

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– V (New) EXAMINATION – WINTER 2019****Subject Code: 2152603****Date: 02/12/2019****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.

- Q.1** (a) List out the technical advantages and limitations of Kevlar Aramid Fibres. (03)
(b) Give the basic classification of fibres. (04)
(c) What are Industrial Textiles? Write its applications and its key requirements in Transportation field. (07)
- Q.2** (a) Name the simplest weave design in Woven fabric. Explain it in brief. (03)
(b) Derive the formula : $\text{Twist} = \tan \theta / (\pi \times d)$ (04)
(c) Discuss the Cotton carding process with schematic diagram. (07)
- OR**
- (c) Describe the Wet spinning process for production of Rayon filament. (07)
- Q.3** (a) "Fibres are good reinforcing agents". Give reason. (03)
(b) Write in brief about Melt Bonding Process for Non-woven fabric. (04)
(c) Name the machine used for Heat setting and Adhesive treatment of Fabric. Explain any one process with schematic diagram. (07)
- OR**
- Q.3** (a) Give the basic mechanism of Peeling test. (03)
(b) Write a brief note on weft knitting. (04)
(c) Explain the procedure to carry out Peel test of heavy duty fabrics and multi-ply constructions. (07)
- Q.4** (a) Write the practical significance of Moisture regain for fabric. Mention its formula also. (03)
(b) Write about the advantages of Resorcinol-Formaldehyde latex bonding for various fabrics. (04)
(c) Discuss in detail about Santoweb short fibres. (07)
- OR**
- Q.4** (a) Define the term: Crimp. Express the formula to determine Crimp percentage for fabric. (03)
(b) Give the difference between Fabric coating and Fabric dipping. (04)
(c) "Fiber orientation is an important parameter for short fibre rubber composites". Justify the statement. (07)
- Q.5** (a) Mention the merits and demerits of adhesive bonding. (03)
(b) Write any four possible causes and remedies of CM failure. (04)
(c) Explain the Ebonite Bonding Process in detail. (07)
- OR**
- Q.5** (a) List out the points for development of adhesives strength. (03)
(b) Write the problems associated with RC failure and suggest the remedies also. (04)
(c) Describe the Isocyanate Bonding in detail. (07)
