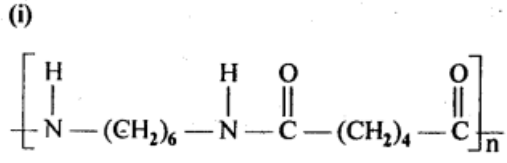
NCERT INTEXT QUESTIONS

15.1. What are polymers?
Ans: Polymers are high molecular mass substances ($10^3 - 10^7$u) consisting of a very large number of simple repeating structural units joined together through covalent bonds in a linear fashion. They are also called macromolecules. Ex: polythene, nylon 6,6, bakelite, rubber, etc.

15.2. How are polymers classified on the basis of structure?
Ans: On the basis of structure, polymers are classified as :
(i) Linear polymers in which the monomers are joined together to form long straight chains of polymer molecules. Forex: HDPE, PVC, nylons, etc.
(ii) Branched chain polymers in which the monomers not only join in linear fashion but also form branches of different lenghts along the main chain. For ex : LDPE, glycogen, etc.
(iii) Cross-linked polymers in which the intially formed linear polymer chains join together to form 3D network structure. For ex : bakelite, Urea-formaldehyde resin, etc.

15.3. Write the names of the monomers of the following polymers:
(i)



Ans:
(i) Hexamethylene diamine NH_2-$(CH_2)6NH_2$ and adipic acid HOOC - $(CH_2)_4$ - COOH
(ii) Caprolactum
(iii) Tetrafluoroethene $F_2C = CF_2$

15.4. Classify the following as addition and condensation polymers:
Terylene, Bakelite, Polyvinyl chloride, Polythene
Ans:
Addition polymers: Polyvinyl chloride, Polythene
Condensation polymers : Terylene, bakelite.

15.5. Explain the difference between Buna- N and Buna-S.
Ans: Both are copolymers. Buna-N is a copolymer of 1,3-butadiene and acrylonitrile whereas Buna-S is a copolymer of 1,3-butadiene and styrene.

15.6. Arrange the following polymers in increasing order of their intermolecuiar forces.
(i) Nylon 6,6, Buna-S, Polythene
(ii) Nylon 6, Neoprene, Polyvinyl chloride
Ans: On the basis of intermolecuiar forces, polymers are classified as elastomers, fibres and plastics. The increasing order of intermolecuiar forces is: Elastomer < Plastic < fibre.
Thus, we have
(i) Buns-S < Polythene < Nylon 6,6
(ii) Neoprene < Polyvinyl chloride < Nylon 6.

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