GUJARAT TECHNOLOGICAL UNIVERSITY BE SEMESTER- 7th EXAMINATION - SUMMER 2015

Subject Code: 172907

Date: 06/05/2015

Subject Name: Advanced Physical Testing Time: 02.30PM-05.00PM **Instructions:**

Total Marks: 70

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.

Q.1	(a)	How infrared spectroscopy can be used to elucidate fiber structure?	07
	(b)	Write on differences amongst LM, TEM and SEM. Which parameters are to be	07
		considered for preparing sample for SEM?	
0.2	(9)	Define birefringence. Explain the principle with a set up. How orientation can	07
Q.2	(a)	be determined with the help of birefringence?	07
	(b)	With a sketch explain principle of operation of AFM.	07
	()	OR	
	(b)	Write in short on any one instrument for measuring the strength and other	07
		related properties of a single filament.	
0.2		Write in detail on quality management in Taytiles	07
Q.3	(\mathbf{a})	while in detail on quality management in Textiles.	07
	(b)	Define moisture vapour permeability and explain working of an instrument for	07
		the measurement of the same.	
		UR	
Q.3	(a)	Which statistical tool is used to analyze periodic faults in the yarn? How it is	07
		interpreted? Explain with the help of an example.	
	(b)	Give classification diagram of yarn faults for thick and thin places. How	07
		channels are set for extra long and short thick places.	
04	(9)	Why measuring the varn tensile strength at a very high speed is important?	07
2.7	(a)	Write briefly on features of the Tensoiet	07
	(h)	Which important properties are to be measured for nonwovens to be used for	07
	(0)	filtration? Write in short on any one of them.	07
		OR	
Q.4	(a)	How performance of nonwoven fabric meant for medical purposes is evaluated?	07
-	(b)	Which thermal properties are measured using Togmeter? Write in short on	07
		single plate method.	
Q.5		Which polymer parameters are identified by XRD? How crystal size,	14
		orientation and crystallinity are determined using XRD? With the help of	
		Bragg's equation and typical diffractometer, explain use of XRD in short.	
		OR	
Q.5		Write in full detail on Kawabata Evaluation System for Fabric properties.	14
