

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VII EXAMINATION-SUMMER 2023****Subject Code: 3172919****Date: 28/06/2023****Subject Name: Textile Reinforced Composites****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.

		MARKS
Q.1	(a) Enlist the disadvantages of Composites.	03
	(b) Differentiate between thermosetting and thermoplastic polymers.	04
	(c) Discuss function of the matrix and reinforcement in Composite.	07
Q.2	(a) Discuss in brief advantages of natural fibres being used in Composites.	03
	(b) Discuss the influence of temperature on properties of polymeric matrix material.	04
	(c) Discuss the applications of Composites.	07
	OR	
	(c) Briefly describe various matrix materials.	07
Q.3	(a) Enlist the properties that make woven fabrics attractive compared to their nonwoven counterparts in Composites.	03
	(b) Enlist some of the disadvantages of Filament winding process.	04
	(c) Discuss in detail about Biocomposites.	07
	OR	
Q.3	(a) Mechanical properties of composites fabricated using braided reinforcement depend on what?	03
	(b) Discuss in brief Bag moulding process.	04
	(c) With the neat sketch, explain the hand lay up method for manufacturing PMC.	07
Q.4	(a) Draw the flow chart that must be followed for the manufacturing process for all of composites.	03
	(b) What is meant by i. laminate ii. Unidirectional laminate.	04
	(c) With the help of schematic diagram explain Pultrusion process.	07
	OR	
Q.4	(a) Discuss in brief about Polymer nanocomposite.	03
	(b) What is meant by i. Cross-ply laminate ii. Symmetric laminate.	04
	(c) Discuss any one method developed for testing Compressive properties of Fibre-reinforced Composites.	07

- Q.5** (a) Discuss in brief use of Fiber-reinforced polymers make sporting goods. **03**
- (b) Enlist the four general categories of metal matrix composites (MMC). **04**
- (c) Discuss the manufacturing processes for ceramic matrix composites. **07**

OR

- Q.5** (a) Enlist the limitations of 3 point bending test of composites. **03**
- (b) Discuss application of FRPs in infrastructure. **04**
- (c) Discuss Automotive applications of FRPs. **07**
