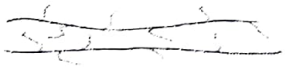
Engineering Chemistry

Addition Polymerisation	Condensation Polymerisation
1) In this monomers undergo reaction to form a polymer without elimination of any by-product.	1) In this, functional groups of two monomers react together releasing a small molecule like H_2O, NH_3 etc. to form a polymer.
2) Monomer is an unsaturated molecule.	2) Monomer is saturated containing reactive functional groups.
3) Usually one type of monomer is involved.	3) Usually more than one type of monomers are involved.
4) It is also known as chain reaction polymerization or Chain Growth Polymerisation.	4) It is also known as step growth polymerization.
5) In general, It gives rise to homo-polymers.	5) In general, It forms co-polymers.
6) Ex. Polyethene, PVC, etc.	6) Ex. Bakelite, Nylon-6,6, etc.

Thermoplastic resin	Thermosetting resin
1. Polymers which are softened on heating and hardened on cooling .	**1.**Polymes which once hardened can't be softened again.
2. These are processed by addition polymerization.	**2.** These are proceed by condensation polymerization.
3. They are linear polymer chain held together by weak vanderwaal's forces of attraction.	**3**. They are branched or cross-linked polymer.
4.They are generally soluble in some organic solvents.	**4.** They are generally insoluble in some organic solvents.
5. They can be remoulded .	**5.**.They can't be remoulded.
6. They are weak,softand less brittle.	**6.** They are strong,hard and more brittle.
7. Ex: PVC,PE, PMMA, Polystyrene.	**7.**Ex:Bakelite Phenolic resin ,Epoxy resin.
8. Structure 	**8**. Structure