General Concepts of Hybridisation

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Fission And It's Kinds

* Every reaction of organic compounds involves the breaking (fission) of at least one bond and the making of another bond.
* To break a bond, infact, we are breaking down a molecular orbital to give atomic orbitals.
* We know that molecular orbital are at a lower energy (more stable) than the atomic orbitals.
* Therefore, energy has to be supplied to break a bond.
* Assuming that sufficient energy is availalele a covalent bond (σ-bond) can undergo fission in two ways :-

① By Homolytic fission or Homolysis

② By Heterolytic fission or Heterolysis

Homolytic Fission

In this process each of the atoms acquires one of the bonding electrons.

A — B or A : B ⟶ A· + ·B

The products, A· and ·B are called free radicals.

* They are electrically neutral and have one unpaired (odd) electron associated with them.

* Free radical are extremely reactive because of the tendency of this electron to become paired at the earliest opportunity.

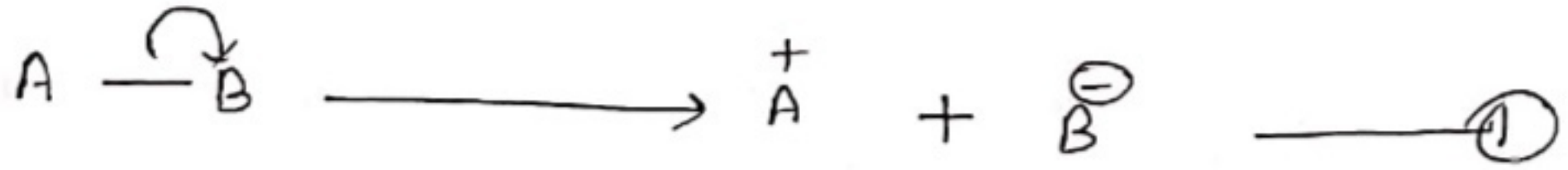
* The reaction which proceed via the intermediate formation of free radicals often take place very rapidly.

* Homolytic fission is the most common mode of fission in the vapour phase.

* Homolytic fission are usually initiated by heat, light or peroxide.

Heterolytic Fission

In this process one of the atoms acquires both the bonding electrons when the bond is broken.



In example 1

'B' is more electronegative whereas in example 2 'A' is more electronegative.

* The product of heterolytic fission are ions.

* Heterolytic fission occurs most readily with polar compounds in polar solvents.

Completed

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