

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII(NEW) EXAMINATION – SUMMER 2019

Subject Code:2172904
Date:16/05/2019
Subject Name:Yarn Structure & Fabric Geometry
Time:02:30 PM TO 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.

		MARKS
Q.1	(a) Enlist the structural features that are thought to have a major influence on the physical properties & performance characteristics of yarn.	03
	(b) Write in brief about role of twist in yarns.	04
	(c) Explain the idealized helical yarn geometry stating the assumptions made while developing it.	07
Q.2	(a) Yarns made from different spinning systems & of equal nominal count will exhibit different values of yarn diameter. Justify the statement.	03
	(b) Write in brief about Schwarz constant.	04
	(c) Derive all the equations to calculate fabric cover.	07
OR		
Q.3	(c) Derive the equation: $\tan\alpha = 0.0112v_y^{1/2}\tau$	07
	(a) Define: Ideal Migration pattern.	03
	(b) Write short note on: Hexagonal close packing.	04
	(c) With a neat diagram explain Coil winding method of measuring yarn dimensions.	07
OR		
Q.3	(a) Define : Migration.	03
	(b) Write in brief about Packing fraction.	04
	(c) Derive: Contraction factor: $C_y = \frac{1}{2} (1 + \sec\alpha)$	07
Q.4	(a) Explain importance of Tensile Properties of fabric.	03
	(b) Explain Crimp interchange phenomenon.	04
	(c) Explain Geometrical changes taking place during extension of fabric.	07
OR		
Q.4	(a) Explain actual fractional coverage (d/p).	03
	(b) Explain the terms work of rupture & work factor.	04
	(c) Derive the equations for the Peirce's geometry of special case when "Both the Yarns are jammed".	07
Q.5	(a) Explain Poisson's ratio.	03
	(b) Derive and discussed cover factor of square jammed fabric.	04
	(c) Established relationship between two measures of cover k & d/p.	07
OR		
Q.5	(a) Give limitation of fabric geometrical model.	03
	(b) What is the difference between Anisotropy & Isotropy ?	04
	(c) Find the cloth cover if warp count & epi is 60's & 100 respectively and weft count & ppi is 44's & 70 respectively. Also calculate Yarn Balance β .	07
