## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER- IV (NEW) EXAMINATION – SUMMER 2015

Subject Code: 2142904 Date: 26/05/2015

**Subject Name: Fibre Physics** 

Time: 10:30am-1.00pm 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 the terms: - Absolute Humidity, Relative Humidity, Moisture Content and Moisture Regain with suitable examples. Discuss on Hysteresis.	07
	<b>(b)</b>	Discuss the factors affecting the fibre regain and effect of regain on fibre properties.	07
Q.2	(a) (b)	Discuss on swelling of fibre.  Write in short on heat of sorption of fibre.  OR	07 07
	<b>(b)</b>	Define the terms: - Breaking length, Stress, Specific Stress and Tensile Strain.	07
Q.3	(a) (b)	Discuss on Modulus, Work of rupture and Work factor.  Write in short on the factors affecting the tensile properties of textile materials.  OR	07 07
Q.3	(a) (b)	Discuss the different methods of tensile testing.  Explain stress-strain curves of various textile fibres and their significance.	07 07
Q.4	(a) (b)	Describe briefly on requirements for fibre forming polymers.  With a neat sketch explain morphological structure of cotton.  OR	07 07
Q.4	(a) (b)	Write short note on X-ray diffraction technique. Write on microscopic methods utilized for investigation of fibre structure.	07 07
Q.5	(a) (b)	Explain the structural changes that occur in fibre due to heating.  Discuss on Birefringence and measurement of birefringence.  OR	07 07
Q.5	(a) (b)	Discuss on measurement of fibre friction.  Write in short on absorption and dichroism of light.	07 07

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