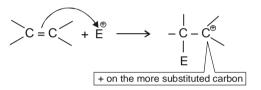
## Points to remember in Alkene & Alkyne

## Characteristic reaction of Alkene & Alkyne is Electrophilic addition reaction.

Mechanism

Step 1 : Attack of the electrophile on  $\pi$  bond forms a carbocation.



Step 2: Attack by a nucleophile gives the product of addition.

e.g. (a) Addition of water 
$$C = C + H_2O \xrightarrow{H^{\oplus}} \begin{pmatrix} 1 & 1 & 1 \\ -C & -C & -1 & 1 \\ H & OH & (Markovnikov orientation) \end{pmatrix}$$

(b) Addition of hydrogen halides (where HX = HCI, HBr, HI)

$$R - C \equiv C - R' \xrightarrow{H-X} R - CH = CX - R' \xrightarrow{H-X} R - C - C - R'$$
(Markovnikov addition)

Note: When electrophiles are: Cl<sup>+</sup>, Br<sup>+</sup>, I<sup>+</sup>, NO<sub>2</sub><sup>+</sup> or Hg<sup>2+</sup> then stereochemistry is important and major product is formed by anti addition.