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Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, March 2020

First Degree Programme Under CBCSS

Chemistry

Elective Course

CH 1661.3 – POLYMER CHEMISTRY

(2017 Admission)

Time : 3 Hours Max. Marks : 80

SECTION – A

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

1. What is meant by functionality of a monomer?
2. Give one example for co-ordination polymerization.
3. Explain graft polymers.
4. Give two applications of polyurethanes.
5. Neoprene is chemically _____
6. Explain emulsion polymerization.
7. Give the outline of the synthesis of nylon-6.

P.T.O.

8. Define glass transition temperature.

9. Give an example of a polymer which is used for making lenses.

10. Define number average molecular weight of a polymer.

(10 × 1 = 10 Marks)

SECTION – B

Short answer type (Not to exceed one paragraph). Answer **any eight** questions. **Each** question carries **2** marks.

11. What are elastomers? Give one example.

12. Explain addition polymerization with a suitable example.

13. What is TEFLON chemically? Mention its applications.

14. Give the synthesis of SAN.

15. Outline the synthesis of PVA and mention its applications.

16. Discuss the synthetic applications of terephthalates.

17. What are silicones? Give its method of preparation.

18. Give one method of preparation of polycarbonates.

19. Mention the methods of determination of molecular weight of a polymer.

20. What are the factors affecting GTT of a polymer?

21. Discuss the term thermoforming.

22. Explain the process vulcanization of rubber.

(8 × 2 = 16 Marks)

SECTION – C

Short essay (Not to exceed 120 words). Answer **any six** questions. **Each** question carries **4** marks.

23. Differentiate thermoplastics and thermosetting plastics.

24. Write a short note on melamine-formaldehyde resins.

25. Discuss the electrical and mechanical properties of rubbers.

26. Explain synthesis and properties of SBR and ABS rubbers.

27. Discuss the TGA of polymers with a neat diagram.

28. Write a short note on Bakelite.

29. Discuss the degradation of polymers by oxidative and chemical methods.

30. Explain the kinetics of polymerization and Carother's relation.

31. Write short notes on vinyl polymers.

(6 × 4 = 24 Marks)

SECTION – D

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

32. (a) Discuss the free radical mechanism of addition polymerization. (8)

(b) Write short note on natural polymers. (7)

33. (a) Write short note on epoxy resins and its curing mechanism. (8)

(b) Explain the synthesis, properties and uses of HDPE and LDPE. (7)

34. (a) Write short note on polyamides. (8)

(b) Discuss the synthesis and applications of polyesters. (7)

35. Write an essay on the various steps in the polymer processing.

(2 × 15 = 30 Marks)
