Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII • EXAMINATION – SUMMER 2014

Subject Code: 182103 Date: 27-05-2014

Subject Name: Composite Material

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.**

Q.1	**(a)**	What is Composite? Discuss the Importance of composites over other materials in terms of advantages, characteristics and applications.	**07**
	(b)	What is Dispersion strengthening composite? Discuss the characteristics and uses of TD-Nickel.	**07**
Q.2	**(a)**	Discuss detailed classification of composites on the basis of reinforcement and matrix.	**07**
	(b)	What do you mean by reinforcement in composite? With neat sketch describe the following reinforcements: (i) Particulates (ii) Flakes	**07**
		OR	
	(b)	Give role of matrix and reinforcement in a composite material. Describes various properties of materials making them suitable to use as matrix materials & reinforcing material.	**07**
Q.3	**(a)**	Critically compare discontinuous and continuous fiber composites.	**07**
	(b)	What are the particle reinforcement composites? Give examples and describe their properties and applications.	**07**
		OR	
Q.3	**(a)**	What is critical fiber length? Distinguish between Optimal, Short & Continuous size fibers.	**07**
	(b)	Briefly describe Sandwich Panels and explain prime reason for fabricating these structural composites.	**07**
Q.4	**(a)**	Illustrate "Hybrid" composite with suitable examples. List advantages of hybrid composites over normal fiber composites.	**07**
	(b)	What is the interface of composite? Explain their role in composites.	**07**
		OR	
Q.4	**(a)**	What are environmental effects in composites? Write a short note on Green composites.	**07**
	(b)	Discuss the toughening mechanisms in Polymer matrix composites.	**07**
Q.5	**(a)**	Describe the method of filament Winding of producing polymer composites.	**07**
	(b)	Describe the Pultrusion method for Fabrication of composites.	**07**
		OR	
Q.5	**(a)**	Describe the hand lay-up processes of fabricating polymer composites.	**07**
	(b)	Draw a layout of synthesis of "Nano-composites" and explain unique properties exhibited by Nano- composites.	**07**

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