

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021

Subject Code:3142608

Date:08/09/2021

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.

- Q.1** (a) Explain the term: Relative Density (03)  
(b) Write in brief about synthesis of regenerated cellulose. (04)  
(c) Describe in detail about classification of Fiber. (07)
- Q.2** (a) Write about the effect of Twist directions on properties of fabric. (03)  
(b) Derive the formula :  $\text{Twist} = \tan \theta / (\pi \times d)$  (04)  
(c) Write in detail about production of Cotton fiber with schematic diagram. (07)
- OR
- (c) Describe the Melt spinning process for production of Nylon fiber. (07)
- Q.3** (a) Give practical significance of fibre filled rubber compound. (03)  
(b) Write about any one method for production of Non-woven fabric. (04)  
(c) Explain about different types of Adhesive pretreatments for Polyester. (07)
- OR
- Q.3** (a) Give importance of Peeling test. (03)  
(b) Write a brief note on Warp knitting. (04)  
(c) Describe the importance of Heat setting and Adhesive treatment for Fabric and explain any one process with schematic diagram. (07)
- Q.4** (a) Write about influence of Crimp on fabric structure. (03)  
(b) Compare the effect of coating and dipping process for fabric treatment. (04)  
(c) Mention the significance of Fiber angle and orientation for rubber composites. (07)
- OR
- Q.4** (a) Explain about Tenacity and write its importance. (03)  
(b) Analyze the importance of mixing of short fiber for composites. (04)  
(c) Write in detail about properties and applications of Santoweb short fibres. (07)
- Q.5** (a) Draw the mechanism of Bonding. (03)  
(b) Write about the different treatments carried out on metals and alloys. (04)  
(c) Describe in detail about various chemical factors which influence adhesive action. (07)
- OR
- 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) Explain the Ebonite Bonding Process with advantages. (07)

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