Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) EXAMINATION – SUMMER 2016

Subject Code:2133403 **Date:02/06/2016**

Subject Name:Engineering Materials and Metallurgy

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.**

			MARKS
Q.1		**Short Questions**	**14**
	1	Brass is an Alloy of?	1
	2	The property of the material which can be drawn in to wires?	1
	3	General Equation of Eutectic Reaction?	1
	4	What is the Percentage of Carbon in High Carbon Steel?	1
	5	The BCC Structure of Pure Iron Is known as?	1
	6	What is Polymerization?	1
	7	What is Recrystallization Temperature?	1
	8	Mention any 3-Non Ferrous Materials?	1
	9	Full form of CCT?	1
	10	Cyaniding is a process of adding?	1
	11	Corrosion Resistance of steel can be improved by?	1
	12	What is killed steels?	1
	13	Pearlite is a combination of?	1
	14	What is solid solution?	1
Q.2	**(a)**	Name Different Case Hardening Techniques.	**03**
	(b)	Explain the Cooling Curve of Pure-Iron.	**04**
	(c)	Explain Iron-Carbon Equilibrium Diagram.	**07**
		OR	
	(c)	Explain Full Annealing and Process Annealing	**07**
Q.3	**(a)**	Explain Edge and Screw Dislocation	**03**
	(b)	Explain Normalizing of Steel	**04**
	(c)	Explain the Effects of any four alloying additions on Steel.	**07**
		OR	
Q.3	**(a)**	Classify Different Types of Steels.	**03**
	(b)	Explain Carburizing.	**04**
	(c)	Write the procedure for calculating Brinnel Hardness Number	**07**
Q.4	**(a)**	Explain the Advantages Of Flame Hardening	**03**
	(b)	Write a short note on composites.	**04**
	(c)	Explain the Measurement of Hardness Using Jominy End Quench Test	**07**
		OR	
Q.4	**(a)**	Explain Elastic, Anelastic, and Viscoelastic Behavior	**03**
	(b)	Explain allotropy and polymorphism with Examples	**04**
	(c)	Explain FCC, BCC, HCC Crystal Structures with examples.	**07**
Q.5	**(a)**	Differentiate between Thermo Plastics and Thermosetting plastics, with examples	**03**

	(b)	Explain Various Titanium Alloys and their applications	**04**
	(c)	Explain Charpy and Izod Test.	**07**
		OR	
Q.5	**(a)**	Write a short note on Nano Materials	**03**
	(b)	Explain Various types of copper Alloys and their applications	**04**
	(c)	Discuss in Detail about Bio-Degradable Plastics	**07**

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