

# GENERAL CONCEPT OF HYBRIDISATION 1.

DEGREE-I (SUB.), 17-07-2020

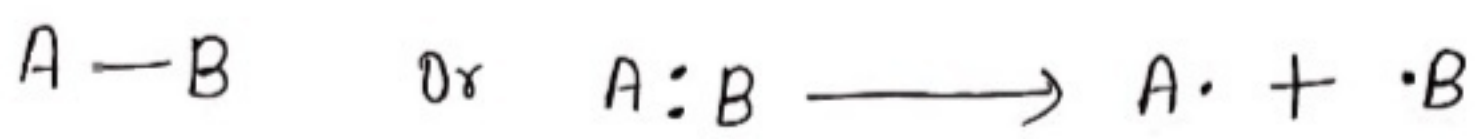
## FISSION & ITS KINDS

- \* Every reaction of organic compounds involves the breaking (fission) of at least one bond and the making of another bond.
- \* To break a bond, in fact, we are breaking down a molecular orbital to give atomic orbitals.
- \* We know that molecular orbitals 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 available a covalent bond ( $\sigma$ -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.

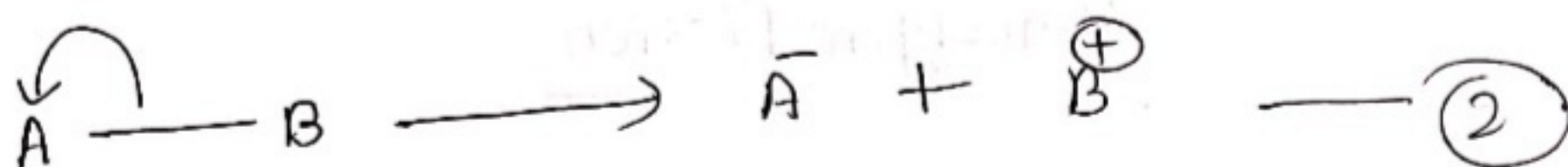
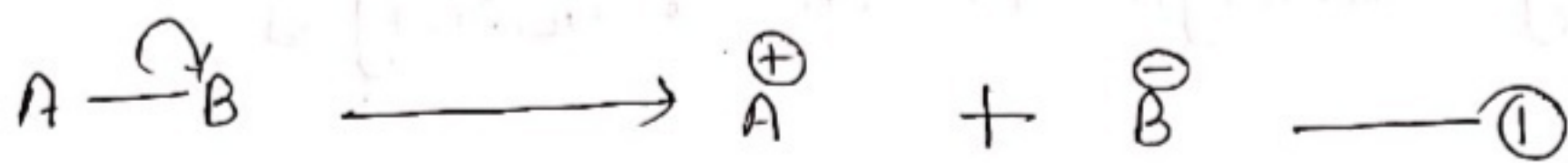
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- \* The products,  $A\cdot$  and  $\cdot B$  are called free radicals.
- \* They are electrically neutral and have one unpaired (odd) electron associated with them.
- \* Free radicals are extremely reactive because of the tendency of this electron 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 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.



3.

- \* In example - 1 'B' is more electronegative  
Where as in example - 2 'A' is more electronegative.
- \* The products of heterolytic fission are ions.
- \* Heterolytic fission occurs most readily with polar compounds in polar solvents.

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