

12 012-353  
FRIDAY

### Types of polymers

Kinetic and mechanisms of polymerization  
Molecular mass and mass average molecular mass

Determinations of molecular mass by osmometry, viscosity and light scattering method.

→ Degree of polymerization: Represents the number of structural or monomeric units contained in a polymer. It is designated by symbol,  $p$ . The molar mass  $M$  of the polymer is related to by equation  
$$p = \frac{M}{m}$$

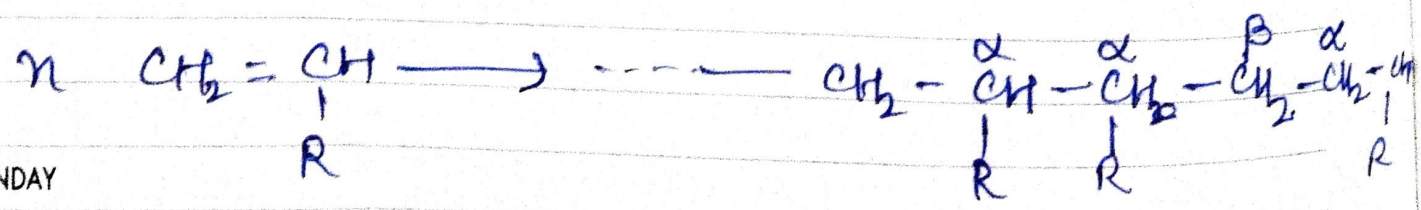
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$m \rightarrow$  molar mass of monomeric unit

$$M = mp$$

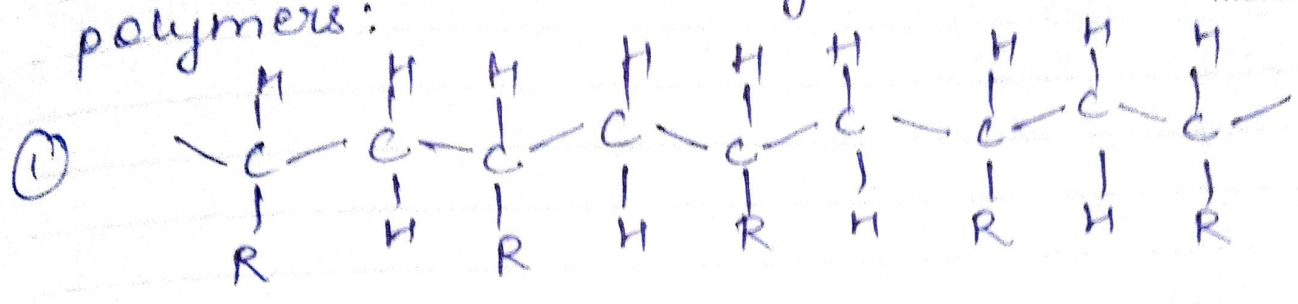
### Classification of Polymers:

Molecules may combine head-to-head ( $\alpha, \alpha$ ) and tail-to-tail ( $\beta, \beta$ ) arrangement

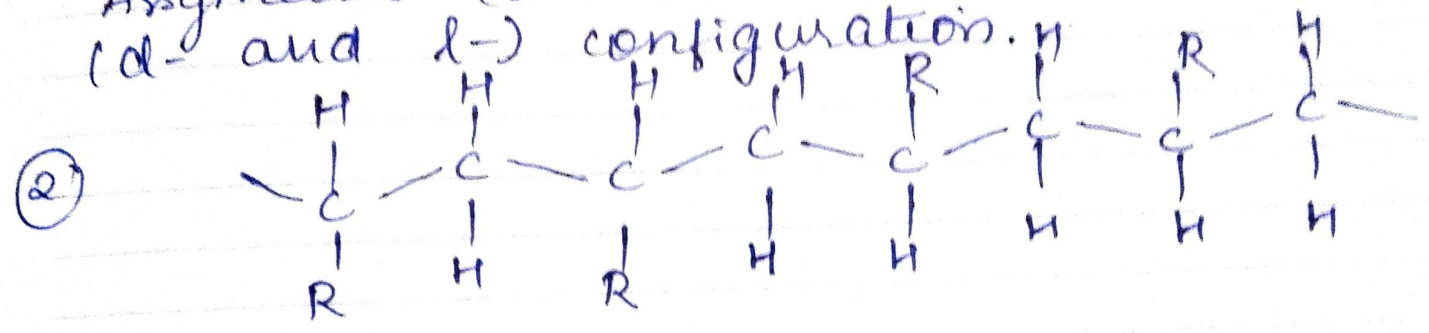


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Isotactic, Atactic, syndiotactic  
polymers:

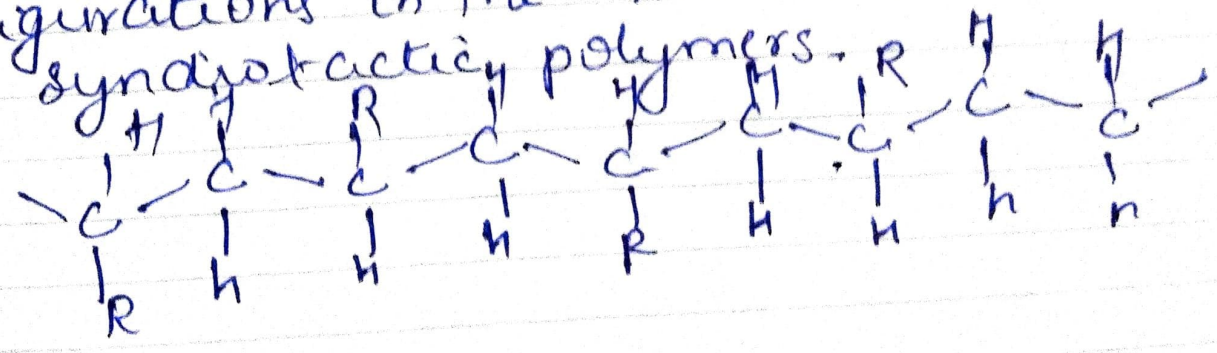


Asymmetric carbon atoms have the same (d- and l-) configuration.



Polymer having random sequences of d- & l- configurations are called atactic polymers.

③ syndiotactic polymer: polymer having regular alternation of d- and l- configurations in the molecular chains are syndiotactic polymers.



Isotactic and syndiotactic are called stereoregular polymers.