Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER - I EXAMINATION - SUMMER 2017

Subject Code: 2712806 Subject Name: Advance Material Technology Time: 02:30 p.m. to 05:00 p.m. Instructions:		Code: 2712806 Date: 10/05/20	Date: 10/05/2017 Total Marks: 70	
		2:30 p.m. to 05:00 p.m. Total Marks:		
		Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	Describe the effect of temperature, strain and strain rate on plastic behavior of material.	07	
	(b)	What is work hardening? Explain various stages of work hardening.	07	
Q.2	(a)	Describe the initiation and propagation mechanism of crack in the material. State Paris Law.	07	
	(b)	What are the types of fracture in metals? Discuss ductile and brittle fracture. OR	07	
	(b)	What is fatigue of material? Explain low and high cycle fatigue test.	07	
Q.3	(a) (b)	Explain the factors to be considered for the selection of materials. Write constituents, advantages and applications of high strength low alloy steel.	07 07	
		OR		
Q.3	(a) (b)	Explain relationship between material selection and processing. Discuss development of bio materials and its characterization.	07 07	
Q.4	(a) (b)	Classify and explain various types of plastics. Discuss properties of plastics. Define smart materials. Explain applications of smart materials. OR	07 07	
Q.4	(a) (b)	Write characteristics of rubber. Discuss properties of rubber. Define dual phase steel. Explain advantages and applications of dual phase steel.	07 07	
Q.5	(a)	Define composite materials. Write advantages and disadvantages of composite materials in detail.	07	
	(b)	Enlist major constituents of composite materials. Explain production of fibers. OR	07	
Q.5	(a)	Classify composite materials. Write applications of composite materials in detail.	07	
	(b)	Enlist various testing of composite materials. Discuss any one testing of composite materials.	07	
