

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

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

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-V • EXAMINATION – SUMMER • 2014**

**Subject Code: 152603**

**Date: 19-06-2014**

**Subject Name: Textile and Metal Reinforcement of Elastomers**

**Time: 10:30 am - 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.**

- Q.1** Answer the following (14)
- (i) List the difference between Fibre and Yarn.
  - (ii) Which properties should be required for Polymer to be used as a fibre intermediate?
  - (iii) List the finishing operations carried out after spinning of the fibre.
  - (iv) List two clear identification of difference between natural and synthetic fibres.
  - (v) What do you mean by Composites? List the application of Rubber – Textile composite products with their advantages.
  - (vi) What are the chemical and mechanical treatment given to steel (low carbon) and aluminum used as a metal for bonding purpose?
  - (vii) Write about Elastomeric Fibres.
- Q.2** (a) Describe in detail about the properties of Synthetic fibres. (07)
- (b) What are the Industrial Textiles? Write its application and its key requirements for Sports and Leisure field. (07)
- OR
- (b) Discuss in detail about Melt bonding and Needle-punched Non-Woven fabrics. (07)
- Q.3** (a) Discuss in detail about the effects of rubber compounding ingredients on adhesion. (07)
- (b) Discuss about the Compounding of Short Fibre materials. (07)
- Q.3** (a) Discuss in detail about fibre orientation of short fibres and its effect on properties of rubber compound. (07)
- (b) List the Technical advantages, limitation and barriers for Kevlar Aramid Short Fibres. (07)
- Q.4** (a) Discuss the effect of heat setting tension on shrinkage properties of polyester yarn. (07)
- (b) Discuss the standard test procedures for Peel Strength. (07)
- OR
- Q.4** (a) Write in detail about Possible Causes and Remedies for failure at the rubber cement interface. (07)
- (b) Draw the sketch of single end cord treatment unit. (07)
- Q.5** (a) Explain in detail about Emulsion and Suspension spinning and core spinning method. (07)
- (b) Write in detail about the properties and application of Teflon. (07)
- OR
- Q.5** (a) Discuss the manufacturing process of Cotton. (07)
- (b) Explain in detail about identification of textile fibres. (07)

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