Seat No.:	Enrolment No

Subject Code:133403

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-III EXAMINATION – WINTER 2015

Date: 23/12/2015

Subject Name: Engineering Materials and Metallurgy Time: 2:30pm to 5:00pm Instructions: Total Marks: 70			
	1. 2.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Write the procedure to measure the Steel hardness by using Jominy end quench test with neat sketch.	07
	(b)	Explain the Iron Carbon Equilibrium diagram phase changes.	07
Q.2	(a) (b)	How do you measure the hardness by using Brinell Test? Explain. Write the advantages of Bio – Degradable Plastics with suitable example. OR	07 07
	(b)	Write the Case hardening - Nitriding process, advantage and its uses.	07
Q.3	(a) (b)	Write the Gibb's phase rule. Explain the T.T.T. Diagram. Write the procedure to conduct the Induction Hardening surface treatment	07
		process. Write advantages and applications of Induction Hardening. OR	07
Q.3	(a) (b)	Distinguish between Thermo Plastics & Thermosetting Plastics. Write the properties, characteristic and applications of Commodity Plastics.	07 07
Q.4	(a)	Write any eight purpose of Alloying. Explain the effect of Silicon as an alloying element.	07
	(b)	Write any six non-ferrous mates / alloys. Brief the properties and uses of Copper. OR	07
Q.4	(a) (b)	Write the properties, characteristics and types of Magnesium and its alloys. Write the properties, characteristics and uses of Nickel and its alloys.	07 07
Q.5	(a) (b)	Define the following term: Elasticity, Viscoelasticity and Plastic deformation. How to conduct Creep Testing? Explain with neat sketch. OR	07 07
Q.5	(a) (b)	Explain the procedure to conduct the Impact Testing Method with sketch. Write the procedure to measure harness by using Rockwell Testing method.	07 07
