

Enrolment No./Seat No\_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2024

Subject Code:3142608

Date:27-11-2024

Subject Name:Textile & Metal Reinforcement of Elastomers

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.
4. Simple and non-programmable scientific calculators are allowed.

|     |  | Marks |
|-----|--|-------|
| Q.1 | (a) List out the technical advantages and disadvantages of Aramid Fibres.                              | 03    |
|     | (b) Classify the Synthetic Fibres.   | 04    |
|     | (c) What is the reaction mechanism for the synthesis of regenerated cellulose, and how is it produced? | 07    |
| Q.2 | (a) Draw a schematic chart for the mechanism of Bonding.   | 03    |
|     | (b) State the difference between Coating and Dipping methods.  | 04    |
|     | (c) Describe the melt spinning process for the production of nylon fibers.                             | 07    |
|     | <b>OR</b>  |       |
|     | (c) Describe the production of Rayon by cellulose regeneration process.                                | 07    |
| Q.3 | (a) Mention the chemical properties of Polyester fiber.  | 03    |
|     | (b) What is meant by the term 'moisture regain,' and what is its formula?                              | 04    |
|     | (c) Explain in detail about the production of cotton fiber, including a schematic diagram.             | 07    |
|     | <b>OR</b>  |       |
| Q.3 | (a) Define the term Tenacity and write its importance.   | 03    |
|     | (b) Write about Santoweb short fibres.   | 04    |
|     | (c) Mention the basic fabric weaves. Explain any one in detail with schematic diagram.                 | 07    |
| Q.4 | (a) Write about the effect of Ozone on dipped textile cords.   | 03    |
|     | (b) Write a brief note on Warp knitting.   | 04    |
|     | (c) Explain the Ebonite Bonding Process in detail.   | 07    |

**OR**

- Q.4** (a) List the points for the development of adhesive strength. **03**  
(b) Write any four possible causes and remedies of RC failure. **04**  
(c) Describe the single-end Heat-setting treatment for cord with schematic representation. **07**
- Q.5** (a) Mention the advantages of Wet blast Phosphating process. **03**  
(b) Analyze the importance of mixing of short fiber for composites. **04**  
(c) Name the surface treatment for metals. Explain any one in detail. **07**
- OR**
- Q.5** (a) Write the significance of Pilling test. **03**  
(b) What is the effect of twist direction on the properties of fabric? **04**  
(c) Describe the standard test procedure for measurement of Peel strength. **07**

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