

03

January 2006 Tuesday

Important question of Synthetic Polymer.

- ① Define and give example of homopolymer and co-polymer
- ② Discuss the mechanism of free-radical polymerisation and cationic chain polymerisation.
- ③ Discuss the synthesis, structure and uses of the following polymers.
 - (a) Nylon - 6
 - (b) Phenol-formaldehyde (Bakelite)
 - (c) Urea-formaldehyde (Polyurethane rubber)
 - (d) Polyethylene terephthalate (Polyester)
 - (e) Epoxy resin
 - (f) Nylon 6,6
 - (g) Polyester
 - (h) Orlon (polyacrylonitrile)

2006

W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	*	*	*

February

January 2006 Wednesday

Assignment 10: Write short notes on the following

(4) What is Ziegler-Natta catalyst? What are the advantages of using Ziegler-Natta catalyst in polymerisation reaction.

(5) Write short notes on the following

(a) Vulcanisation of rubber

(b) Butadiene Styrene Rubber (Buna-S or SBR)

(c) Neoprene rubber (chloroprene)

(d) Thick rubber

(6) How would you ^{be} synthesised the following

(a) Isoprene from Acetylene

(b) Nylon-6 from phenol

(c) Neoprene from Acetylene

(d) Dacron from ethylene and p-xylene

(e) Buna-S from Acetylene and Styrene

January 2006 Thursday

⑦ State the difference between isotactic, syndiotactic and atactic polymerisation.

⑧ Write down the names and structural formula for the monomer from which the polymers are made up of.

① Terylene -

② Teflon -

③ PVC -

④ Nylon 66 -

⑤ Buna-Rubber -

⑥ Polystyrene -

⑦ Saran -

What are plastics? How they are

Describe the application of plastic in life.

06

January 2006 Friday

(10) Write short notes on

(a) Vulcanisation of rubber

(b) Thermoplastics and thermosetting Plastics

(c) Ziegler-Natta Polymerisation

(11) How will you differentiate between

(a) Polymer and Plastics

(b) Polymerisation and Vulcanisation

(c) Rubber and Gutta parcha

(d) Polythene and Orlon

(12) What is polymerisation? Explain

Step growth polymerisation with example

(13) Name the two types of ionic addition polymerisation. Give their mechanism also

Objective Questions

(5) Bakelite (6) Nylon 66 and (7) Terylene

7. What is polymerisation ? Explain step growth polymerisation with examples.
8. Name the two types of ionic addition polymerisation. Give their mechanism also.
9. What are Ziegler-Natta Catalysts ? Give their importance in the formation of addition polymer.
10. What is natural rubber ? How does it differ from Gutta Parcha.

11. Write the correct answer from the given alternatives with reason :

1. Orlon is prepared by the polymerisation of :

- | | |
|----------------------|---------------------|
| (i) Vinyl cyanide | (ii) Allyl alcohol |
| (iii) Vinyl chloride | (iv) Allyl chloride |

Ans. (i) It is a addition polymer of vinyl cyanide.

2. Teflon is prepared by the polymerization of :

- | | |
|----------------------|--------------------------|
| (i) Butadiene | (ii) Vinyl cyanide |
| (iii) Vinyl chloride | (iv) Tetrafluoroethylene |

Ans. (iv) Tetrafluoroethylene

3. Bakelite is obtained from :

- (i) Phenol and formaldehyde
- (ii) Adipic acid and hexamethylene diamine
- (iii) Dimethyl terephthalate and ethylene glycol
- (iv) Neoprene

Ans. (i) It is prepared by condensation polymerisation of phenol and formaldehyde.

4. Nylon - 6, 6 is obtained from :

- (i) Adipic acid and hexamethylene diamine
- (ii) Tetrafluoroethylene
- (iii) Vinyl cyanide
- (iv) Vinylbenzene

Ans. (i) Both the constituents have 6 carbon atoms each.

5. Neoprene is a polymer of the following monomer :

- | | |
|-----------------|-----------------|
| (i) Chloroprene | (ii) Isoprene |
| (iii) Isobutane | (iv) Isopentene |

Ans. (i) Polymerization of chloroprene gives Neoprene.

6. Which of the following is a thermosetting polymer ?

- | | |
|--------------------|----------------|
| (i) Bakelite | (ii) Nylon-6,6 |
| (iii) Polyethylene | (iv) Teflon |

Ans. (i) Bakelite once set can not be reshaped.

7. Which of the following is an example of a condensation polymer ?

- | | |
|---------------------|-------------|
| (i) Nylon-6,6 | (ii) Teflon |
| (iii) Polypropylene | (iv) Orlon |

Ans. (i) Because it is formed by condensation polymerization of two monomers.

Which of the following polymer contain nitrogen :

- (i) PVC
- (ii) Nylon
- (iii) It is an amide polymer.

- (ii) Teflon
- (iv) Terylene

Adipic acid reacts with hexamethylene diamine to form :

- (i) Bakelite
- (ii) Terylene
- (iii) This is found experimentally.

- (ii) Nylon-6,6
- (iv) Nylon-6,8

Ethylene glycol reacts with dimethyl terephthalate to form :

- (i) Nylon-6,6
- (ii) Dacron
- (iii) Experimentally seen.

- (ii) Teflon
- (iv) Orlon

