

**B.Sc. Semester-VI
Organic Chemistry
Paper-XIV**

2. Synthetic Polymers

Coverage:

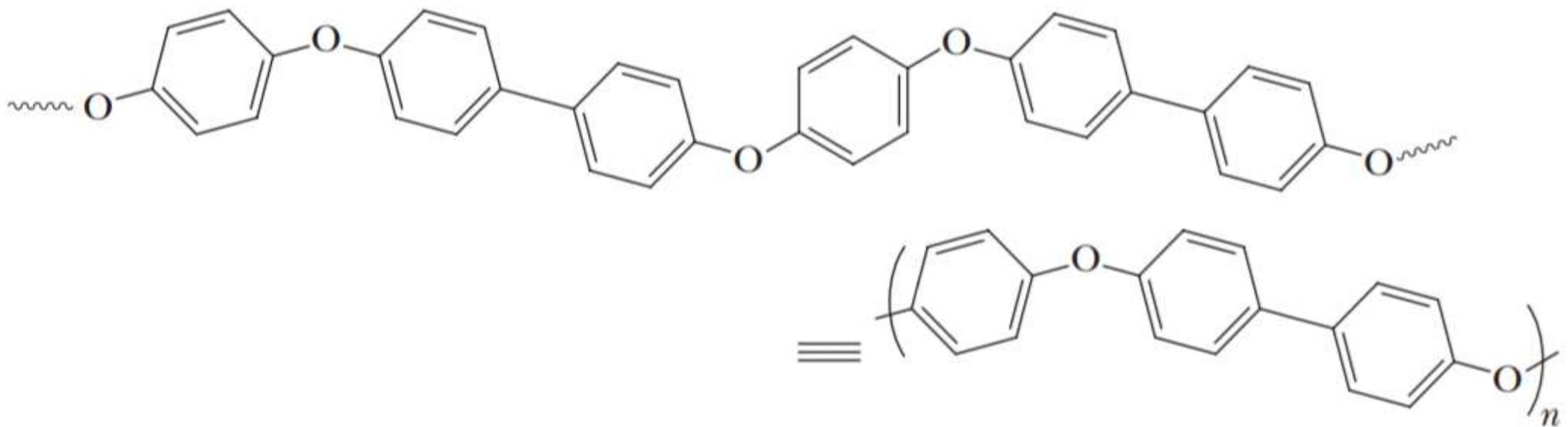
4. Polymer Notation and Nomenclature



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4. Polymer Notation and Nomenclature

We show the structure of a polymer by placing parentheses around the **repeat unit**, which is the smallest molecular fragment that contains all the nonredundant structural features of the chain. Thus, the structure of an entire polymer chain can be reproduced by repeating the enclosed structure in both directions. A subscript n , called the **average degree of polymerization**, is placed outside the parentheses to indicate that this unit is repeated n times.



The polymers formed from symmetric monomer units, such as polyethylene, $\text{-(CH}_2\text{CH}_2\text{)}_n$, and polytetrafluoroethylene, $\text{-(CF}_2\text{CF}_2\text{)}_n$, are an exception to this notation. Although the simplest repeat units are the $\text{-CH}_2\text{-}$ and $\text{-CF}_2\text{-}$ groups, respectively, we show two methylene groups and two difluoromethylene groups because they originate from ethylene ($\text{CH}_2=\text{CH}_2$) and tetrafluoroethylene ($\text{CF}_2=\text{CF}_2$), the monomer units from which these polymers are derived.

The most common method of naming a polymer is to attach the prefix *poly-* to the name of the monomer from which the polymer is derived, as for example polyethylene and polystyrene. In the case of a more complex monomer or where the name of the monomer is more than one word, as for example the monomer vinyl chloride, parentheses are used to enclose the name of the monomer.

