

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2024****Subject Code:3173411****Date:28-05-2024****Subject Name: Composite Technology****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) Classify engineering materials. **03**  
 (b) Discuss the role of matrix material in composite material fabrication. **04**  
 (c) Discuss the concept of composite materials. State applications of composite materials in engineering. **07**
- Q.2** (a) Discuss the role and selection of reinforcement materials in composite material. **03**  
 (b) Discuss about various material properties that can be improved by forming a composite material. **04**  
 (c) List various types of matrix materials with its functions and desired properties. **07**
- OR**
- (c) List various types of fiber materials with its functions and desired properties. **07**
- Q.3** (a) Discuss about the advantages and disadvantages of composites materials. **03**  
 (b) Explain the idea of 3D Composites with its practical applications. **04**  
 (c) Discuss in detail about metal matrix composites (MMC) **07**
- OR**
- Q.3** (a) Briefly discuss about fiber reinforced polymer composites **03**  
 (b) Explain the concept of Stitched composites and give few applications of it. **04**  
 (c) Discuss in detail about ceramic matrix composites (CMC). **07**
- Q.4** (a) Discuss Pre peg layer in the context of composite materials. **03**  
 (b) Explain about peel plies for fabrication of composites. **04**  
 (c) Discuss about various considerations in fabrication of composite materials. **07**
- OR**
- Q.4** (a) What do you mean by Autoclave curing? Discuss its significance? **03**  
 (b) Explain about Bleeder and breather plies for fabrication of composites. **04**  
 (c) List various methods of fabrication of composite materials and briefly explain any two methods. **07**
- Q.5** (a) Discuss on woven reinforcements in composites. **03**  
 (b) Discuss about inter laminar shear testing for composites. **04**  
 (c) Discuss on the determination of stiffness and strength of unidirectional composites. **07**
- OR**
- Q.5** (a) Discuss on short and discontinuous fiber systems in composites. **03**  
 (b) Discuss on intra laminar shear testing of composites. **04**  
 (c) Discuss about various mechanical testing's for composites. **07**

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