AMTE-9 CHARACTERISTICS OF TEXTILE FIBRES-II

UNIT-1 TORSIONAL CHARACTERISTICS

1.1 Torsional rigidity of FIBREs
1.2 Comparison of natural and man-made FIBREs
1.3 Measurement techniques- torsional rigidity and its relation to other FIBRE properties-
1.4 Torque- twist relations for various FIBREs-
1.5 Torsion and time relation breaking twist angle- estimation- comparison of various FIBREs.

UNIT-2 FLEXURAL CHARACTERISTICS

2.1 Flexural rigidity of FIBREs
2.2 Measurement techniques-
2.3 Flexural rigidity and its relation to other FIBRE properties
2.4 Comparison of various FIBREs.

UNIT-3 OPTICAL CHARACTERISTICS

3.1 Reflexion and Lustre-objective and subjective methods of measurement
3.2 Refractive index and its measurement- birefringence,
3.3 Factors influencing birefringence
3.4 Absorption and dichroism

UNIT-4 FRICTIONAL CHARACTERISTICS

4.1 Friction– static, limiting and kinetic friction,
4.2 Its measurement, comparison of FIBREs,
4.3 Directional friction in wool
4.4 Frictional and surface characteristics of natural and synthetic FIBREs
4.5 Friction and lubrication.

UNIT-5 ELECTRICAL AND THERMAL CHARACTERISTICS

5.1 Electrical resistance of FIBREs- measurement,
5.2 Factors influencing electrical resistance;
5.3 Di-electric behaviour– factors influencing di-electric properties;
5.4 Static electricity– measurement, problems and elimination techniques;
5.5 Thermal conductivity, thermal expansion and contraction, melting.

References Book:

1. Hearle J. W. S. Lomas B. and Cooke W. D., "Atlas of FIBRE Fracture and Damage to Textiles", The Textile Institute, 2nd Edition, 1998.
2. Raheel M. (ed.), "Modern Textile Characterization Methods", Marcel Dekker, 1995.
3. Mukhopadhyay S. K., "The Structure and Properties of Typical Melt Spun FIBREs" Textile Progress, Vol. 18, No. 4, Textile Institute, 1989.
4. Mukhopadhyay S. K., "Advances in FIBRE Science" The Textile Institute, 1992.