Seat No.:	Enrolment No.

Subject Code: 133403

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- III EXAMINATION - SUMMER 2015

Date:02/06/2015

Ti	me: (tructio	t Name: Engineering Materials and Metallurgy 02.30pm-05.00pm Total Marks: 7 ons: . Attempt all questions.	70
	2 3	. Make suitable assumptions wherever necessary.	
Q.1	(a) (b)	Sketch and explain the Iron – Iron Carbide equilibrium diagram. Explain Nitriding process and state its advantages and disadvantages.	07 07
Q.2	(a) (b)	Explain in brief about the TTT curve with neat sketch. Discuss in brief about effect of Mo, Mn and Si alloy addition on Steel.	07 07
	(b)	OR Define Constitution of alloy. Explain the isomorphism microstructural development with a neat sketch.	07
Q.3	(a) (b)	Classify phase diagram. Draw and explain about cooling curve for pure metal. How do you measure the hardenability of Steel by using Jominy end quench method with sketch?	07 07
Q.3	(a)	OR Write the procedure for measuring Hardness by using Rockwell Test with a sketch.	07
	(b)	Explain in brief about Composite materials and its properties.	07
Q.4	(a)	What are case hardening and martempering treatments? What are their purposes?	07
	(b)	Write short notes about Bio degradable materials and its advantages.	07
Q.4	(a) (b)	OR Differentiate clearly between thermoplastics and thermosetting plastics with suitable applications and examples. Write short notes about properties of ceramics materials.	07 07
Q.5	(a) (b)	Explain in brief about Super conductors and its properties. How to determine Creep limit by using Creep Testing Method with procedure.	07 07
Q.5	(a)	OR Write short notes on composition, properties and applications of austenitic stainless steel and high speed steel.	07
	(b)	Write the stages of heat treatment process. Write short notes on Annealing.	07
