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 : 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)**

****