

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2013****Subject code: 1722505****Date: 05-06-2013****Subject Name: Advanced Fiber Properties****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) Define structure of cotton fiber morphologically. **07**
(b) Give briefly the general view of fine structures of fibres. **07**

- Q.2** (a) What is meant by standard relative humidity and temperatures maintained in testing lab for different testing of textile fibres/yarns/fabric samples? **07**
(b) How testing results of textile samples influenced by relative humidity and temperature of atmosphere? **07**

OR

- (b) Define relation between regain and relative humidity. **07**

- Q.3** (a) How fine structure of the fiber is analysed instrumentally? **07**
(b) What is your view about moisture equilibrium? How specimen reaches equilibrium with time? **07**

OR

- Q.3** (a) Describe the instrument used to measure the degree of order and orientation of polymers. **07**
(b) How the glass transition temperature is measured? Explain the working of the instrument in short. **07**

- Q.4** (a) What are those factors that determine the results of tensile experiments of textile fibres/yarns? **07**
(b) Define load ñ elongation curves of an individual fibre. **07**

OR

- Q.4** (a) Define (i) strength (ii) work of rupture (iii) initial modulus (iv) compliance and (v) work factor of textile fibre. **07**
(b) Explain Meredith's construction to define yield stress and yield strain. **07**

- Q.5** (a) What is the effect of fine structure of fibres on the tensile properties? **07**
(b) Explain elastic and plastic deformations of textile fibres. **07**

OR

- Q.5** (a) Establish elastic recovery plotted against stress of different fibres. **07**
(b) Explain Meredith's experiment on elastic recovery. **07**
