

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2023

Subject Code:3142608

Date:24-01-2024

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.

- Q.1** (a) What is Linear Density? Write its units. **03**
(b) Define the term: Twist. Mention basic types of Twist and its importance. **04**
(c) Discuss in detail about classification of Textile fibers. **07**
- Q.2** (a) Give difference between Nylon 6 and Nylon 66. **03**
(b) Draw the schematic diagram for cotton carding process. **04**
(c) Explain the Melt spinning process for production of Nylon fiber. **07**
- OR**
- (c) Name the fiber produced by Wet spinning process. Explain its synthesis with reaction mechanism. **07**
- Q.3** (a) State the difference between Natural Fiber & Synthetic Fiber. **03**
(b) What is Non-woven fabric? Explain any one method for production of Non-woven fabric. **04**
(c) Mention basic and industrial fabric weaves. Write about Fabric designation system with example. **07**
- OR**
- Q.3** (a) Draw schematic diagram showing types of Knitting with name. **03**
(b) What is cross-woven fabric? Write its advantages and disadvantages over Non-woven fabric. **04**
(c) Explain about principle of Weaving process with schematic diagram. **07**
- Q.4** (a) Compare the effect of coating and dipping process for fabric treatment. **03**
(b) Analyze the importance of mixing of short fiber for composites. **04**
(c) Describe the Heat-setting treatment for single-end cord with schematic representation. **07**
- OR**
- Q.4** (a) Draw the mechanism of Bonding. **03**
(b) List the different types of coating for industrial textile. Explain any one. **04**
(c) Describe the Tyre cord Heat-setting treatment for cord with schematic representation. **07**
- Q.5** (a) Mention the advantages and applications of Adhesive Bonding. **03**
(b) Write about problems associated with RC failure and CM failure. **04**
(c) Discuss in detail about the effects of rubber compounding ingredients on adhesion. **07**
- OR**
- Q.5** (a) Give importance of Peeling test. **03**
(b) Write any one test method which is used for evaluate rubber to Metal adhesion. **04**
(c) How metal surface preparation done through Mechanical process for rubber to metal bonding? **07**
