



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

## B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIFTH SEMESTER – APRIL 2019

### CH 5402– POLYMER CHEMISTRY

Date: 24-04-2019  
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

#### Part-A

Answer ALL questions.

(10 × 2 = 20)

1. Define monomer functionality.
2. Provide an example for natural and synthetic polymers.
3. Differentiate between Buna-N and Buna-S polymer.
4. What is polydispersity index?
5. What are co-polymers?
6. What is meant by a living polymer?
7. Mention any two fire retardants used in polymer processing.
8. Mention the difference between thermosetting and thermoplastics?
9. Expand the following terms: (i) PEG (ii) PMAA.
10. What are fibres?

#### Part-B

Answer any EIGHT questions.

(8 × 5 = 40)

11. Discuss briefly the different stereochemistry involved in polymers.
12. Describe the various bonding forces present in polymers.
13. Write a note on the classification of polymers.
14. Provide an account on anionic polymerization
15. Describe the processing and vulcanization of natural rubber.
16. What are polymer additives? Mention the role of plasticizers in polymers.
17. Explain bulk polymerization and its advantages
18. Write a short note on conducting polymers.
19. Describe the reinforcing polymerization process.
20. Illustrate and explain calendaring polymerization technique.
21. Discuss the advantages of conducting polymers with a suitable example.
22. How Nylon-6,6 manufactured commercially?

#### Part-C

Answer any FOUR questions.

(4 × 10 = 40)

23. Derive the formulae for number and weight average molecular weight of polymers.
24. Discuss the mechanisms of Ziegler-Natta polymerization with a suitable example.
25. Write an account on various types of polymer degradation
26. Give the preparation and properties of the following polymers:  
(i) Teflon (ii) epoxide resins. (5+5)
27. Describe the die casting and injection moulding polymerization process.
28. Write a note on thermal stabilizers and antioxidants used in polymers.

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