

## SOLUTION TEST-B

1. The given statement about neoprene is incorrect Neoprene is an addition homopolymer of 2-chloro-1,3-butadiene and not 2-methyl-1, 3-butadiene.

**The correct answer is (iv)**

2. Buna-S is not a condensation copolymer, Buna-S is an addition copolymer of butadiene-1, 3 and styrene.

**The correct answer is (iii)**

3. The letter-N in Buna-N stands for nitrile group which is – CN group.

**The correct answer is (ii)**

4. Both LDPE and HDPE are addition polymers of ethene, both are thermoplastics. The only difference between them is their structure.

**The correct answer is (i)**

5. The assertion is wrong.

Only Nylon-66 is a condensation co-polymer whereas nylon-6 is an condensation homopolymer.

6. Butadiene and acrylonitrile

7. Poly  $\beta$ -hydroxy butyrate-co- $\beta$ -hydroxy valerate.

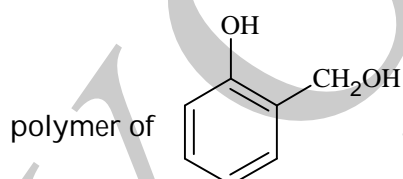
8. (i) Neoprene < Polyvinyl chloride < Dacron < Melamine

(ii) Nylon-6  $\rightarrow$  It is a condensation polymer whereas the other three are addition polymer.

9. **Thermoplastic polymers** are the linear or slightly branched chain molecules which can be made soft on heating and hard on cooling. These polymers can be remouldable. Example: Polyvinyl chloride.

**Thermosetting polymers** are cross-linked polymers which cannot be remoulded once set into a desired shape. Example: Bakelite.

10. (i) Novolac is a linear polymer of  whereas bakelite is a cross-linked

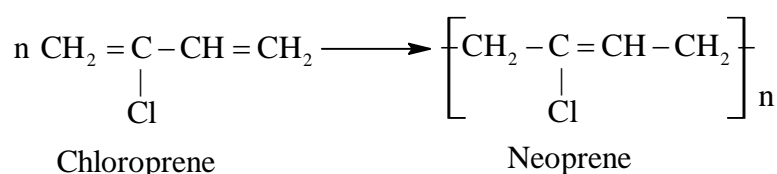


- (ii) Buna-S is an addition copolymer whereas terelene is a condensation copolymer.

11. (a) Hexamethylene diamine and adipic acid

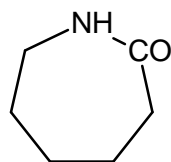
- (b) Caprolactam

12. (i) Preparation of Dacron

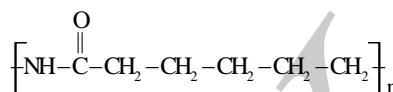


(ii) (a) Monomer

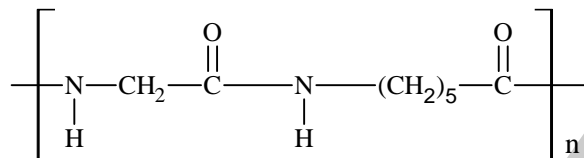
Structure of polymer



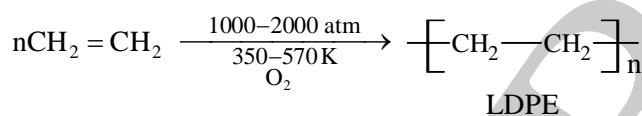
Caprolactam



(b) Glycine and amino caproic acid

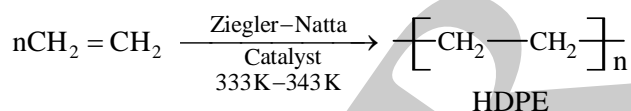


13. LDPE has highly branched structure and is obtained by free radical addition and H-atom abstraction of ethene. It is used in making squeeze bottles



LDPE

HDPE consists of linear molecules and has a high density due to close packing. It is used in making buckets



HDPE

14. (i) **Elastomers** are rubber like solids with elastic properties. In these, the polymeric chains are held together by the weakest dispersion forces. Example: Neoprene

**Fibers** are the thread forming solids in which the polymeric chains are held together by hydrogen bonding. Example: Nylon.

(ii) Benzoyl peroxide act as an initiator.

(iii) Nylon is a fibre with strong hydrogen bonding between the polymeric chains. These strong forces also lead to close packing of chains and thus impart crystalline nature.

15. (i) Melamine and formaldehyde

(ii) Silk

(iii) Nylon-66 is a condensation copolymer.

(iv)

	Chain growth polymerisation		Step growth polymerisation
(a)	These are mainly formed by compounds containing double or triple bonds.	(a)	These are mainly formed by bi-functional or tri-functional compound
(b)	There is no loss of any small molecule.	(b)	There is a loss of small molecules like H <sub>2</sub> O, NH <sub>3</sub> , etc.
(c)	This requires initiator or a catalyst	(c)	This takes place in the presence of catalyst
(d)	Addition of monomer increases the length of chain of polymer. Example: PVC, Polythene	(d)	Monomers are added in step wise manner. Example: Dacron, Nylon

