Seat No.: _____ Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (Old) EXAMINATION – WINTER 2019

Subject Code: 172905 **Date: 05/12/2019**

Subject Name: Fibre Science & Elements Of Textile Structure

Time: 10:30 AM TO 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.**

			MARKS
Q.1	**(a)**	Write a brief note on fibre structure. Discuss the information to be gathered for investigating the same.	**07**
	(b)	Write a short note on "Swelling in fibres".	**07**
Q.2	**(a)**	Write note on heat of absorption and heat of wetting.	**07**
	(b)	Explain in detail on X-ray Diffraction Technique.	**07**
		OR	
	(b)	Discuss the experimental methods used to determine water retention in fibres.	**07**
Q.3	**(a)**	Discuss in detail the significance of twist in yarns.	**07**
	(b)	Explain the terms:-Primary creep, Secondary creep and explain the viscoelastic behavior of fibres.	**07**
		OR	
Q.3	**(a)**	Derive the relationship between Packing density and Rate of migration.	**07**
	(b)	Write a brief note on moisture absorption in textiles.	**07**
Q.4	**(a)**	Discuss the Electronic microscopy techniques used for investigating Fibre Structure.	**07**
	(b)	Discuss the order and disorder in the structure of fibre.	**07**
		OR	
Q.4	**(a)**	Discuss the theories on Mechanical properties in man-made fibres.	**07**
	(b)	Derive Contraction in yarn Cy = ½(1+secα) and Retraction in yarn Ry = tan2 (α/2).	**07**
Q.5	**(a)**	With a neat sketch discuss the Peirce model for plain fabric. Discuss Fractional Cover and Total Cover.	**14**
		OR	
Q.5	**(a)**	Discuss the special conditions of Peirce model for plain fabric when angle (ø) is small, when filling is straight and when fabric is jammed.	**14**

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