

Hofmann Rearrangement

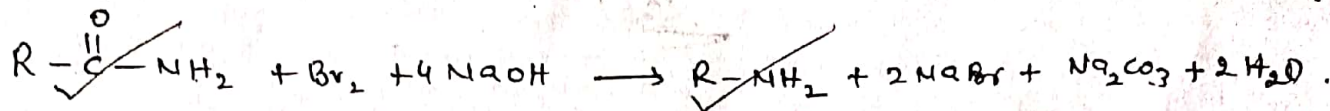
or

Hofmann Bromamide Reaction

or

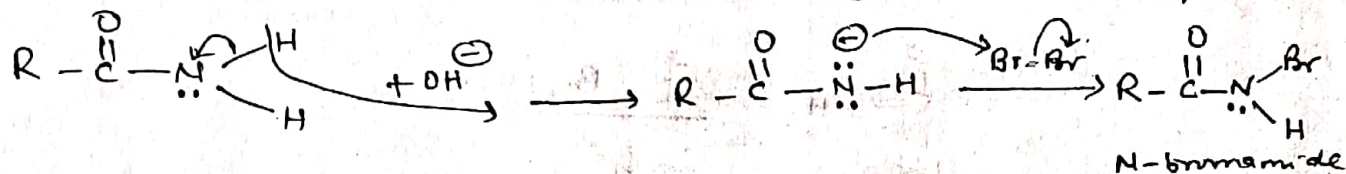
Hofmann Degradation Reaction

When acid amide is treated with bromine in alkali, the primary amine is formed, which has one carbon less than acid amide. This reaction is called Hofmann bromamide reaction.

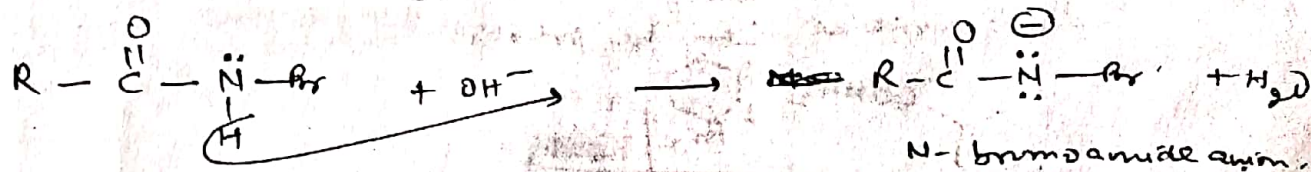


Mechanism

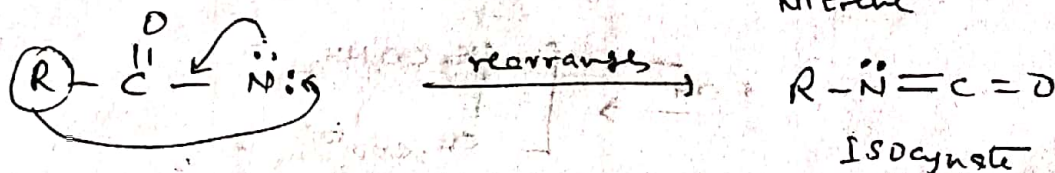
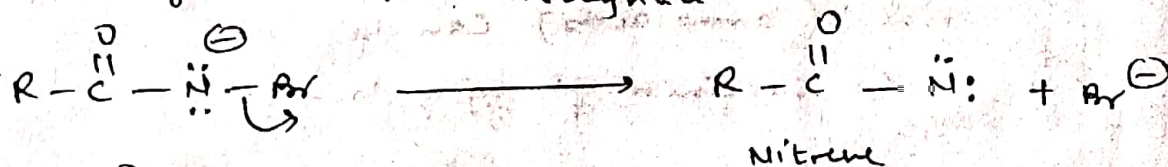
i) Formation of N-bromoamide (N-bromamide),



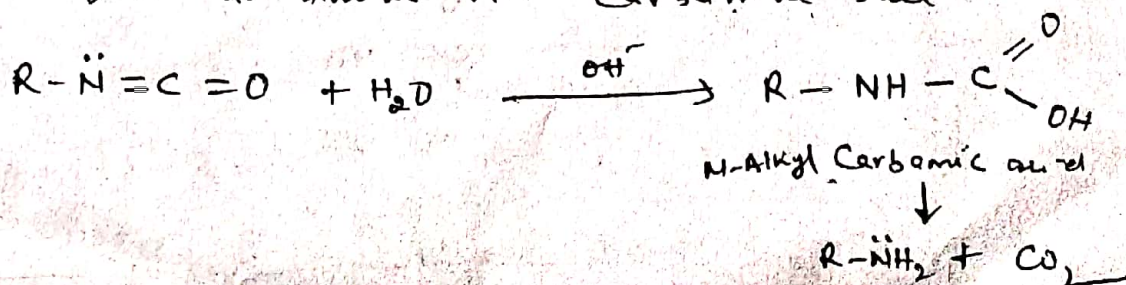
ii) N-bromoamide forms N-bromoamide anion with OH⁻ ions,



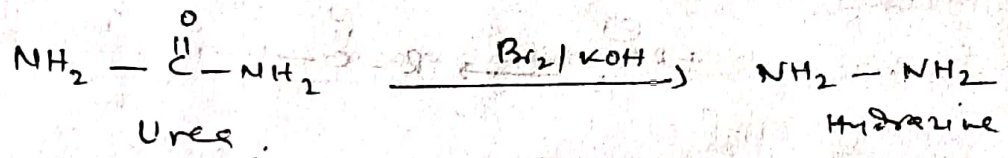
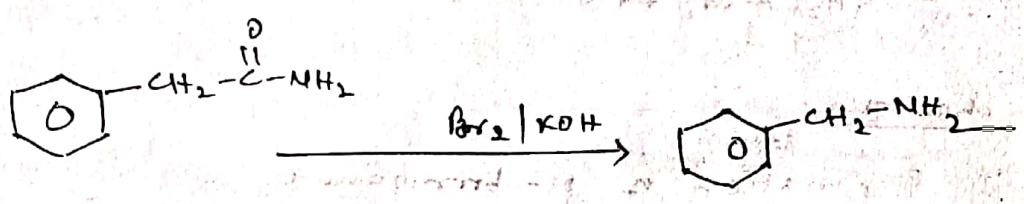
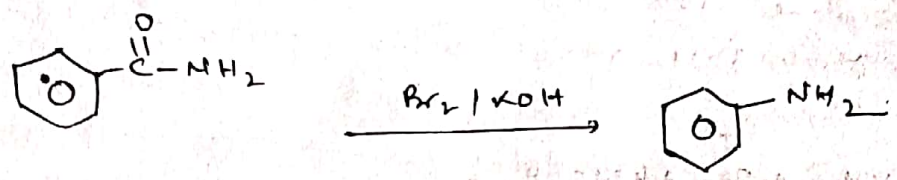
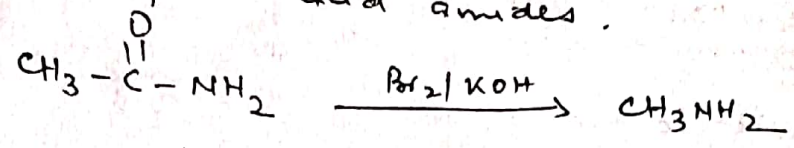
iii) The anion loses bromine to form nitrene which rearranges to give isocyanate



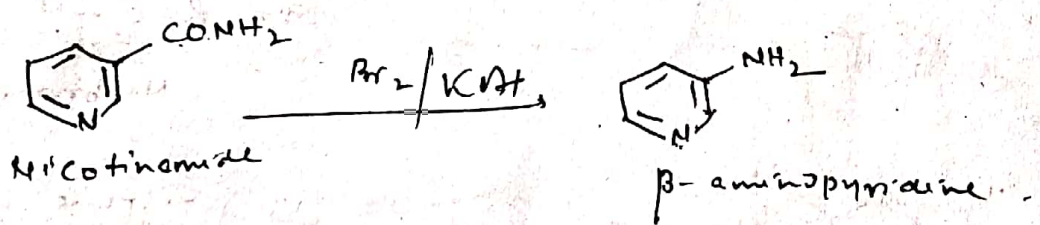
iv) The isocyanate reacts with water in presence of base to give an amine via carbamate salt



① Hofmann bromamide reaction provides an efficient route for making both aliphatic and aromatic amines from acid amides.



② β -aminopyridine can be prepared from nicotinamide



③ β -Alanine (amino acids) can be prepared by treatment of succinimide with bromine in aqueous caustic potash.

