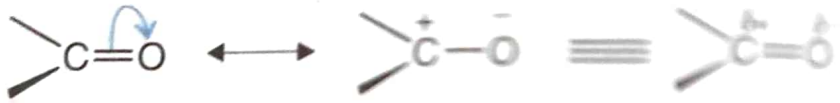
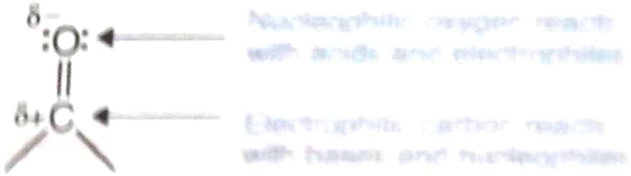
CHEMICAL PROPERTIES

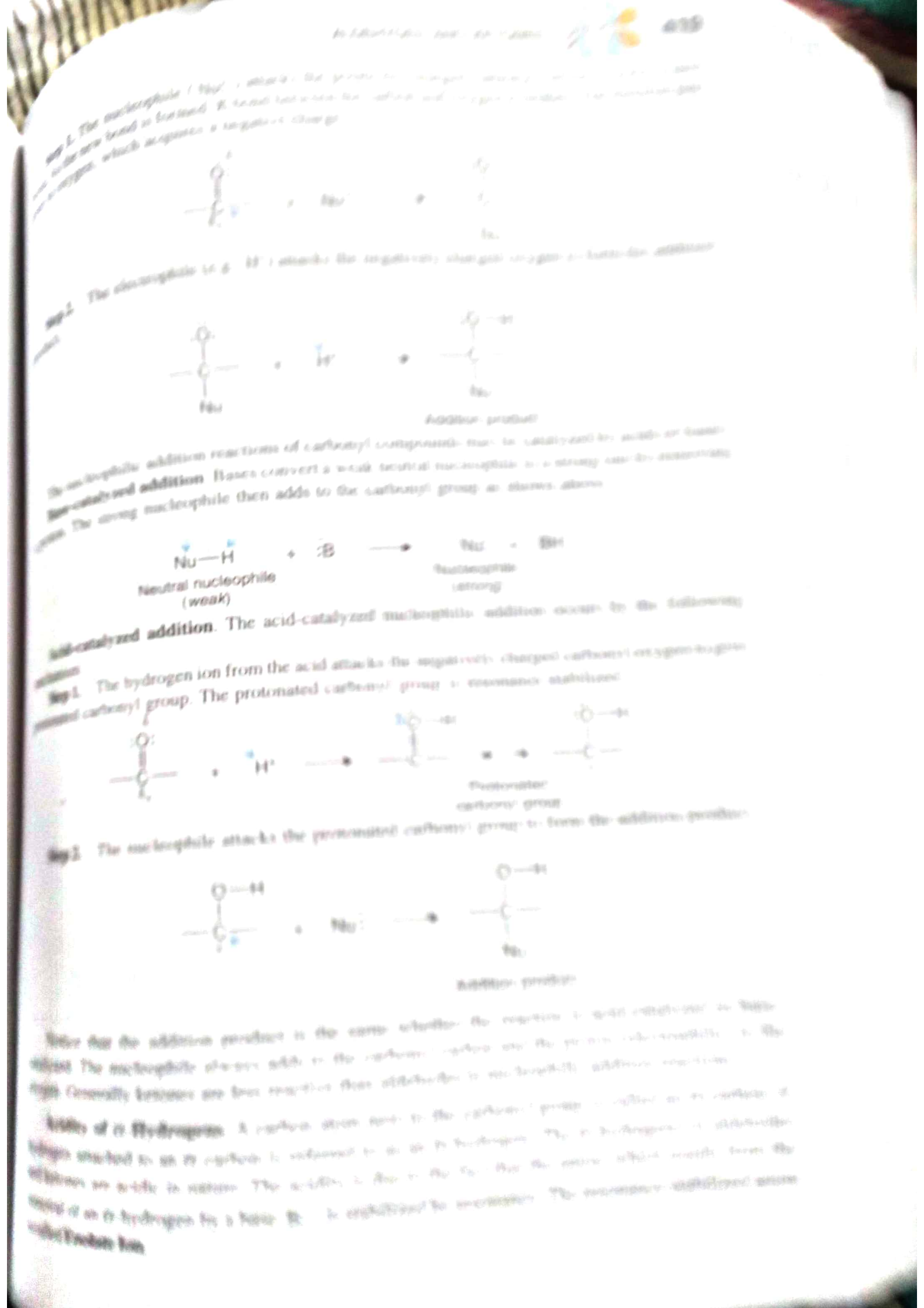
Nucleophilic Addition Reactions. The carbonyl group of aldehydes and ketones is a polar group. It may be represented as :

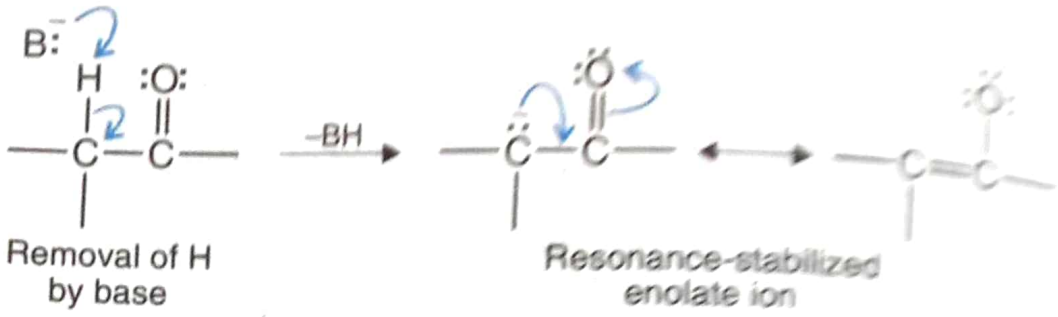


The positively charged carbon is readily attacked by electron-rich nucleophiles. The negatively charged oxygen is attacked by electron-deficient electrophiles.

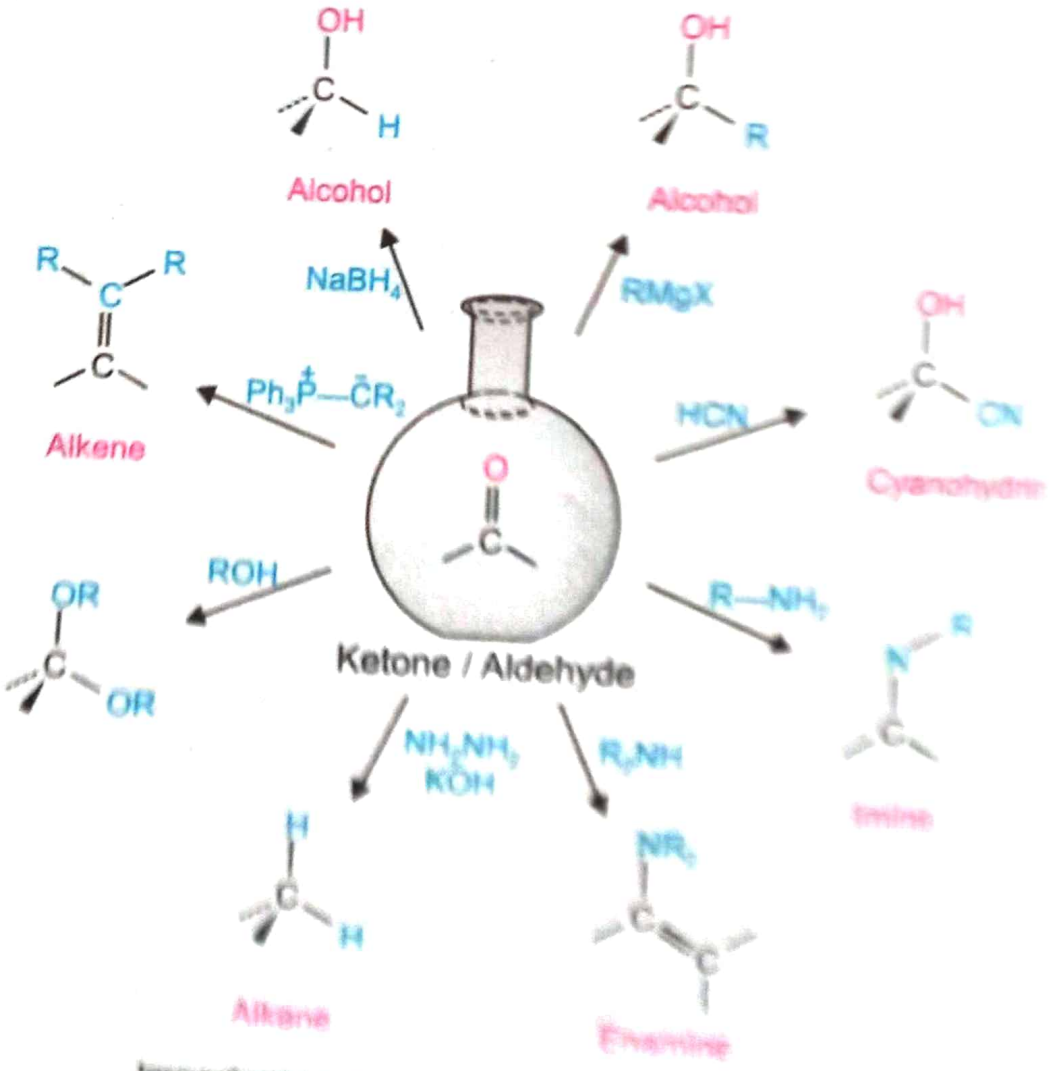


Aldehydes and ketones undergo nucleophilic addition reactions by the following mechanism.





The α-carbon of the enolate ion is negatively charged. It can act as a nucleophile. The formation of the enolate ion followed by its addition to a carbonyl group is the process involved in aldol condensation reactions of aldehydes and ketones.



Important reactions of Carbonyl compounds

Some of the important reactions of aldehydes and ketones are described below: