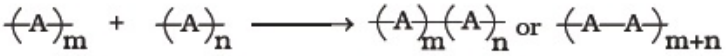
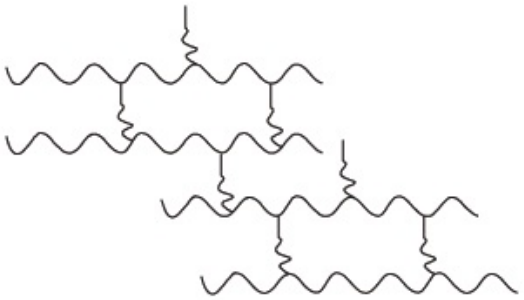
Polymers

Short Answer Type

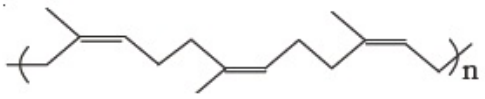
1. A natural linear polymer of 2-methyl-1, 3-butadiene becomes hard on treatment with sulphur between 373 to 415 K and —S—S— bonds are formed between chains. Write the structure of the product of this treatment?
2. Identify the type of polymer.
   —A—A—A—A—A—A—
3. Identify the type of polymer.
   —A—B—B—A—A—A—B—A—
4. Out of chain growth polymerisation and step growth polymerisation, in which type will you place the following.



5. Identify the type of polymer given in the following figure.

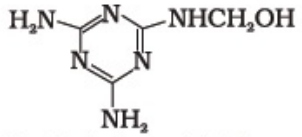


6. Identify the polymer given below :



7. Why are rubbers called elastomers?
8. Can enzyme be called a polymer?
9. Can nucleic acids, proteins and starch be considered as step growth polymers?
10. How is the following resin intermediate prepared and which polymer is formed by this

monomer unit?



(Resin intermediate)

11. To have practical applications why are cross links required in rubber?
12. Why does cis-polyisoprene possess elastic property?
13. What is the structural difference between HDP and LDP? How does the structure account for different behaviour and nature, hence the use of a polymer?
14. What is the role of benzoyl peroxide in addition polymerisation of alkenes? Explain its mode of action with the help of an example.
15. Which factor imparts crystalline nature to a polymer like nylon?
16. Name the polymers used in laminated sheets and give the name of monomeric units involved in its formation.
17. Which type of biomolecules have some structural similarity with synthetic polyamides? What is this similarity?
18. Why should the monomers used in addition polymerisation through free radical pathway be very pure?

Long Answer Type Question

1. Synthetic polymers do not degrade in the environment for a long time. How can biodegradable synthetic polymers be made. Differentiate between biopolymers and biodegradable polymers and give examples of each type.
2. Differentiate between rubbers and plastics on the basis of intermolecular forces.
3. Phenol and formaldehyde undergo condensation to give a polymar (A) which on heating with formaldehyde gives a thermosetting polymer (B). Name the polymers. Write the reactions involved in the formation of (A). What is the structural difference between two polymers?
4. Low density polythene and high density polythene, both are polymers of ethene but there is marked difference in their properties. Explain.
5. Which of the following polymers soften on heating and harden on cooling? What are the polymers with this property collectively called? What are the structural similarities between such polymers? Bakelite, urea-formaldehyde resin, polythene, polyvinyls, polystyrene.