

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3172919

Date:21-05-2025

Subject Name:Textile Reinforced Composites

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.

MARKS

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|------------|------------|--|----------|
| Q.1 | (a) | Discuss the uses of epoxy resin. | 3 |
| | (b) | What are composites? Discuss the roles of reinforcement in composite materials. | 4 |
| | (c) | Explain the pultrusion technique with diagram. | 7 |
| Q.2 | (a) | How to measure bending properties of composite. | 3 |
| | (b) | Explain the tensile testing of composites with neat sketch. | 4 |
| | (c) | Explain the resin transfer molding with diagram. | 7 |
| OR | | | |
| | (c) | With neat sketch explain filament winding process used to manufacture polymer matrix composites. | 7 |
| Q.3 | (a) | Differentiate between thermosetting and thermoplastic polymers | 3 |
| | (b) | Enlist the disadvantages of Composites. | 4 |
| | (c) | Write short note on “Application of Textile Composites” | 7 |
| OR | | | |
| Q.3 | (a) | Enlist the characteristics of a Good Prepreg. | 3 |
| | (b) | Discuss the influence of temperature on properties of polymeric matrix material | 4 |
| | (c) | What is the significance of the Intra-laminar & Inter-laminar shear testing. | 7 |
| Q.4 | (a) | Explain the main characteristics of elastomers | 3 |
| | (b) | Discuss applications of Fiber-Reinforced Polymers in Sporting Goods | 4 |
| | (c) | Discuss application of Carbon fibre as reinforcement. | 7 |
| OR | | | |
| Q.4 | (a) | Draw schematic of Spray-up process | 3 |
| | (b) | Enlist the advantages of using fiber-reinforced polymers over aluminum and titanium alloys in aircraft and helicopter applications | 4 |
| | (c) | Discuss Marine applications of Fiber-Reinforced Polymers. | 7 |
| Q.5 | (a) | Explain the difference between isotropic and anisotropic materials. | 3 |
| | (b) | Discuss the merits and demerits of Natural fibers in composite application. | 4 |
| | (c) | Discuss application of Glass fibre as reinforcement. | 7 |

OR

- Q.5**
- (a)** What is vacuum bag moulding? **3**
 - (b)** Explain 3 and 4 point banding properties of composite. **4**
 - (c)** What are natural composites? Explain the classification of Natural fibers. **7**
