Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV (New) EXAMINATION – WINTER 2015

Subject Code:2142904 **Date:19/12/2015**

Subject Name: FIBRE PHYSICS

Time: 02:30pm to 05:00pm **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)**	Discuss about fine structure as well as gross morphology of Cotton.	**07**
	(b)	Describe in detail about X ray diffraction studies.	**07**
Q.2	**(a)**	Explain (i) Humidity (ii) Regain & moisture content (iii) Relation between Regain & Relative Humidity (iv) Moisture Equilibrium	**07**
	(b)	Discuss in detail about various structural aspects of Wool.	**07**
		OR	
	(b)	Explain about Electron Microscopy.	**07**
Q.3	**(a)**	Discuss Differential heat of sorption and Integral heat of sorption. Also derive equation for relationship with heat of wetting.	**07**
	(b)	Discuss in detail about changes in fibre dimensions on Swelling.	**07**
		OR	
Q.3	**(a)**	Explain quantitative theories of absorption.	**07**
	(b)	Write in detail about (i) Work of rupture (ii) Initial modulus (iii) Work factor	**07**
Q.4	**(a)**	Discuss constant rate of loading testers.	**07**
	(b)	What is Creep & Relaxation? Discuss primary and secondary creep. Also explain experiments on creep.	**07**
		OR	
Q.4	**(a)**	Derive equation for “Flexural rigidity” to bend the fibre.	**07**
	(b)	Explain in detail about Refractive index and Birefringence.	**07**
Q.5	**(a)**	Discuss about reflexion and lustre.	**07**
	(b)	Explain any two methods for measurement of fibre friction.	**07**
		OR	
Q.5	**(a)**	Discuss measurement of electrical resistance of fibres.	**07**
	(b)	Explain structural changes in fibres on heating.	**07**

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