Reg. No. : | | | | | | | | | | | |

K 4541

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Annual Pattern – First Year

(Regulation 2004)

Textile Technology

TT 1 X 01 — POLYMER SCIENCE AND TEXTILE FIBRE PRODUCTION

(Common to Textile Technology (Textile Chemistry))

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are copolymers? Mention their types.

2. What is meant by degree of polymerization? Give the classification of polymers based on that.

3. List the important properties of PVC.

4. Give the applications of polyacrylonitrile.

5. Mention the factors affecting first order transitions.

6. What is meant by tacticity?

7. What is meant by stretch breaking?

8. Outline the importance of crimping.

9. Mention the important properties of jute.

10. List the varieties of cotton.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the mechanism of free radical and cationic polymerizations. (8)

(ii) Give the merits and demerits of bulk, solution, suspension and emulsion polymerization techniques. (8)

Or

(b) (i) Explain the melt, solution and interfacial poly condensation techniques. (8)

(ii) Discuss in detail the different average molecular weight concepts. (8)

12. (a) (i) Describe the preparation, properties and applications of polyethylene and polypropylene. (8)

(ii) What are conducting and super absorbing polymers? Give their properties and applications. (8)

Or

(b) (i) Describe the preparation, properties and applications of carbon fibres. (8)

(ii) Explain the manufacture of polynosic yarn and lyocell. (8)

13. (a) (i) Discuss the important components of a solution spinning line. (9)

(ii) Write a note on optical and electrical properties of polymers. (7)

Or

(b) (i) Describe the features and basic operations of static and dynamic mixer and high speed winder. (9)

(ii) Write a note on mechanical and thermal properties of polymers. (7)

14. (a) (i) What is meant by drawing? Explain how drawing affects the properties of a fibre? How is it carried out? (8)

(ii) Discuss the process of heat setting. (8)

Or

(b) (i) Explain the need, principles and types of texturisation. (8)

(ii) Write a short note on spin finishes. (8)

15. (a) (i) Discuss the cultivation, grading and baling of cotton. (8)

(ii) Describe the steps involved in wool shearing and grading. (8)

Or

(b) (i) Give the important varieties of silk and wool. Compare the properties of silk and wool. (8)

(ii) Discuss the jute cultivation and extraction of jute fibre. (8)
