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**T 3495**

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 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. What is the basic requirement for fibre formation?
2. What are the models used to describe the structures of fibre?
3. Why do fibres differ in absorbing moistures?
4. What is 'heat of sorption'?
5. Define mass specific stress.
6. What is torsional rigidity?
7. What is Birefringence?
8. What is the role of friction in fibre processing?
9. Name the methods used to assess the electrical resistance of fibres.
10. What is heat-setting of fibres?

**PART B — (5 × 16 = 80 marks)**

11. (a) Explain the chemical and fine structure of the following fibres. (2 × 8)
- (i) Viscose
  - (ii) Polyamide.

Or

- (b) What are the methods used to investigate the structures of fibres? Explain any one in detail. (16)

12. (a) Define fibre swelling. Explain in detail.

Or

- (b) Explain the role of fibre structure on moisture absorption with suitable illustrations.

13. (a) Discuss the tensile properties of the following fibres. (4 × 4)

- (i) Cotton
- (ii) Polyester
- (iii) Polyacrylonitrile
- (iv) Polypropylene.

Or

- (b) What is primary and secondary creep? Explain in detail.

14. (a) Explain the factors influencing 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) Explain the flammability characteristics of natural fibres.