Register Number: …….

B.TECH DEGREE EXAMINATIONS: APRIL/MAY 2010

Second Semester

TEXTILE TECHNOLOGY

U07TT202: Polymer Science

Time: Three hours **Maximum marks: 100**

Answer All Questions:

PART A (10 x 1 = 10 Marks)

1. Polymerization in which two or more chemically different monomers takes part is Called

   a) Addition polymerization b) Co-polymerization

   c) Chain polymerization d) Co-ordination polymerization

2. Polymer commonly used for making fibre/ cloth is

   a) Rubber b) PVC c) Nylon d) Bakelite

3. The raw materials used for the manufacture of polyester are

   a) Glycerol + Terephthalic acid b) Urea + Formaldehyde

   c) Vinyl chloride d) Phenol + Formaldehyde

4. Low density polythene is obtained by using

   a) Anionic Catalyst b) Free radical indicator

   c) Ziegler –Natta catalyst d) Cationic catalyst

5. Cellulose alkoxide reacted with carbon disulphide producing

   a) Cellulose xanthate b) Cellulose acetate

   c) Ethyl cellulose d) Mercerized cotton

6. Celanese is trade name for

   a) Acetate silk b) Cupra silk c) Viscose rayon d) Mercerized cotton

7. The number of average molecular mass is a good index of

   a) Physical properties b) Chemical properties

   c) Mechanical properties d) Electrical properties

8. Both D.P. and Molecular weight are related to the

   a) Size of the polymer b) Size of monomer

   c) Weight of monomer d) Structure of monomer

9. Addition of asbestos to polymer provide

   a) Heat and corrosion resistance b) Glossy finish c) Transparent d) Color

10. The catalyst used in manufacture of poly propylene polymer is

    a) Ziegler –Natta b) Metal chloride c) Acetyl chloride d) Aluminum chloride

PART B (10 x 2 = 20 Marks)

11. Name two Natural polymers which are used as textile fibres.

12. Give examples for the initiators in cationic polymerization.

13. Why do LDPE and HDPE differ in density?

14. Teflon is an addition polymer, but it behaves some what like a thermo setting polymer. Give reasons

15. Name any two important derivatives of cellulose?

16. What is polynosic yarn?

17. Give expression for number – average molecular weight of polymer.

18. What is end group analysis?

19. Give the functions of fillers in plastics.

20. Define calendaring.

PART C (5 x 14 = 70 Marks)

21. a) (i) Explain the different steps involved in cationic polymerization with an example.(8)
(ii) Write short notes about bulk polymerization (6)

(OR)

b) (i) What is free radical polymerization explain with an example. (8)
(ii) What is solid and gas phase polymerization? (6)

22. a) (i) Describe preparation , properties and industrial application of PBT? (8)
(ii) Explain the production of Polyurethane (6)

(OR)

b) (i) Explain the manufacture of Nylon 6,6 .Give its important fiber properties. (8)
(ii) Write short note on manufacture of Teflon and its uses. (6)

23. a) (i) Explain the manufacture of Rayon by viscose Cupra ammonium process. (7)
(ii) Write short note about super high wet modulus yarn. (7)

(OR)

b) (i) What is acetate silk? How can be manufacture from cellulose? (7)
(ii) Explain Regenerated protein: casein (7)

24. a) (i) Explain the gel permeation chromatography for separation of polymers. (8)
(ii) What is principle involved in sedimentation velocity method. (6)

(OR)

b) (i) Explain the principle and instrumentation of DGA. (7)
(ii)Explain determination of molecular weight of polymer by light scattering method. (7)

25. a) (i) Write short note about reuse of Acrylic and poly propylene wastes. (7)
(ii) What is film casting? Give example. . (7)

(OR)

b) (i) Describe briefly the extrusion manufacturing process of polymers. (8)
(ii) How can the monomers recovered from the polyesters? (6)

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