

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. Sem. – IV - Examination –June- 2011

Subject code: 142802

Subject Name: Fiber Physics

Date:08/06/2011

Time: 10.30 am – 01.00 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) What is spectroscopy Explain NMR spectroscopy? **07**
(b) Discuss Glass transition temperature. **07**

- Q.2** (a) Explain Flexural rigidity. **07**
(b) What is fibre friction? Give the importance of friction in textile. **07**

OR

- (b) Define : Electrical resistance, Specific Resistance and Mass specific resistance. **07**

- Q.3** (a) Explain in detail the X-ray diffraction technique used to investigate fibre structure. Analyze the diffraction photographs of different fibres. **14**

OR

- Q.3** (a) Write a note on Elastomeric fibres. **07**
(b) Enlist different types of bonds in textile fibre and describe Hydrogen bonding. **07**

- Q.4** (a) Explain measurement of bending through “Tensile Tester” **07**
(b) Define and discuss Elastic recovery. Also discuss Mechanical conditioning and swelling recovery. **07**

OR

- Q.4** Explain Stress-Strain curve and write a note on Initial modulus, Work factor and Yield point. **14**

- Q.5** Explain Creep, primary and secondary creep. Discuss Lenderman’s experiments on primary creep. **14**

OR

- Q.5** (a) Give definitions and units of Heat of sorption, Vapour Pressure, Absolute humidity. **07**
(b) Discuss the effect of moisture, temperature and frequency on dielectric properties of fibres. **07**
