

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- IV EXAMINATION – SUMMER 2026

Subject Code:3142904

Date:21-05-2026

Subject Name: Fibre Physics

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

	MARK
Q.1 (a) Define moisture regain and moisture content.	03
(b) Write briefly about the yield point.	04
(c) Explain the thermal transitions in fibres.	07
Q.2 (a) What is birefringence?	03
(b) Write briefly about irreversible shrinkage.	04
(c) Explain the fine and morphological structure of regenerated cellulose.	07
OR	
(c) Explain the nuclear magnetic resonance technique.	07
Q.3 (a) State the features of SEM.	03
(b) Write briefly about the XRD method.	04
(c) Explain the stress-strain curve of a few textiles fibres and their significance.	07
OR	
Q.3 (a) How is measurement of regain done?	03
(b) Write briefly about density measurements.	04
(c) Explain the creep property of fibres.	07
Q.4 (a) What is heat of sorption?	03
(b) Write briefly about infrared spectroscopy.	04
(c) Explain the methods of tensile testing.	07
OR	
Q.4 (a) Define torsional rigidity.	03
(b) Write briefly about swelling of fibres.	04
(c) Explain the fine and morphological structure of any two synthetic fibres.	07
Q.5 (a) Define mass specific stress.	03
(b) What are the factors affecting tensile properties?	04
(c) Explain the theories of friction.	07
OR	
Q.5 (a) Define electrical resistance.	03
(b) Write briefly about friction in wool.	04
(c) Explain the thermal parameter in fibres.	07
