



INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF CHEMISTRY
CLASS XII
POLYMERS



1. How does vulcanization change the property of rubber?
2. Explain the term 'homopolymerisation' giving an example.
3. What is PHBV? Give its importance
4. Explain the term copolymerization and give two examples.
5. Give chemical equations for the preparation of
 - (a) PHBV
 - (b) Melamine
6. Differentiate between molecular structure and behaviours of thermoplastic and thermosetting polymers. Give one example of each type.
7. Arrange the following polymers in the increasing order of their intermolecular forces. Also classify them as addition and condensation polymers.
 - a) Nylon 6, 6 ; Buna -S , Polystyrene.
 - b) Nylon - 6, neoprene and PVC.
 - c) Polythene, terylene, natural rubber
8. Explain the classification of polymers on the basis of structure and give examples.
9. Write the free radical mechanism for the polymerisation of ethene.
10. Give equations for the synthesis of
Terylene , Polyacrylonitrile, Novolac , Natural rubber , Neoprene ,Teflon ,
Polythene, Nylon2-nylon6
11. Write the monomer and one use of the following polymer
 - a) PVC
 - b) Urea – formaldehyde resin
 - c) Bakelite
12. Differentiate between:
 - a) Addition and condensation polymers
 - b) LDPE and HDPE
 - c) Nylon-6 and Nylon-6,6

- d) Homo-polymer and co-polymer.
13. Identify the monomers in following polymer:
- a) $[-\text{NH}_2-(\text{CH}_2)_6-\text{NH}-\text{CO}-(\text{CH}_2)_4-\text{CO}-]_n$
- b) $[-\text{O}-\text{CH}_2-\text{CH}_2-\text{O}-\text{CO}-\text{C}_6\text{H}_4\text{CO}-]_n$
14. a) Describe the term homopolymerization with an example.
- b) Give the name and structure of monomer of polypropene.
- c) Name one synthetic rubber which is resistant to vegetable and mineral oils along with fire resistant nature.
15. Differentiate the following pair of polymers on basis of property mentioned against each other:
- a) Novolac and Bakelite (Structure)
- b) Terylene and Buna-S (Intermolecular forces)
16. a) Identify whether following are addition or condensation polymers:
Teflon, Natural Rubber, Bakelite, Polythene
- b) Name the polymer that is used for making nonstick cooking utensils.
17. a) What does the designation "6,6" mean in Nylon- 6,6?
- b) Give two important uses of nylon-6 polymer
18. Identify the aliphatic biodegradable polymer, which is used in packaging and orthopaedic devices. Write its full name, and give structure of monomers and its preparation.
19. Name the following polymers, that are:
- a) Used in making paints and lacquers
- b) Used in conveyor belts.
- c) Used for making disposable cups for hot tea or coffee.
20. a) Define the term vulcanization
- b) Give the role of sulphur in vulcanization of rubber

Multiple Choice question:

1. The copolymer in the following is
(A) PAN (B) Teflon (C) Orlon (D) Dacron
2. The polymer used in non-stick surface coating
(A) Terylene (B) PAN (C) Teflon (D) HDPE

- 3 Which one of the following is not a natural polymer
(A) Protein (B) Rubber (C) Rayon (D) Starch
- 4 Which one of the following is not a linear polymer
(A) PAN (B) LDPE (C) HDPE (D) PHBV
- 5 Pick the odd one in the following
(A) Buna-N (B) Buna-S (C) Neoprene (D) Chloroprene