LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – NOVEMBER 2018

CH 5402– POLYMER CHEMISTRY

Date: 03-11-2018   Dept. No.   Max. : 100 Marks
Time: 09:00-12:00

Part A

Answer ALL questions.   **(10 x 2 = 20)**

1. What is monomer functionality?
2. Provide an example for natural and synthetic polymer.
3. Define cohesive energy.
4. Give any two commonly used inhibitors in free radical polymerization.
5. What is compounding?
6. What is vulcanization of rubber?
7. Expand the following terms: (i) HDPE (ii) PMMA.
8. What are elastomers?
9. Differentiate between thermo and thermo setting plastics.
10. What are the characteristics of photostabilizers?

Part B

Answer any EIGHT questions.   **(8 x 5 = 40)**

11. Illustrate and explain the tacticity of polymers.
12. Mention the characteristic features of monomers and polymers.
13. Describe the mechanism of anionic polymerization of styrene.
14. Compare addition and condensation polymerizations.
15. Write a short note on conducting polymers.
16. How is epoxy resin synthesized? Mention its uses.
17. What are polymer additives? Mention the advantages of fillers.
18. Describe the free radical mechanism of polymerization of propylene.
19. Write a note on interfacial polymerization.
20. Classify and explain the polymers based on their thermal behavior.
21. Give an account on thermosetting plastics with suitable examples.
22. Write a short note on bulk polymerization technique.

Part C

Answer any FOUR questions.   **(4 x 10 = 40)**

23. Discuss the primary and secondary bond forces in polymers.
24. Derive the formulae for number and weight average molecular weight of polymers.
25. Discuss the mechanism of Ziegler-Natta polymerization with a suitable example.
26. Write an account on various types of polymer degradation process.
27. Describe the calendaring and die casting polymerization process.
28. Write a note on conducting polymers and fibre forming polymers.

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