### **ORGANIC CHEMISTRY**

#### **POLYMER**

1. In the following reactions, **P**, **Q**, **R** and **S** are the major products.

[JEE(Advanced) 2023]

$$(i) KMnO_4, KOH, \Delta \atop (ii) H_3O^{\oplus} \rightarrow P$$

$$MeOOC \qquad COCI \qquad (i) NaOH, H_2O \atop (ii) H_3O^{\oplus} \rightarrow Q$$

$$COOMe \qquad (i) H_3O^{\oplus}, \Delta \atop (ii) H_2CrO_4 \rightarrow R$$

$$(i) Mg, dry ether \atop (ii) CO_2, then H_3O^{\oplus} \atop (iii) Ammoniacal AgNO_3, H_3O^{\oplus} \rightarrow S$$

The correct statement (s) about **P**, **Q**, **R**, and **S** is (are)

- (A)  $\bf P$  and  $\bf Q$  are monomers of polymers dacron and glyptal, respectively.
- (B) **P**, **Q**, and **R** are dicarboxylic acids.
- (C) Compounds  $\mathbf{Q}$  and  $\mathbf{R}$  are the same.
- (D)  $\bf R$  does **not** undergo aldol condensation and  $\bf S$  does **not** undergo Cannizzaro reaction.
- **2.** Among the following, the correct statement(s) about polymers is(are)

[JEE(Advanced) 2022]

- (A) The polymerization of chloroprene gives natural rubber.
- (B) Teflon is prepared from tetrafluoroethene by heating it with persulphate catalyst at high pressures.
- (C) PVC are thermoplastic polymers.
- (D) Ethene at 350-570 K temperature and 1000-2000 atm pressure in the presence of a peroxide initiator yields high density polythene.
- **3.** On complete hydrogenation, natural rubber produces

[JEE(Advanced) 2016]

- (A) ethylene-propylene copolymer
- (B) vulcanised rubber
- (C) polypropylene
- (D) polybutylene

## **SOLUTIONS**

# 1. Ans. (C, D)

Sol.

Br 
$$MgBr$$
 $Mg$ 
 $O = C = O$ 
 $O = C$ 
 $O =$ 

## 2. Ans. (B, C)

**Sol.** (a) The polymerisation of neoprene gives natural rubber.

- (b) is correct statement
- (c) is correct statement
- (d) Ethene at 350-570 K temperature and 1000-2000 atm pressure in the pressure of a peroxide initiator yields low density polythene.

## 3. Ans. (A)

Sol.

$$\begin{array}{c} \text{CH}_{3} \\ \text{CH}_{2} = \text{C} - \text{CH} = \text{CH}_{2} \\ \text{Isoprene} \\ \\ \text{Isoprene} \\ \\ \text{CH}_{2} = \text{CH} - \text{CH}_{2} - \text{C} = \text{CH} - \text{CH}_{2} - \text{C}_{n} \\ \\ \text{Natural rubber} \\ \text{H}_{2}(\text{excess}) \\ \text{catalyst} \\ \\ \text{CH}_{3} = \text{CH}_{2} + \text{CH}_{2} = \text{CH} \\ \\ \text{Ethylene} \\ \\ \text{Propylene} \\ \\ \text{Propylene} \\ \\ \\ \text{Completely hydrogenated Natural rubber} \\ \\ \text{CH}_{3} \\ \\ \text{Completely hydrogenated Natural rubber} \\ \\ \text{Completely hydrogenated Natural rubber} \\ \\ \text{CH}_{3} \\ \\ \text{Completely hydrogenated Natural rubber} \\ \\ \text{CH}_{4} \\ \\ \text{CH}_{5} \\ \\ \text{CH}_{5} \\ \\ \text{CH}_{7} \\ \\ \text{CH}_{7} \\ \\ \text{CH}_{8} \\ \\ \text{CH}_{9} \\ \\ \text{CH$$