Seat No.: _____ Enrolment No._____

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BE - SEMESTER–VIII • EXAMINATION – SUMMER 2013**

**Subject Code: 182304** **Date: 09/05/2013**

**Subject Name: Fiber Reinforced Plastics and 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.**

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|---|---|---|---|
| **Q.1** | **(a)** | Define fiber reinforced plastics (FRP) and describe its advantages and disadvantages over conventional plastics. | **07** |
| | **(b)** | Define the following 1) Surfacing tissue 2) chopped strand mat 4) woven fabrics 4) continuous fibers 5) low styrene resin 6) low shrinkage resin 7) gel coat | **07** |
| **Q.2** | **(a)** | Explain in detail the design parameters for any one type of FRP mold. | **07** |
| | **(b)** | Describe major types of polyester resins used in FRP, giving its structure, properties and applications. | **07** |
| | | **OR** | |
| | **(b)** | Describe major types of epoxy resins used in FRP, giving its structure, properties and applications. | **07** |
| **Q.3** | **(a)** | Give in detail the curing mechanism of polyester resin and explain the role of inhibitors in it. | **07** |
| | **(b)** | Explain the role of accelerators in curing reactions of polyester resin. | **07** |
| | | **OR** | |
| **Q.3** | **(a)** | Describe the role of fillers in FRP with suitable examples. | **07** |
| | **(b)** | Compare aliphatic and aromatics amide fibers used in FRP. | **07** |
| **Q.4** | **(a)** | Compare and contrast Dough moulding and sheet moulding with suitable sketches. | **07** |
| | **(b)** | Describe contact moulding Processes like hand lay up and spray lay up techniques. | **07** |
| | | **OR** | |
| **Q.4** | **(a)** | Describe in detail the Hoechst process for FRP vacuum moulding. | **07** |
| **Q.4** | **(b)** | Describe the filament winding process with neat sketches and its significance. | **07** |
| **Q.5** | **(a)** | What is meant by Pultrusion? explain with suitable sketches. | **07** |
| | **(b)** | List out the major trouble shooting in vacuum assisted resin transfer moulding. | **07** |
| | | **OR** | |
| **Q.5** | **(a)** | Define the centrifugal moulding technique and describe its applications. | **07** |
| | **(b)** | List out the major trouble shooting in closed cavity bag moulding. | **07** |

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