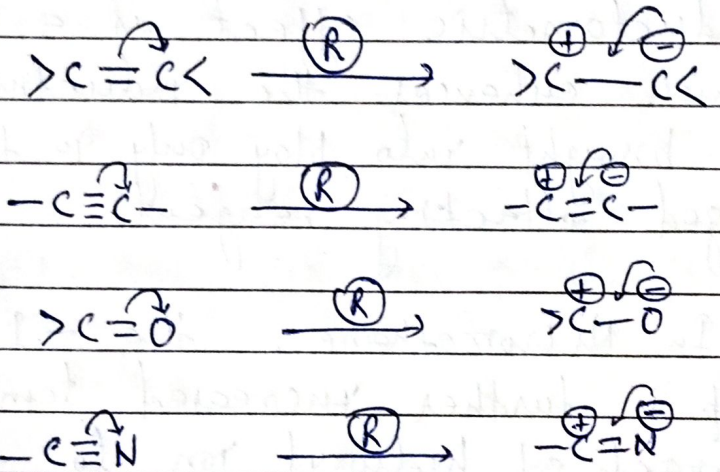
Electromeric effect or (E-effect)

The complete transfer of π-electrons from
atom to atom
atom to bond
bond to atom
bond to bond
at the approach of external reagent, is called electromeric effect. This effect is denoted by curved arrow (↷). When complete transfer of electron occurs, charge seperation take place. When external reagent is removed electron again returns back to its original position.



This effect happens in presence of external reagent, so it is also known as temporary effect.

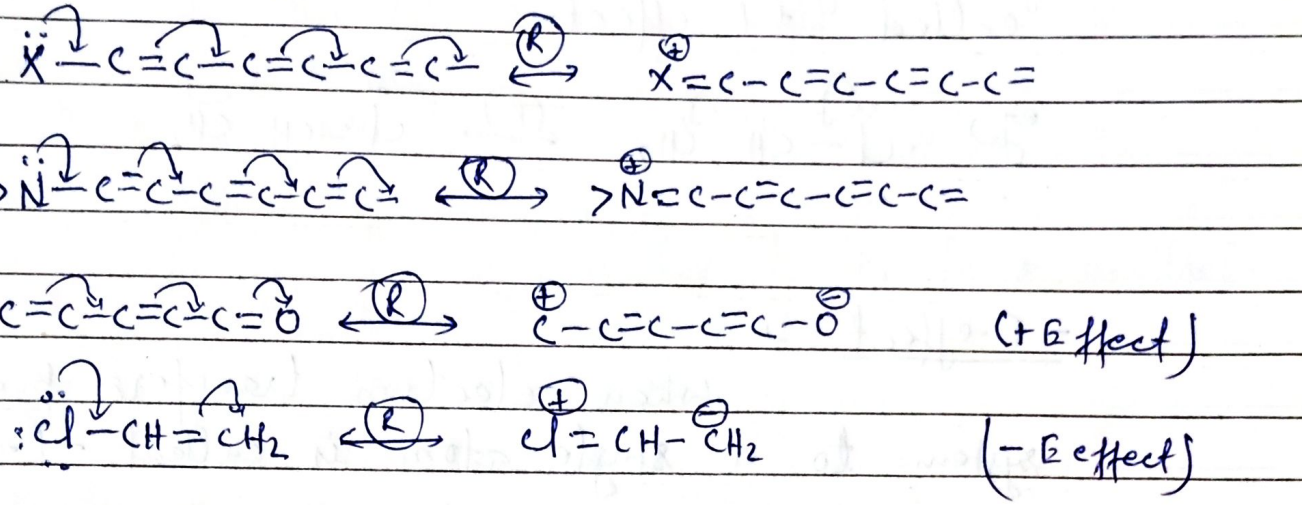
Characteristics features :→

(1) It is due to complete transfer of π-electrons.
(2) It happens only at the approach of external reagents, so it is temporary effect.
(3) Since complete transfer of electron occurs so octet of one atom is disturbed and

other atom octet formation causes.

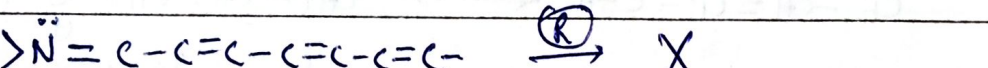
(4) Complete transfer causes high degree of polarisation.

(5) It is relayed all along the carbon chain, when chain consists conjugation of single bond and multiple bond.

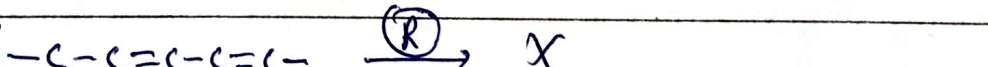


(6)

In the following type of system, electromeric shift will not takes place.

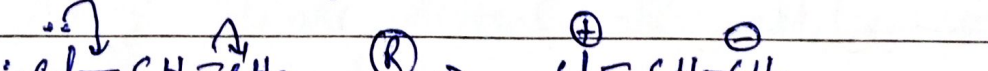


Because double bond once inside the lone pair.



Because does not single and double bond present in alternate.

(7) When system has conditions for Inductive effect as well as electromeric effect both in that case Inductive effect is considered negligible only electromeric shift will be dominate.



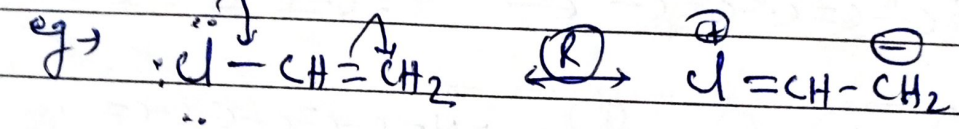
I effect – X

E effect – Dominate

Type of electromeric effect — (I) +E effect, (II) -E effect

+E-effect :→

When electromeric effect happens from single atom to whole system, then it is called +E-effect.

eg→ 

-E-effect :→

When electron transfers from whole system to a single atom is called -E-effect.

eg→