(Pages : 4) **J – 1849**

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, March 2020

First Degree Programme under CBCSS

Elective Course

CH 1661.3 / IC 1661.3 – Polymer Chemistry

(Common For CBCSS Chemistry (2013-2016 Admission) and Career Related Group 2 (a) Chemistry and Industrial Chemistry (2013 Admission onwards))

Time : 3 Hours Max. Marks : 80

PART – A

Answer **all** questions. Each question carries **1** mark

1. _____ is an example of thermoplastic polymer.
2. Bakelite is prepared by the condensation of _____ and _____
3. Cellulose acetate is prepared by the action of _____ on cellulose.
4. Addition of Plasticisers will _____ the Tg of polymers.
5. Two important application of Epoxy resins are _____
6. Natural rubber is the _____ form of Polyisoprene.
7. Trade name of polytetrafluoro ethylene is _____
8. Nylon 6,10 is prepared from _____ and _____

P.T.O.

9. What are Silicones?

10. _____ is linear, fibroin polymer.

(10 × 1 = 10 Marks)

PART – B (Short Answer Type)

Answer **eight** questions. Each question carries **2** marks

11. Write a short note on mechanical degradation of polymers.

12. Distinguish between number average molecular mass and weight average molecular mass.

13. What is Dacron? How is it manufactured?

14. What is ABS? What are it's advantages over other polymers?

15. Why melamine formaldehyde resins are used in plastic laminates and electrical plugs?

16. What is polyurethane? Write about it's properties.

17. What is a polymeric resin? Give one example.

18. What are living polymers?

19. State any two defects of polystyrene.

20. Why aliphatic polyesters are not widely used in industry? What type of modifications is introduced to rectify the defect?

21. Distinguish between a block polymer and a graft copolymer.

22. Define (a) Young's modulus (b) Elongation at break

(8 × 2 = 16 Marks)

PART – C (Short Essay)

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

23. What is Ziegler Natta catalyst? How is it useful in the preparation of stereo regular polymers.

24. Write a short note on synthesis and application of Rayon.

25. How will you distinguish elastomers, fibers and plastics giving suitable examples?

26. What is meant by bulk polymerisation? What are it's merits and demerits.

27. Briefly discuss any two methods of synthesis and application of amino resins.

28. Write a short note on carothers equation and explain it's significance.

29. Write any one method of determination of Tg of polymers.

30. Discuss briefly on injection moulding.

31. How is Nylon 6, and Nylon 6,6 manufactured?

(6 × 4 = 24 Marks)

PART – D (Long Essay)

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

32. (a) Write briefly on bulk and solution polymerisation technique. Discuss their merits, demerits and applications.

    (b) Write a short note on synthesis, properties and application of (i) Polyurethanes (ii) Epoxy resins

33. Briefly discuss various polymeric processing techniques.

34. Distinguish between number average and weight average molecular mass of polymers. How are they determined?

35. (a) Briefly discuss the synthesis, properties and application of (i) Poly propylene (ii) LDPE.

(b) Explain osmotic pressure method for determining molecular mass of polymers.

(2 × 15 = 30 Marks)
