

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023****Subject Code:3142608****Date:19-07-2023****Subject Name:Textile & Metal Reinforcement of Elastomers****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.

		MARKS
Q.1	(a) State the difference between Natural Fiber & Synthetic Fiber.	03
	(b) List the different types of coating for industrial textile. Explain any one.	04
	(c) How metal surface preparation done through Mechanical process for rubber to metal bonding?	07
Q.2	(a) What do you mean by Industrial textile? List the application of Industrial textiles in rubber industry.	03
	(b) Define the term: (1) Denier, (2) Nonwoven Fabric, (3) Filament & (4) Tenacity.	04
	(c) List the types of rayon derived from cellulose. Explain any one detail.	07
OR		
	(c) Explain in detail about the production method for cotton fibre.	07
Q.3	(a) Write the basic difference between the chemistry of Nylon 6 and Nylon 66.	03
	(b) Identify the general chemical properties of Cotton fiber.	04
	(c) Discuss the heat setting machinery for “Tyre Cord” fabric treatment unit.	07
OR		
Q.3	(a) Write the advantages and disadvantages of Aramid Fiber.	03
	(b) Describe the Teflon fiber.	04
	(c) List the processes for production of Non-Woven fabric. Explain any one in detail.	07
Q.4	(a) How the environmental factors can affect fabric Adhesion?	03
	(b) Describe the Pull-out test for cord adhesion.	04
	(c) Explain in detail about weaving process for the fabric production.	07
OR		
Q.4	(a) Draw any one schematic diagram of fabric weaves pattern.	03
	(b) List the important requirements of a fiber forming polymer.	04
	(c) Explain the Peel test method for the lightweight coating on fabrics.	07
Q.5	(a) How to measure the tension test for rubber to metal adhesion?	03
	(b) Which are the possible causes for failure at the Rubber-Cement interface? Explain their remedies.	04
	(c) List the methods of spinning a polymer. Which are the common finishing operations carried out after spinning of fiber?	07
OR		
Q.5	(a) Write the applications of short fiber rubber composites.	03
	(b) Short note on: ‘Short fiber reinforcing materials’.	04
	(c) Discuss in detail about mechanism of bonding for rubber to metal bonding.	07
