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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2008.

Fourth Semester

Textile Technology

TT 1255 — STRUCTURE AND PROPERTIES OF FIBRES

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name the methods to investigate the fiber structure.
2. Give the chemical structure for cotton and polyester fibre
3. Define moisture content and moisture regain.
4. What is 'heat of sorption'?
5. Define initial modulus.
6. What is primary and secondary creep?
7. Define fibre refractive index
8. Name the factors influences the fibre lustre?
9. Why most of textile fibres are insulators?
10. What is glass transition temperature?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the basic requirement for fibre formation. (4)
(ii) Explain the role of degree of orientation of molecular chains on fibre physical properties. (12)

Or

- (b) Explain any one method for investigating the fibre fine structure.

12. (a) What is hysteresis in moisture absorption? Explain in detail

Or

(b) Explain the factors influencing the rate of conditioning of textile materials.

13. (a) Discuss the following : (4 × 4)

- (i) Breaking strength
- (ii) Work of rupture
- (iii) Breaking extension
- (iv) Work factor.

Or

(b) Define fibre flexural rigidity. Explain the measurement technique for fibre flexural rigidity.

14. (a) Explain the factors influences the measurement of refractive index of fibres.

Or

(b) Explain the theories of fibre friction.

15. (a) Explain the methods of eliminating static charges in textile fibres.

Or

(b) What is heat setting? Explain in detail.