Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – SUMMER • 2014

Subject Code: 172905 Date: 29-05-2014

Subject Name: Fibre Science & Elements of Textile Structure

Time: 02.30 pm - 05.00 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)**	Derive the equations for Pierce's geometry of plain woven fabric where "weft yarn is straight and warp yarn is not jammed".	**07**
	(b)	Derive all equations related to warp and weft cover factor.	**07**
Q.2	**(a)**	Discuss the experimental methods used to determine water retention in fibres.	**08**
	(b)	Define : i. Ellipticity ii. Fibre modular length.	**06**
		OR	
	(b)	Write short note on : i. Analysis by Correlogram ii. Schwarz constant.	**06**
Q.3	**(a)**	Write short notes on : i. Hexagonal Close Packing ii. Disturbing factors.	**06**
	(b)	With neat figure discuss the zonal distribution curves for roving yarn.	**08**
		OR	
Q.3	**(a)**	Discuss the technique for observation of the paths of individual fibres to study migration behviour.	**10**
	(b)	Discuss about Fibre Migration.	**04**
Q.4	**(a)**	Discuss the Electronic microscopy techniques used for investigating Fibre Structure.	**07**
	(b)	Write a brief note on moisture absorption in textiles.	**07**
		OR	
Q.4	**(a)**	Discuss the practical effects influenced by rate of moisture absorption.	**07**
	(b)	Discuss the viscoelastic behavior and its impact in textile materials.	**07**
Q.5	**(a)**	Derive the relationship between crimp (C), yarn shrinkage (Sy) and cloth shrinkage (Sc) .	**08**
	(b)	Explain effects of application of tensile force to a fabric for a unidirectional loading.	**06**
		OR	
Q.5	**(a)**	Derive the equations for weight factor by Pierce and Dickson.	**08**
	(b)	Define following terms : i. Porosity ii. Permeability iii. Fabric density and specific volume	**06**

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