

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VIII (New) EXAMINATION – WINTER 2019

Subject Code: 2182116**Date: 29/11/2019****Subject Name: Composite Materials****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.

		MARKS	
Q.1	(a) Explain the importance of composites over monolithic materials.	03	
	(b) Give detailed classification of composites on basis of their construction.	04	
	(c) Compare metal matrix composite & ceramic matrix composites.	07	
Q.2	(a) Describe with neat sketch the particulate reinforcements.	03	
	(b) Explain the functions of matrix & reinforcements in composite materials.	04	
	(c) Explain with example the particle fiber reinforcement composites.	07	
OR			
Q.3	(c) Describe the dispersion strengthening composites.	07	
	(a) Explain the properties of the materials making them suitable to be used as matrix.	03	
	(b) Explain the characteristics of fibers & resin materials in PMCs.	04	
Q.3	(c) Explain with Neat schematic the “filament winding process”.	07	
	OR		
	(a) Explain the properties of the materials required to be used as reinforcement.	03	
Q.4	(b) Describe factors affecting properties of Fiber reinforced composites.	04	
	(c) Discuss in detail the strengthening mechanism in composites.	07	
	(a) Why composite materials are the best suitable for the advanced applications.	03	
Q.4	(b) What is a “Hybrid” composite? List advantages of hybrid composites over normal composites.	04	
	(c) Explain with schematic Pultrusion Process of fabricating Polymer matrix composite.	07	
	OR		
Q.4	(a) List few examples of applications of advanced composite materials.	03	
	(b) Describe the advantages of sol-gel method.	04	
	(c) Explain with Schematic Vacuum Bag assembly process of manufacturing of composite.	07	
Q.5	(a) Explain reasons why glass fibers are commonly used as reinforcement.	03	
	(b) Explain the role of interfaces in composites.	04	
	(c) Briefly describe Sandwich Panels and explain use of these structural composites.	07	
OR			
Q.5	(a) Describe the term critical fiber length.	03	
	(b) Distinguish between Optimal, Short & Continuous size fiber.	04	
	(c) Draw a lay out of synthesis of “Nano-composites” and explain unique properties exhibited by Nano- composites.	07	
