Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(New) • EXAMINATION – WINTER 2016

Subject Code:2142904 **Date:18/11/2016**

Subject Name:Fibre Physics

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		**Short Questions**	**14**
	1	When light falls on a fibre, it may be partially transmitted, absorbed or _____.	
	2	_____ has a most important influence on dielectric properties.	
	3	The simplest method for electrical resistance measurement is the use of _____ in series and a voltmeter across the resistance.	
	4	The unit for work of rupture is _____	
	5	Torsional rigidity of a fibre represents resistance to _____.	
	6	_____ is extension with time under an applied load.	
	7	_____ may be measured Calorimetrically.	
	8	In X ray diffraction, _____ can be regarded as made up of layers of atoms.	
	9	SEM has the great advantage of a much larger_____	
	10	The mass of water in unit volume of air is defined as term _____	
	11	The standard atmosphere temperature is _____°C.	
	12	For irregular fibres, study of _____ swelling is used.	
	13	Instron tensile tester works on constant rate of loading. – True or False?	
	14	In the ideal state, the work factor will be 1. – True or False?	
Q.2	**(a)**	Discuss requirements for fibre formation from linear polymers.	**03**
	(b)	Discuss structure of Silk.	**04**
	(c)	Explain in detail about SEM.	**07**
		OR	
	(c)	Discuss in detail about X-ray diffraction technique.	**07**

Q.3	**(a)**	Discuss about elastic and plastic extension.	**03**
	(b)	Explain about cellulose molecules and their deformation.	**04**
	(c)	Explain structure of Wool fibre.	**07**
		OR	
Q.3	**(a)**	Explain about Moisture regain and Moisture content.	**03**
	(b)	Describe 1) Integral heat of sorption & 2) Differential heat of sorption.	**04**
	(c)	Discuss different methods for measurement of regain.	**07**
Q.4	**(a)**	Write a brief note on “Static Electricity”.	**03**
	(b)	Describe “Fibre Swelling”.	**04**
	(c)	Describe in detail about Dielectric properties.	**07**
		OR	
Q.4	**(a)**	Describe “Work of rupture”.	**03**
	(b)	Discuss about friction of wool.	**04**
	(c)	Explain in detail about Flexural rigidity of a fibre.	**07**
Q.5	**(a)**	Explain about birefringence.	**03**
	(b)	Write brief note on Yield Point.	**04**
	(c)	Explain basic theory of friction.	**07**
		OR	
Q.5	**(a)**	Discuss about Refractive index.	**03**
	(b)	Discuss about Absorption and Dichroism.	**04**
	(c)	Discuss structural changes in fibres on heating.	**07**

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