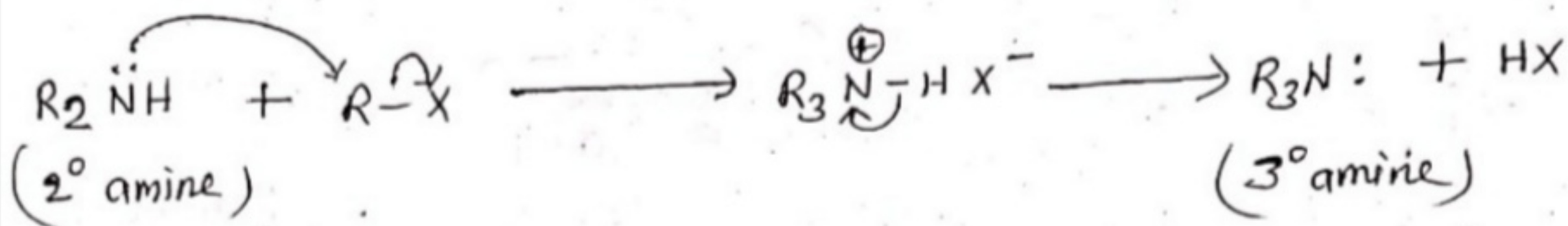
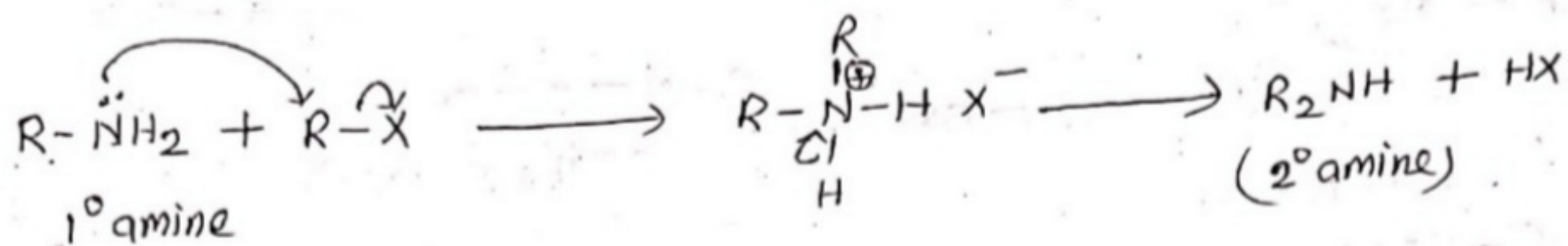
\* Primary amine has high boiling point due to 3-H bond while 3° amine has low boiling point due to no H-bonding.

## CHEMICAL PROPERTIES

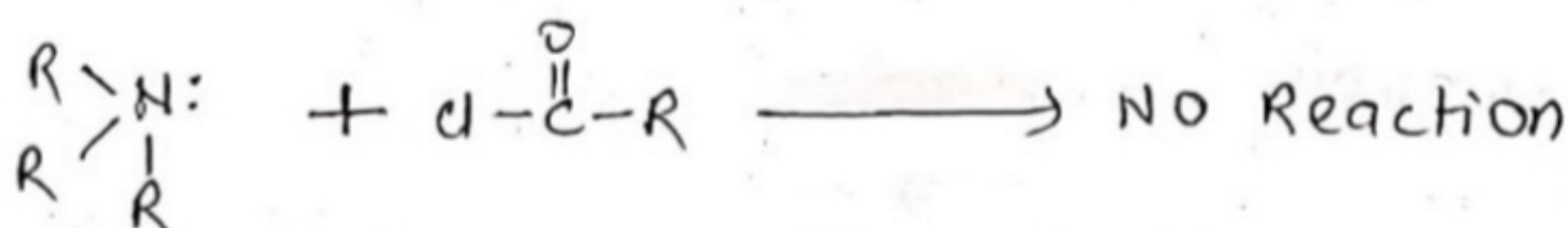
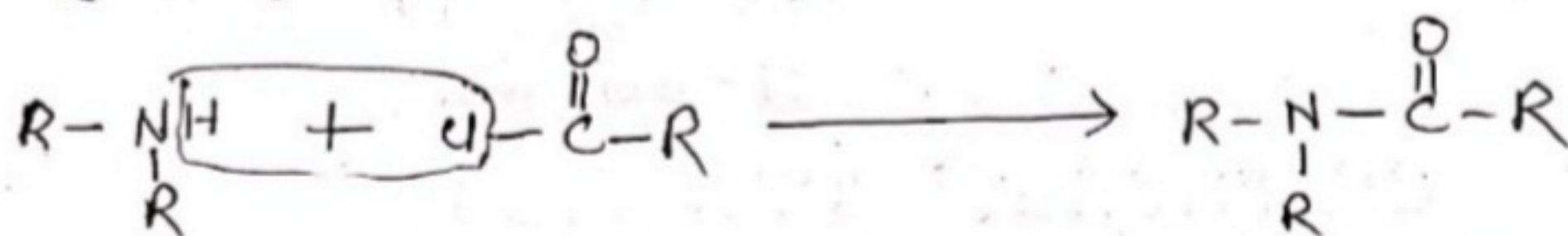
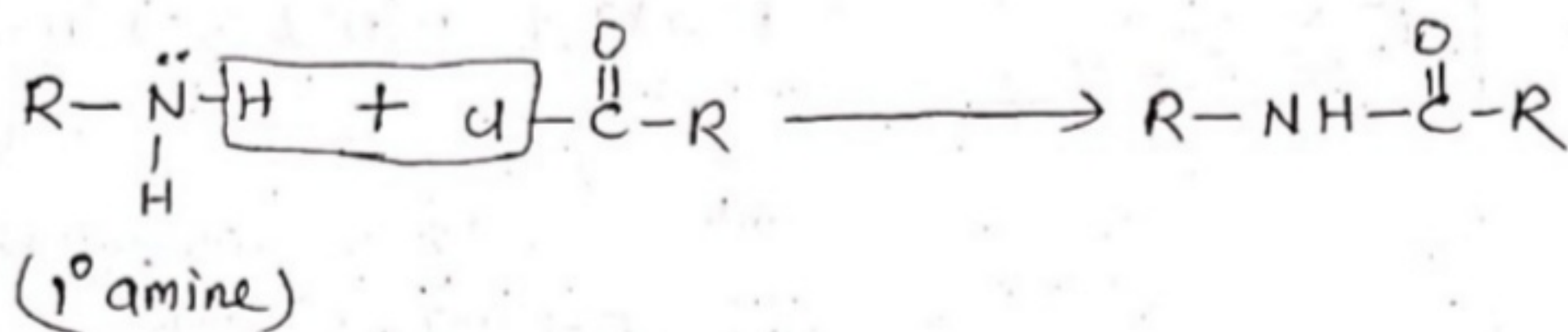
### 1. Salt Formation



## 2. Reaction with alkyl halides (Alkylation Reaction) 4.



## 3. Reaction with Acid chloride & Acid anhydrides (Acylation Reaction)



Completed