Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – II • EXAMINATION – SUMMER • 2014

Subject code: 1722405 **Date: 20-06-2014**

Subject Name: Composites Material Technology

Time: 02:30 pm - 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.**

Q.1	**(a)**	Explain manufacturing of Vinyl ester resin with curing reaction and its properties.	**07**
	(b)	What are composites? What is the role of matrix and reinforcement? Give advantages of composites.	**07**
Q.2	**(a)**	Explain manufacturing of carbon fibres with flow diagram.	**07**
	(b)	Explain manufacturing and properties of Epoxy resin used as matrix in composites.	**07**
		OR	
	(b)	Write notes on (a) phenolic resins (b) alkyd resins.	**07**
Q.3	**(a)**	Classify Glass fibres and explain manufacturing process of glass fibre with neat sketch.	**07**
	(b)	Describe Filament winding process along with various winding pattern.	**07**
		OR	
Q.3	**(a)**	Define: Cure time, Gelation, hardening, Shelf-life, Sizing, B-stage resin, and Inhibitors.	**07**
	(b)	What is the function of accelerators? Give detail description on various accelerators used in resin system.	**07**
Q.4	**(a)**	What are fillers? List types of fillers used in PMC and give the effect of filler on the resin system.	**07**
	(b)	Explain: Dough molding compound (DMC) / Bulk Molding compound (BMC).	**07**
		OR	
Q.4	**(a)**	Explain continuous process used for the manufacturing of profiles.	**07**
	(b)	Describe Sheet molding compounds (SMC) process with sketch.	**07**
Q.5	**(a)**	Explain: Gel-time test.	**07**
	(b)	Give detail classification of natural fibres and give merits and demerits of natural fibres.	**07**
		OR	
Q.5	**(a)**	Explain Resin transfer process along with its advantages and disadvantages for composite manufacturing with a neat diagram.	**07**
	(b)	Write a note on Acousto-Ultrasonic test method for non-destructive testing of composites.	**07**

****