C 21595 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE (SUPPLEMENTARY/IMPROVEMENT) EXAMINATION, MARCH 2017

(UG-CCSS)

Chemistry

CH 6B 20 (E4) – CHEMISTRY AND TECHNOLOGY OF POLYMERS

Time : Three Hours Maximum : 30 Weightage

I. Answer *all* the questions. Each question carries a weightage of ¼. This section contains multiple choice, fill in the blank and one word answer questions :

1. Give an example of synthetic fibre _____.
2. Melamine-formaldehyde is an example of _____ resin.
3. _____ is a catalyst for the synthesis of stereo regular polymer.
4. _____ is a method of forming shape by forcing through a die.
5. Copolymer having the sequence –AAABBB– is a :
   (a) Block copolymer. (b) Cross-linked polymer.
   (c) Graft copolymer. (d) Homopolymer.
6. Crystallinity in polymer is due to :
   (a) Random alignment. (b) Intra-molecular alignment.
   (c) Inter-molecular alignment. (d) Both intra-and inter-molecular alignment.
7. Polymer used in the manufacture of celluloid is :
   (a) Polypropylene. (b) Epoxy resin.
   (c) Cellulose nitrate. (d) Polymethyl methacrylate.
8. Thiokol is a condensation polymer obtained by the reaction between sodium tetra-sulphide and :
   (a) Ethylene amine. (b) Di-iso-cyanate.
   (c) Vinyl chloride. (d) Ethylene chloride.
9. Blow moulding is used for the preparation of :
   (a) Hollow articles. (b) Lacquers.
   (c) Films. (d) Fibres.
10. Give an example of linear polymer.
11. Silicone have _____ linkages.
12. Calendaring is most conveniently used for the formation of _____.

(12 × ¼ = 3 weightage)

Turn over

II. Answer all questions. Each carries a weightage of 1.

13. What are thermoplastic resins?
14. How is nylon 6 prepared?
15. Explain, how abrasion resistance can be measured.
16. Describe the process of compounding in rubber.
17. Discuss the application of injection moulding.
18. Mention any *two* materials used for the preparation of synthetic fibres.
19. Distinguish between graft and block copolymers.
20. Describe the synthesis and applications of PVC.
21. What is resilience?

(9 × 1 = 9 weightage)

III. Answer any *five* questions. Each carries a weightage of 2 :

22. Describe the advantages of synthetic rubber over natural rubber.
23. Describe the different kind of tacticity exhibited by polymers.
24. Write down the main steps involved in the cationic polymerisation.
25. Describe the process of retardation and relaxation.
26. What is glass transition temperature? Give its significance.
27. Write a note on the advantage of composites over resins.
28. Describe the method of open milling used in the rubber industry.

(5 × 2 = 10 weightage)

IV. Answer any *two* questions. Each carries a weightage of 4 :

29. With an example, discuss the step growth polymerization.
30. Describe the method for determining the number average molecular weight of polymers.
31. Discuss the synthesis, properties and application of : (a) PMMA ; (b) PU ; and (c) silicone resins.

(2 × 4 = 8 weightage)