B 235

B.E/B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2005.

Fourth Semester

Textile Technology

CH 248 — POLYMER CHEMISTRY

(Common to Textile Chemistry)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define : Functionality. Give any one example of a bifunctional monomer.
2. What is Tacticity?
3. What are initiators?
4. Mention any two characteristics of surfactants.
5. Define the term : Crystallisability.
6. What are the factors that affect glass transition temperature?
7. What is Plexi glass?
8. What is ABS polymer?
9. Define : Compounding of the resin.
10. What is Calendering?

PART B — (5 × 16 = 80 marks)

11. (i) How are polymers classified? Explain. (8)

    (ii) Explain the terms :

    (1) Graft co-polymer.

    (2) Iso tactic polymer.

    (3) Atactic polymer.

    (4) Syndiotactic polymer. (8)

12. (a) (i) Discuss the mechanism of free–radical polymerization. (8)

(ii) Differentiate solution polymerization from suspension polymerization. (8)

Or

(b) (i) Distinguish addition polymerization from condensation polymerization. Give at least two examples for each. (8)

(ii) Discuss the mechanism of bulk polymerization. (8)

13. (a) (i) Bring out the relationship between glass transition temperature and molecular weight. (8)

(ii) Discuss the characteristics of spherulites. (8)

Or

(b) (i) What is the effect of crystallinity on the properties of polymers? (8)

(ii) Bring out in detail the various transitions occurring in polymer. (8)

14. (a) (i) Explain in detail the preparation of

(1) Polymethanes (2) Teflon

with relevant chemical reactions. (4 + 4)

(ii) What are polyamides? Discuss the synthesis of

(1) Nylon 6 (2) Nylon 6 : 6. (4 + 4)

Or

(b) (i) Mention any one method of preparation and uses of

(1) PVC (2) Polystyrene. (4 + 4)

(ii) How will you obtain Dacron? Mention its properties and uses. (8)

15. (a) (i) With a neat diagrams, explain the characteristics of a plastic extruder. (8)

(ii) Write briefly the characteristics of

(1) Flame retardants. (2) Anti–oxidants. (4 + 4)

Or

(b) (i) With a neat diagram, explain Wet spinning process. (8)

(ii) Write a brief account of (4 + 4)

(1) UV stabilizers.

(2) Antistatic agents.
