Seat No.:	Enrolment No
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GUJARAT TECHNOLOGICAL UNIVERSITY

C	hiaa	BE - SEMESTER-IV (ULD) - EXAMINATION - SUMMER 2017 4 Code: 142902 Deta: 06/06/20	17
	•	et Code: 142802 Date: 06/06/20:	1/
	•	et Name: Fiber Physics	- ^
		10:30 AM to 01:00 PM Total Marks:	70
Ins	2	1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.	
Q.1	(a) (b) (c)	Describe with sketch the working of scanning electron microscope. Enlist various essential and desirable properties of textile fibre. Explain the importance of hydrophilicity of fibres forming polymer.	07 03 04
Q.2	(a) (b)	Give the significance of dielectric properties with various factors affecting it. Describe the technical significance of swelling with detailed swelling effect measurements.	07 07
		OR	
	(b)	Write a note on: H-bonds in fibre forming polymers.	07
Q.3	(a)	Explain the importance of birefringence value to understand optical behaviour of fibres.	07
	(b)	Discuss various technological aspects of fibre friction in context to various textile fibres.	07
		OR	
Q.3	(a) (b)	Discuss the effect of orientation on mechanical properties of fibres. Give the thermal behaviour of different textile fibres in brief with suitable examples.	07 07
Q.4	(a)	Write a note on: Thermal transitions of a polymer.	07
•	(b)	Describe the importance of specific heat in context to thermal properties of fibres. OR	07
Q.4	(a) (b)	Describe with neat sketch the morphological structure of cotton fibre. Discuss the relation of absorption with dichroism in detail to describe optical behaviour of fibres.	07 07
Q.5	(a)	Explain the importance of linearity and molecular rigidity of fibres forming polymer.	07
	(b)	Explain the importance of aspect ratio (L:D) and strength of textile fibre. OR	07
Q.5	(a) (b)	Describe the macro and micro structures of silk fibre. Summarize static electricity to understand its relation with textile fibres and their properties. ***********************************	07 07