Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: 172905 Date: 28-11-2013

Subject Name: Fibre Science & Elements of Textile Structure

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)**	Derive the Contraction factor, Cy = ½ (1 + Sec α)	**07**
	(b)	Discuss in brief Hexagonal Close Packing.	**07**
Q.2	**(a)**	Define the terms : i. Twist Multiplier ii. Migration	**07**
	(b)	Hamilton geometry gave the following data : i. Major diameter = 300μ ii. Minor diameter = 220 μ iii. Ne = 20 tex iv. Fibre specific volume = 0.7 cu.cm / gm Estimate Φ.	**07**
		OR	
	(b)	Explain analysis by Correlogram.	**07**
Q.3	**(a)**	Discuss the importance of Packing Fraction.	**07**
	(b)	If for Staple yarn T.M = 4.6, Vy = 1.38, Find the value of surface twist angle.	**07**
		OR	
Q.3	**(a)**	Define Cover. Also derive equations for warp cover factor and weft cover factor.	**07**
	(b)	Discuss the Walen's method of crimp measurement based on load elongation curve.	**07**
Q.4	**(a)**	Derive all the equations for weight factor.	**07**
	(b)	Derive the value and equation for system diameter factor (sdf) in denier system.	**07**
		OR	
Q.4	**(a)**	Derive the equation of Pierce geometry for plain woven fabric 'when both of the yarns are jammed'.	**07**
Q.4	**(b)**	Explain fabric density and specific volume.	**07**
Q.5	**(a)**	Write a brief note on "Use of Infrared radiations for investigating Fibre Structure".	**07**
	(b)	Write a brief note on "Order & Disorder in Fibre Structure".	**07**
		OR	
Q.5	**(a)**	Discuss the Swelling in fibres in water.	**07**
	(b)	Write a brief note on fibre structure. Discuss the information to be gathered for investigating the same.	**07**

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