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R – 1280

Reg. No. :

Name :

Sixth Semester B.Sc. Degree Examination, April 2023

First Degree Programme under CBCSS

Chemistry

Elective Course

CH 1661.3 : POLYMER CHEMISTRY

(2017-2019 Admission)

Time : 3 Hours

Max. Marks : 80

PART -- A

Answer all questions. Answer in one word to maximum of two sentences. Each question carries 1 mark.

1. Write any two examples for synthetic polymers.
2. What is meant by isotactic polymers?
3. What are the common initiators used in free radical polymerisation reactions?
4. Write the role of viscosity in the case of bulk polymerisation reactions.
5. What are the main uses of epoxy resins?
6. What is meant by curing process?
7. What is the monomer of natural rubber?

P.T.O.

8. What is meant by rayon?
9. Explain the process of thermoforming.
10. Define vulcanization of rubber.

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions. Each question carries **2** marks. (short answer type)

11. Differentiate block and graft polymers.
12. Write any two distinctions between thermoplastics and thermosetting plastics.
13. What is meant by cross polymers?
14. Write short notes on silicones.
15. How is HDPE prepared?
16. Write the polymerisation reactions of neoprene.
17. What is meant by SBR copolymer?
18. Write the polymeric structure of PVA.
19. Write Carother's equation and explain the terms.
20. What is Teflon? How is it synthesized?
21. What are the different grades of PVC available?
22. Explain the electrical properties of polymers.

(8 × 2 = 16 Marks)

PART -- C

Answer **any six** questions. Each question carries **4** marks.

23. Distinguish plastics, fibres and elastomers.
24. Write short notes on poly urethanes.
25. Explain the polymerisation reactions of
(a) terylene and (b) PVC.
26. Explain the salient features of suspension polymerisation.
27. Write notes on lexan.
28. Distinguish the polymerisation reactions of nylon – 6 and nylon –6, 6.
29. Define PDI. Mention its significance.
30. Comment on the mechanical properties of polymers.
31. Write notes on the crystallinity of polymers.

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions. Each question carries **15** marks.

32. Write notes on :
(a) thermal (b) photochemical and (c) oxidative degradation of polymers.
33. (a) Define Tg. Write on the factors that affect Tg.
(b) Write notes on the principle of TGA.
34. Discuss on the mechanism of cationic and anionic polymerization.
35. Comment on the following polymerisation processing techniques
(a) Compression moulding
(b) Extrusion fibre spinning and
(c) Injection moulding.

(2 × 15 = 30 Marks)