

AMINES AND UREA

1.

06-05-2020 (Lecture-3) D-I (H&S)

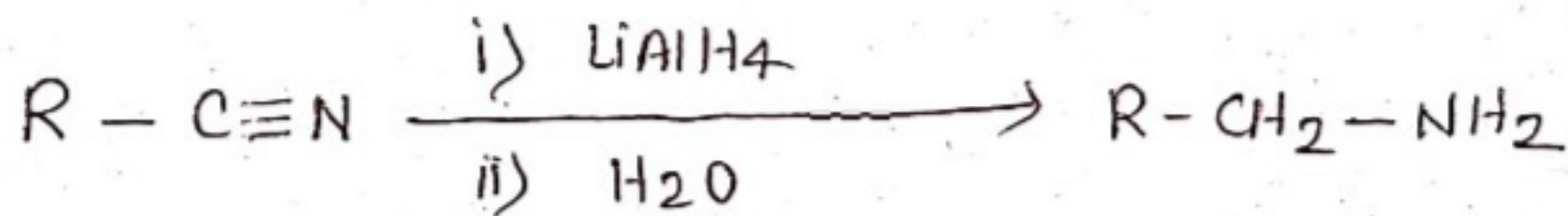
Topic - Preparation & Properties of

" AMINES "

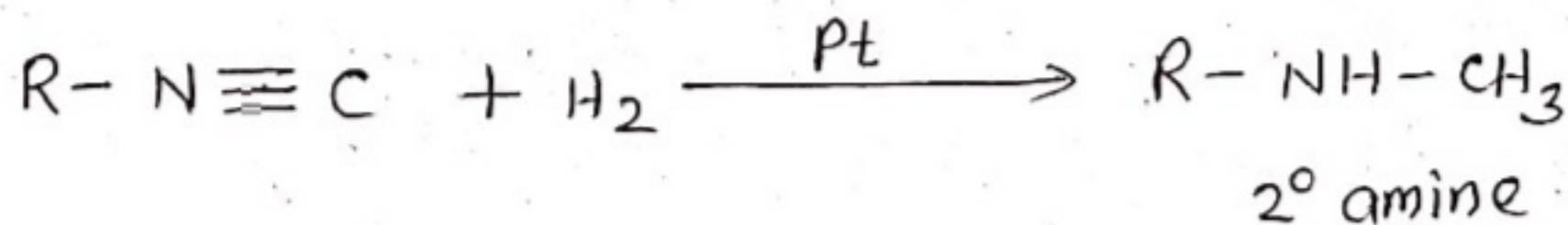
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PREPARATION

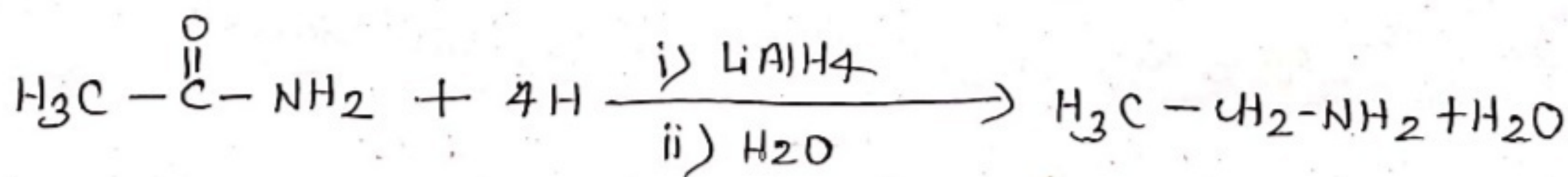
1. By Reduction of Nitriles



2. By Reduction of Isonitriles



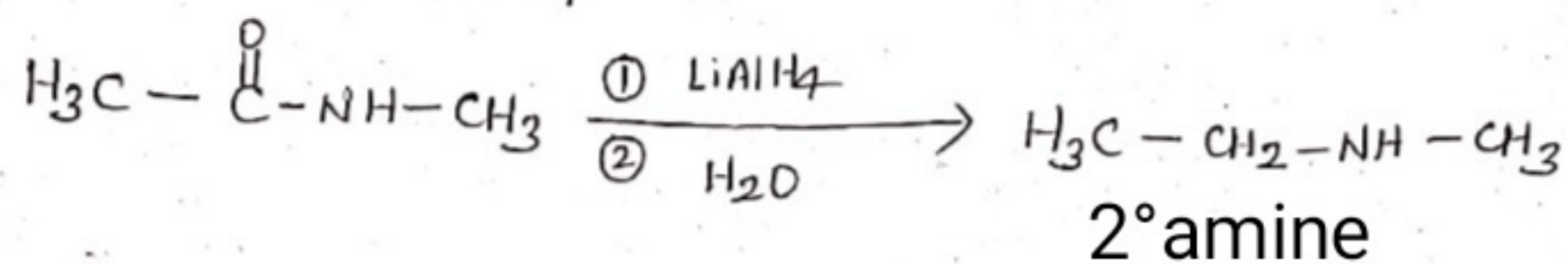
3. By Reduction of Amides



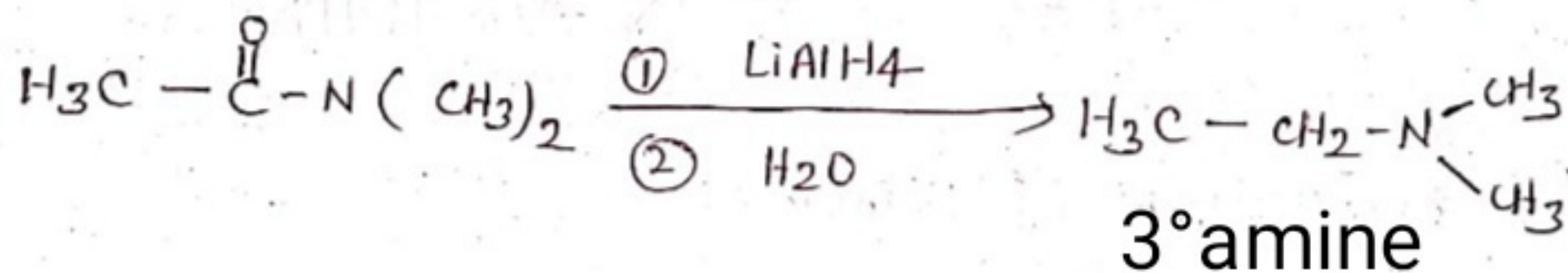
* 1° amine can be obtained by reduction of simple amides with $LiAlH_4$.

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

* 2° amine can be obtained by reduction of N-substituted amides with LiAlH_4 .

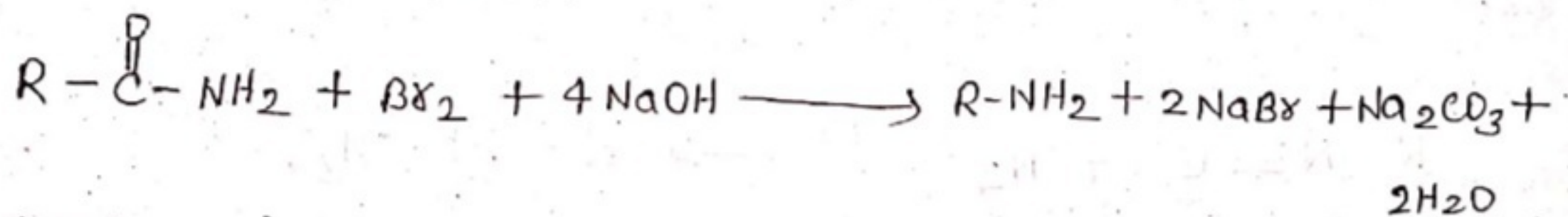


* 3° amine may be obtained by reduction of N,N-disubstituted amides with LiAlH_4 .



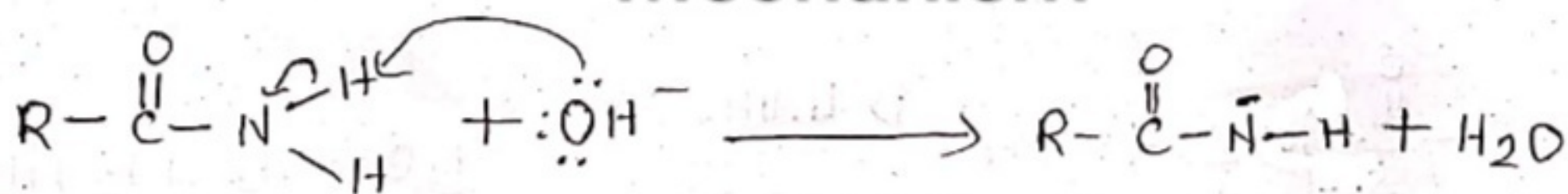
4. By Hoffman's Bromamide Reaction

The amide is warmed with bromine and concentrated aqueous NaOH solution.

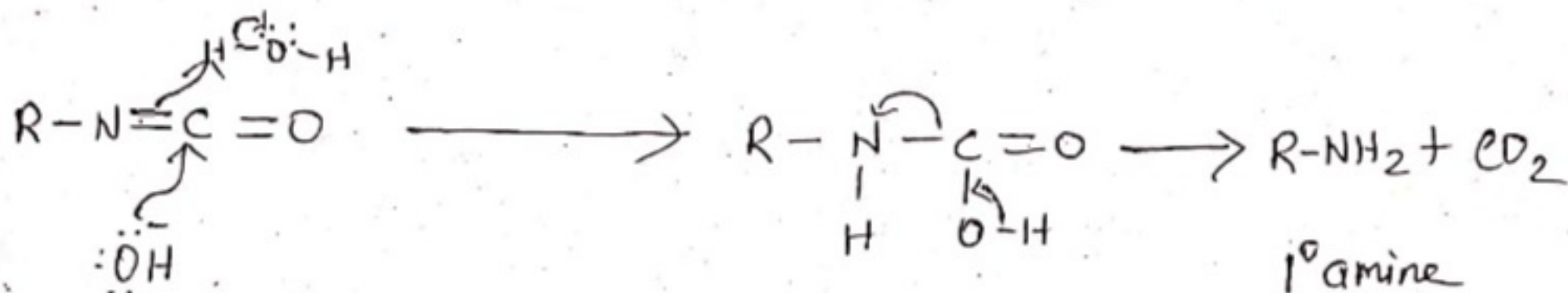
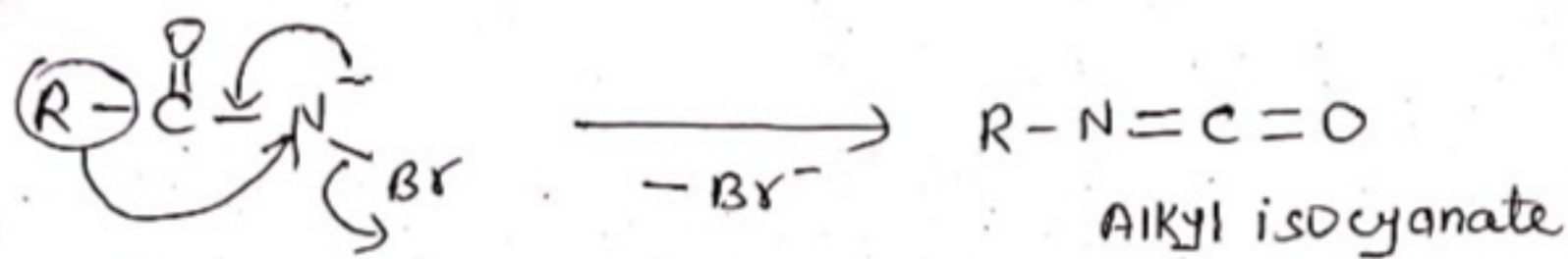
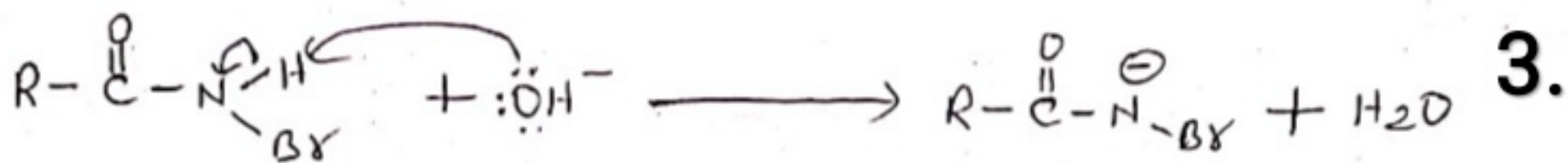


* This reaction is also called Hofmann's Rearrangement.

Mechanism



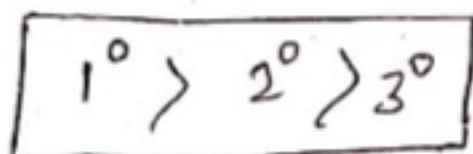
N-Bromamide



PHYSICAL PROPERTIES

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

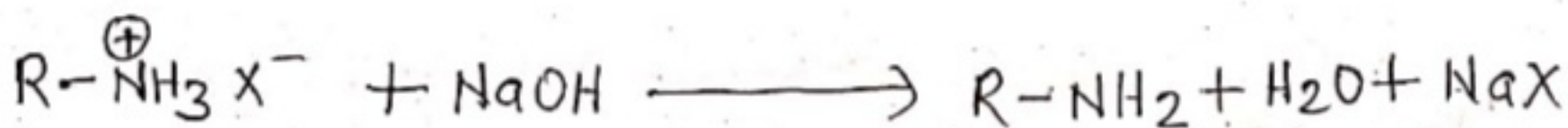
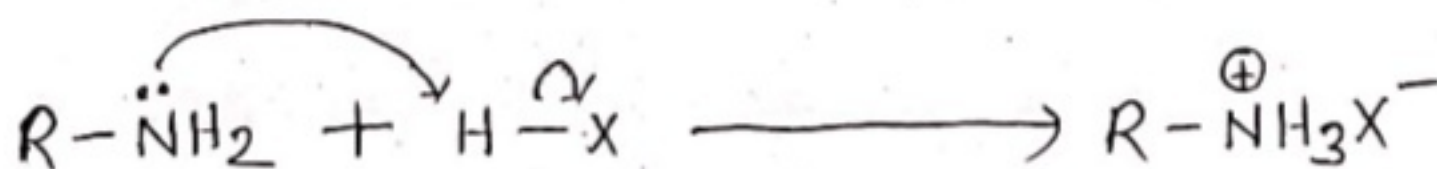
2. Boiling point



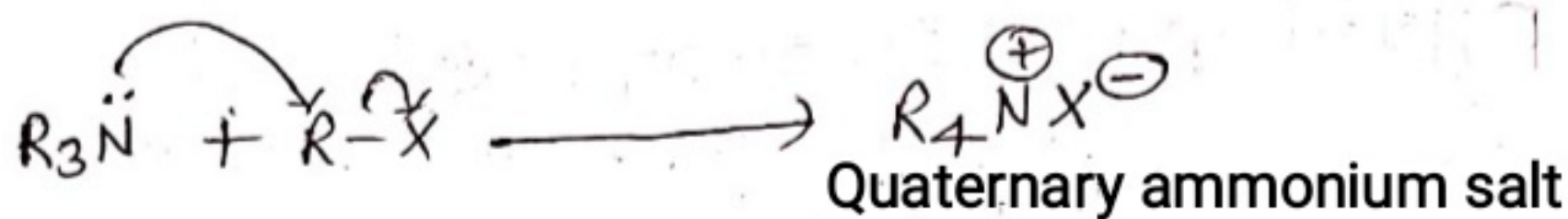
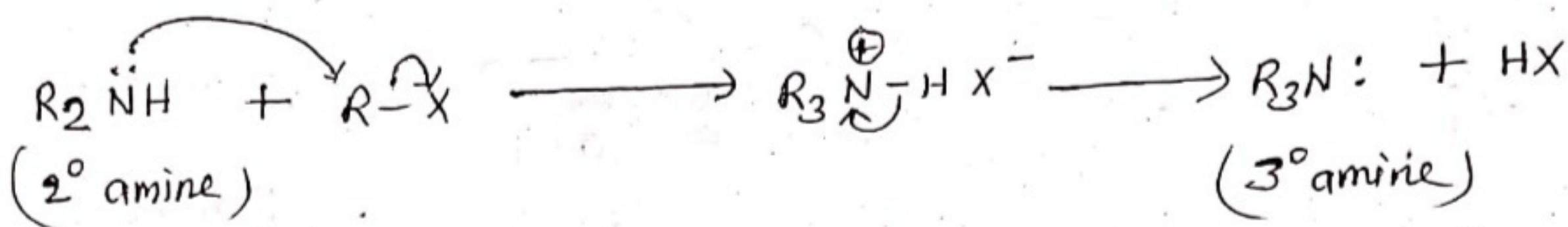
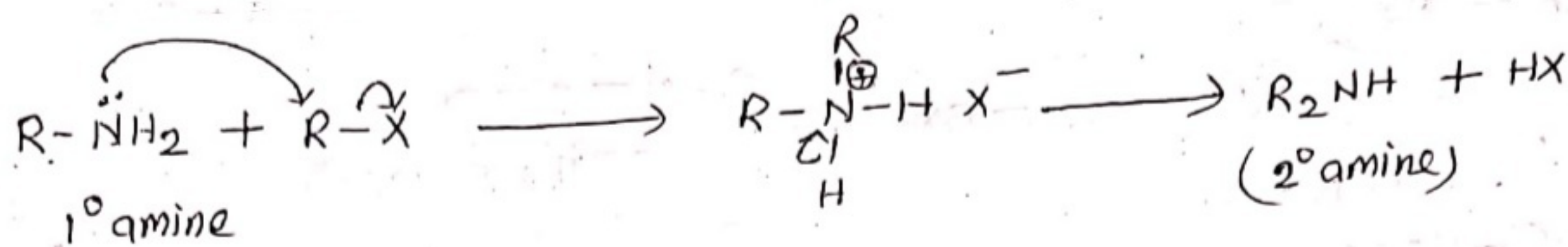
* Primary amine has high boiling point due to 3-H bond while 3° amine has low boiling point due to no H-bonding.

CHEMICAL PROPERTIES

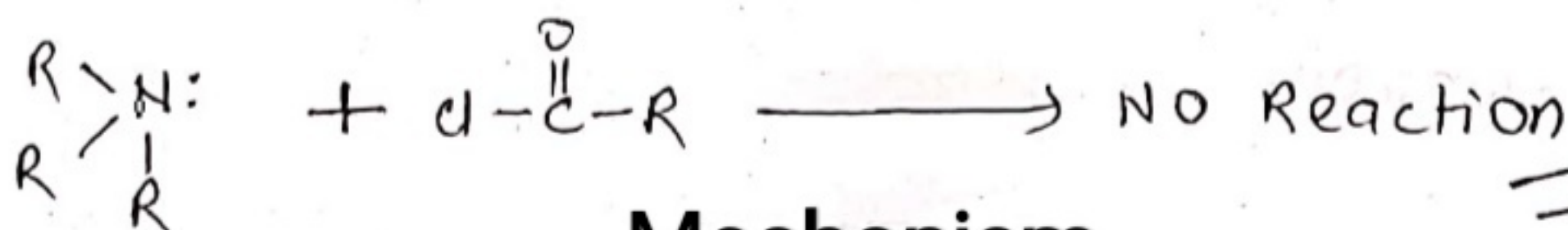
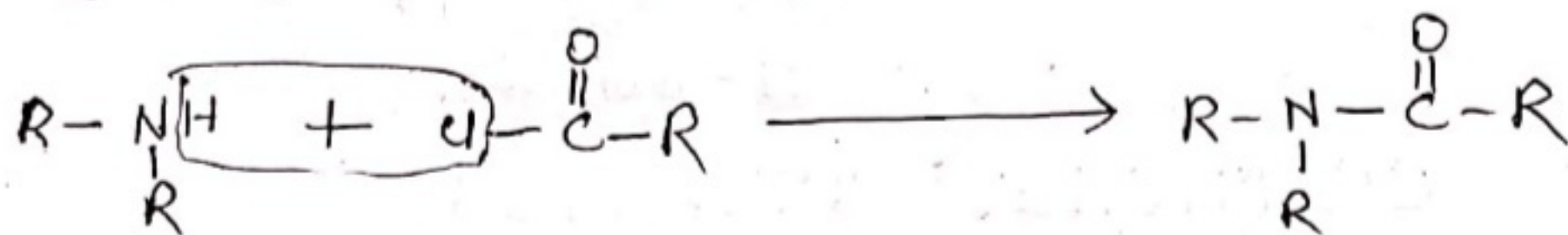
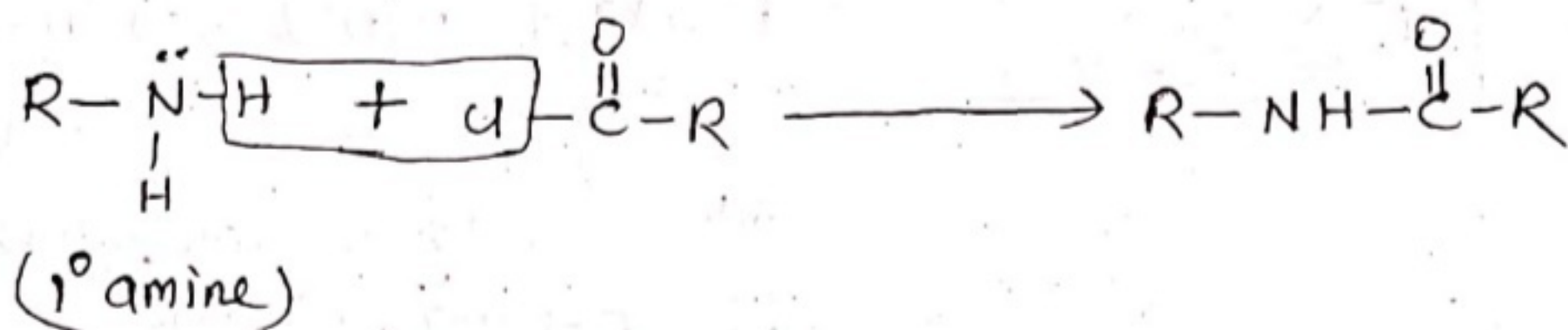
1. Salt Formation



2. Reaction with alkyl halides (Alkylation Reaction)



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



Mechanism

