## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER-III EXAMINATION – WINTER 2015

Subject Code:132101 Date:		02/01/2016	
Time: 2:30pm to 5:00pm Total Instructions:			al Marks: 70
insti u	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.	
Q.1	(a)	Define material science and Metallurgy. Describe Various fields of metallurgy.	04+03
	(b)	Give a brief Classification of engineering materials and riteria for selection of materials for engineering applications	03+04
Q.2	(a)	Explain the requirement of Engineering Materials with suitable examples.	07
	(b)	Discuss structure, properties relationship in metals, ceramics, and polymers.	07
	<b>(1</b> )	OR	
	(b)	What is imperfection? Discuss Schotkey & Frankel defects in ionic solids.	03+04
Q.3	(a)	Explain the effects of grain size, heat treatment and alloying elements on properties of single phase material	07
	(b)	What do you mean by deformation? Differentiate in Elastic and Plastic Deformation	03+04
		OR	
Q.3	(a)	List the important Copper ores. Explain the principles of Copper production	03+04
	(b)	What do you mean by Non-destructive testing? Explain any one NDT test method	02+05
Q.4	(a)	What is powder metallurgy? Write advantage and limitations and applications of powder metallurgy	03+04
	(b)	What is Foundry? Explain any one casting method with sketch OR	02+05
Q.4	(a)	What is corrosion? Explain any one corrosion prevention method	02+05
	(b)	Write the Principles used in Soldering & Brazing Process.	07
Q.5	(a)	Write classification of refractory and discuss the general requirements	
	(b)	What are the ceramic materials? Write short note on Traditional	02+05 02+05
		ceramic and Modern ceramic materials	
05	(n)	<b>UK</b> What are polymers? Discuss the Polymerization mechanisms	02+05
Q.3	(a) (b)	What is composite? Explain comparison between metal matrix	02+03
	(-)	and ceramic matrix composite	