1. Which of the following statements is correct regarding LDP and HDP?

- A. Both have different monomers
- B. Both have same structures
- C. Both have similar preparation conditions
- D. Both are chemically inert

Low-density and high density polythene have the same monomeric unit, ethene. Both are synthesized under very different pressure and temperatures conditions. LDP has a branches whereas HDP is a linear structure. Both are chemically inert and tough.

2. Teflon is a polymer of :

- A. ethylene
- B. vinyl chloride
- C. acetonitrile
- D. tetrafluoroethene

Teflon is a polymer of tetrafluoroethene. Teflon is manufactured by heating tetrafluoroethene with a free radical or persulphate catalyst at high pressures. Hence, it is a polymer of tetrafluoroethene.
It is chemically inert and resistant to attack by corrosive reagents.

$$nCF_2 = CF_2 \xrightarrow[\text{high pressure}]{\text{persulphate}} [-CF_2 - CF_2-]_n$$

3. Polyacrylonitrile (PAN) is prepared from:

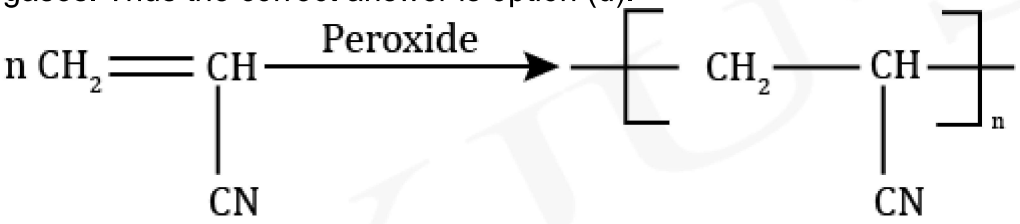
A. Vinylacetylene

B. Butadiene and Styrene

C. Tetrafluoroethene

D. Acrylonitrile

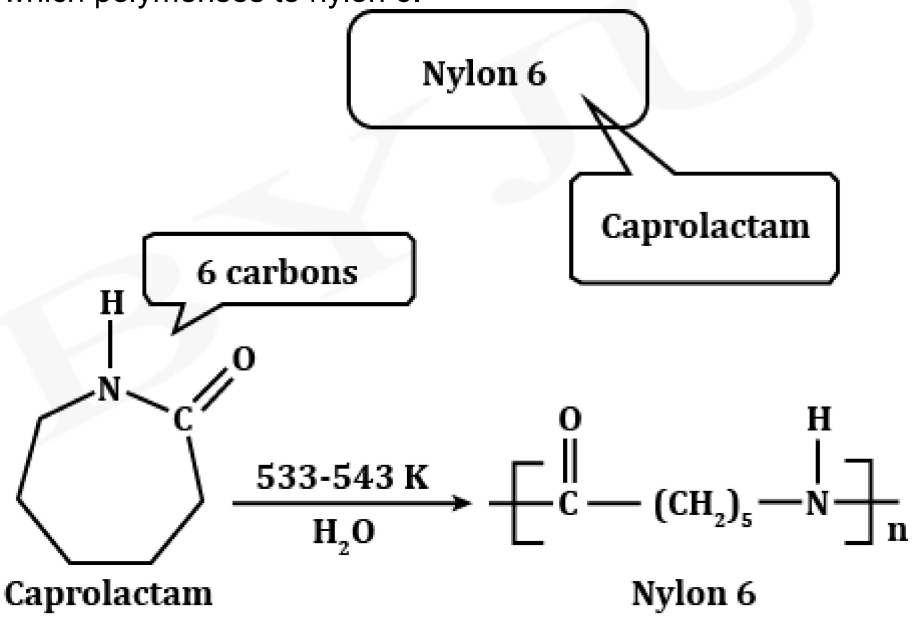
Polyacrylonitrile (PAN), is formed by addition polymerisation of acrylonitrile in presence of a peroxide catalyst. A member of the important family of acrylic resins, it is a hard, rigid thermoplastic material that is resistant to most solvents and chemical, slow to burn, and of low permeability of gases. Thus the correct answer is option (d).



4. Cyclohexanone on treatment with hydroxylamine gives P, which on treatment with sulphuric acid gives Q. when Q is heated with water at high temperature, R is obtained. Identify R.

- **A.** Nylon 6
- **B.** Carprolactam
- **C.** Nylon 6,6
- **D.** Nylon 2,6

Nylon-6 (R) is the polymer of caprolactum (Q), Which is obtained from the oxidation of cyclohexane to give cyclo hexanone (P), Followed by treatment with H_2SO_4. Caprolactum on heating with water gives amino caproic acid which polymerises to nylon 6.



5. A synthetic polymer which resembles natural rubber is :

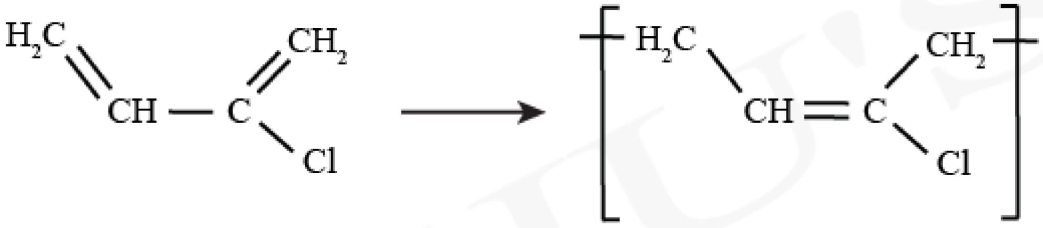
A. Nylon

B. Glyptal

C. Neoprene

D. Chloroprene

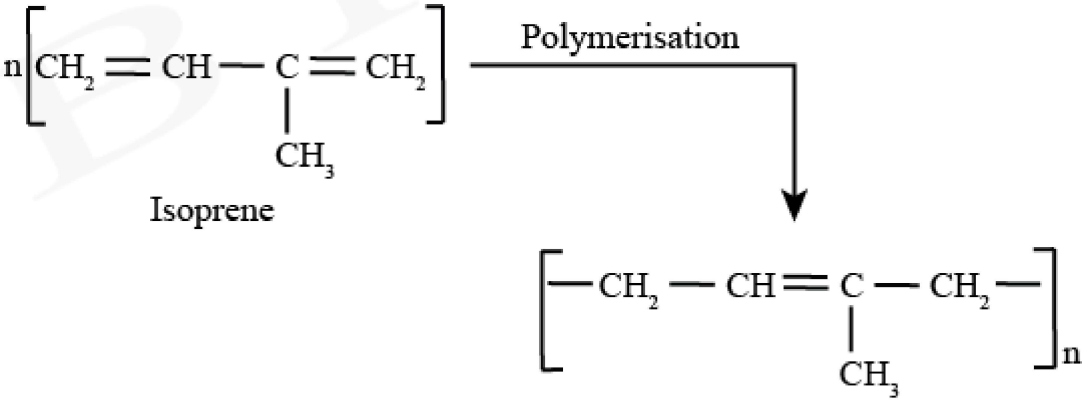
Synthetic polymer that resembles natural rubber is Neoprene. It is made from monomer chloroprene (2-chlorobuta-1,3-diene) as shown in the below reaction.



2-chlorobuta-1,3-diene (chloroprene)

poly(2-chlorobuta-1,3-diene) (polychloroprene or neoprene)

Natural Rubber



Isoprene

Polyisoprene (Natural rubber)