

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2024****Subject Code:3172919****Date:28-05-2024****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.

- Q.1** (a) Define composite materials. Also state various application of composite. **03**
 (b) List down the reinforcement materials and resins used in composite materials. **04**
 (c) Write short note on filament winding process. **07**
- Q.2** (a) Explain the difference between fibres and whiskers. **03**
 (b) Give the classification of composites. **04**
 (c) What do you mean by 3D reinforcement composite structure? Explain any one structure with diagram. **07**
- OR**
- (c) Write short note on glass fibre. **07**
- Q.3** (a) Explain term - lamina and laminate. **03**
 (b) List out functions of matrix and reinforcement material in composite. **04**
 (c) What are natural composites? Discuss properties of natural fibres. State advantages and disadvantages of natural fibres as composite. **07**
- OR**
- Q.3** (a) What are the characteristics of composite materials? **03**
 (b) State advantages and disadvantages of composite material. **04**
 (c) State application of 2D & 3D - woven, knitted, braided and nonwoven fabric as preform in various field of technical textile. **07**
- Q.4** (a) What is roving and chopped strands? **03**
 (b) Compare thermoplastic resin with thermoset resin. **04**
 (c) Write short note on epoxy and polyester resin. **07**
- OR**
- Q.4** (a) What is vacuum bag moulding? **03**
 (b) State the process of injection moulding. **04**
 (c) Explain hand layup and spray layup process of polymer matrix composite with suitable diagram. **07**
- Q.5** (a) Explain term – “pre-preg”. **03**
 (b) Distinguish between open mould and close mould processes. **04**
 (c) Explain the pultrusion technique of composite with suitable diagram. **07**
- OR**
- Q.5** (a) What is isotropic and anisotropic materials? **03**
 (b) Explain the future potential of composite materials. **04**
 (c) Write short note on “Mechanical testing of composite laminates” **07**
