GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: 142802Date: 30/12/20Subject Name: Fibre PhysicsTime: 02:30pm to 05:00pmTime: 02:30pm to 05:00pmTotal Marks:Instructions:Total Marks:				
	 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 			
Q.1		(a)	Explain tensile properties of various fibres by their stress- strain curves.	07
		(b)	Discuss the fine structure of cotton with neat sketch.	07
Q.2		(a) (b)	Discuss morphology and physical properties of silk fibre. Explain the effect of orientation on mechanical properties of regenerated fibres.	07 07
			OR	
		(b)	Discuss the relationship of density with refractive index and birefringence with mathematical expressions.	07
Q.3		(a) (b)	Discuss the fine structure of wool in detail. Elaborately discuss ,how heating brings about the structural changes in fibre.	07 07
0.2		(\mathbf{a})	UR Explain (i) affect of polarization on electrical properties of fibre and (ii)	07
Q.3		(a)	electrolytic effect on fibres	07
		(b)	Write a detailed note on "melting of fibres".	07
Q.4		(a)	Discuss the effect of RH on regain of various fibres with suitable	07
		(b)	comparisons. Explain the terms: Initial modulus, Specific heat of fibres, Electrical resistance.	07
0.4		(-)	OR Describe in detail shout selt links as and energy links as inter melanular.	07
Q.4		(a)	forces in fibre system	07
Q.4		(b)	Discuss the chemical and physical properties of polyester fibres.	07
Q.5		(a)	Discuss the concept of swelling of fibres and explain the ways of	07
		(b)	measuring different types of swelling. Discuss the optical behaviour of fibres with suitable examples.	07
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Q.5		(a)	Justify the position of X-ray diffraction method in studies of fibres.	07
		(b)	Describe in brief the use of NMR and IR Spectroscopy in studies of fibre.	07
