

C 3417

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2007.

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. Give the basic requirements for fibre formation.
2. What is degree of orientation?
3. Compare moisture content and moisture regain.
4. What is differential heat of sorption?
5. Define mass specific stress.
6. What is primary and secondary creep?
7. Define optical orientation factor.
8. Name the factors influencing the fibre lustre.
9. What is heat setting?
10. Name any four methods of increasing the electrical conductivity of non conducting synthetic fibres.

PART B — (5 × 16 = 80 marks)

11. (a) Name the various methods analysing the fine structure of fibres. Explain any one of them in detail.

Or

- (b) Discuss the fine structure of acetate fibres

12. (a) Explain the role of fibre structure on moisture absorption.

Or

(b) Explain the following :

- (i) Axial swelling
- (ii) Volume swelling.

13. (a) What is weak link effect? Explain in detail.

Or

(b) Explain the two basic principles of tensile testing of fibres.

14. (a) What is birefringence? Explain the method of measuring the birefringence of textile fibre.

Or

(b) Explain the theory of fibre directional frictional effect.

15. (a) Explain the following fibre thermal properties :

- (i) Specific heat.
- (ii) Thermal expansion
- (iii) Thermal conductivity

Or

(b) Explain the various structural changes takes place in fibres on heating.