

B.sc part III chemistry Hons.

Rearrangement Reactions

**By Dr. S R Haider
H O D Chemistry**

REARRANGEMENT REACTION.

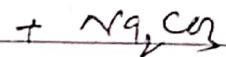
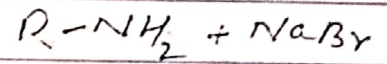
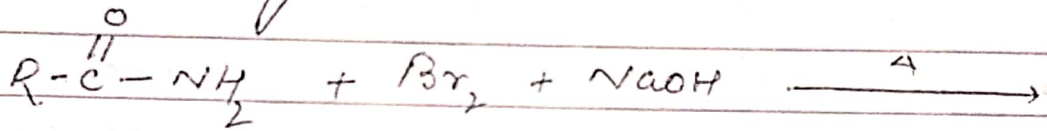
B. Se III classmate (H/O)

Br. Date - R. Handr
Page

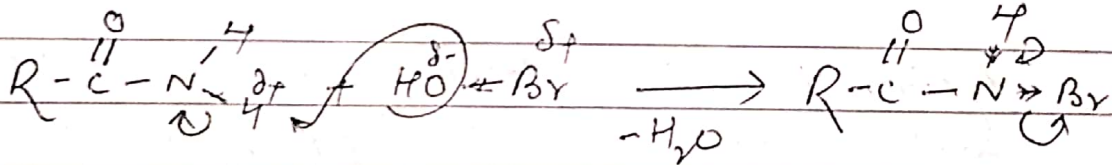
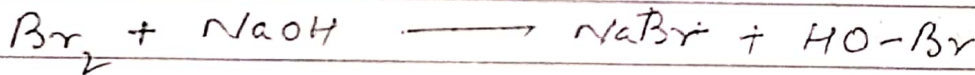
Hoffmann's Bromamide degradation H.O.W. chen

Hoffmann's rearrangement

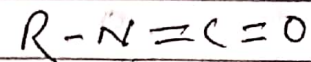
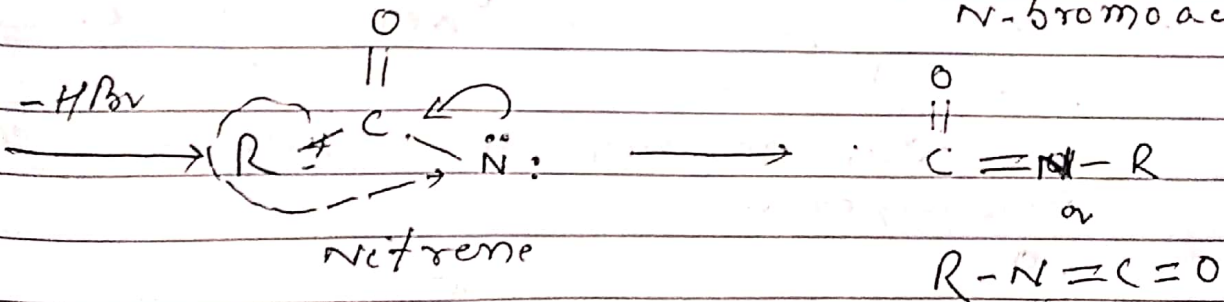
Acid amide when heated with Br_2 & $NaOH$ 1° amine is obtained, 1° amine so obtained carry one carbon ~~part~~ less than former acid amide. This reaction is called Hoffmann's bromamide degradation or Hoffmann's rearrangement.



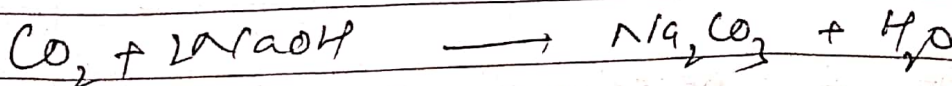
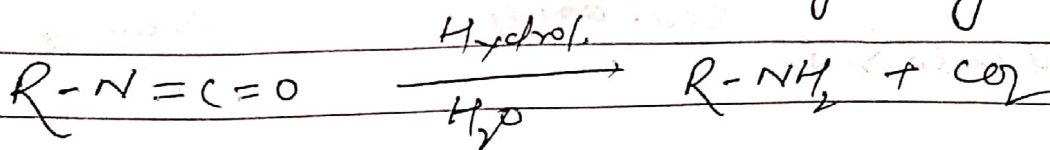
mech.:



N-bromo acid amide.



Alkyl isocyanate.



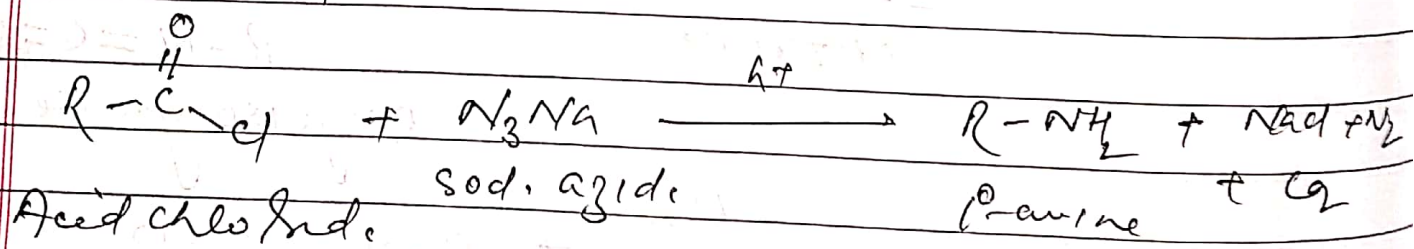
P.T.O

- Reaction proceed via nitrene formation
i.e. $R-\overset{\overset{O}{\parallel}}{C}-\ddot{N}:$ is reactive intermediate.
- Isocyanate is an intermediate product
is also obtained. which on hydrolysis gives
1° amine
- Aliphatic as well as Aromatic 1° amine as
both type of 1° amine can be prepared
by this method.
- Ar/Alkyl group is rearranged from carbonyl
carbon to nitrogen atom.
- Since 1° amine is obtained carry
one carbon shorter than acid amide which
which is used as starting compound
i.e. substrate molecule

2. Curtius rearrangement.

Acid chloride (acid derivative) when heated
with sodium salt of hydrazoic acid (N_3Na)
i.e. sodium hydrazide in presence of acid, it
gives 1° amine.

This reaction is called Curtius
rearrangement.



Mech:

It is believed reaction proceed via
nitrene formation of reactive intermediate.