

P. Pages : 2

Time : Three Hours



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AW - 3070

Max. Marks : 80

- Notes :
1. All question carry marks. as indicated.
 2. Answer **Three** question from Section "A" and **Three** question form Section "B".
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Diagrams and Chemicals equations should be given wherever necessary.
 6. Illustrate your answer necessary with the help of neat sketches.
 7. Discuss the reaction, mechanism wherever necessary.
 8. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) What is step polymerization? Explain the chemistry of polycondensation polymerization by giving suitable example. 7
- b) Discuss the manufacturing process, chemistry and properties of aromatic polyamides. 7

OR

2. Explain the chemistry and properties of following step polymers:- 14
 - i) Aromatic polysulfide
 - ii) Polycarbonate.
3. Explain the followings in detail:- 13
 - i) Photochemical Initiation.
 - ii) Radix Initiations.

OR

4. a) What do you mean by initiator efficiency? How would you determine initiator efficiency experimentally? 7
- b) What do you mean by photochemical initiation? Explain the kinetics of initiation for radical chain polymerization. 6
5. What are the different modes of termination in cationic chain polymerization? Discuss in detail termination by combination with counter ions. 13

OR

6. a) Compare the anionic chain polymerization with cationic chain polymerization. 6
- b) Discuss the initiation of anionic polymerization, by electron transfer with the help of reaction mechanism. 7

SECTION - B

7. a) Discuss the various factors which affects monomer reactivity ratio. Also derive Alfrey Price equation. 7
- b) Explain the chemistry of block and graft copolymer by giving suitable example. 7

OR

8. a) What do you mean by monomer reactivity ratio? Explain the correlation between monomer reactivity ratio and copolymer structure. 7
- b) Explain the chemistry of random and alternate copolymer by giving suitable example. 7
9. a) What are stereo polymers? Discuss the chemistry of polymerization of 1,3-butadiene. 6
- b) Classify the polymers on the basis of tacticity. What is the effect of tacticity on the properties of polymers. 7

OR

10. Explain in detail the reaction mechanism of Metallocene catalyst for polymerization of Polyolefins. 13
11. Discuss in detail the chemistry of phenol formaldehyde. Also give the properties and applications of phenolic resin. 13

OR

12. Explain in detail the chemistry of following thermosetting resins:- 13
- i) Epoxy
- ii) Unsaturated polyester.
