Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER – III • EXAMINATION – WINTER 2012

Subject code: 335502 **Date: 03/01/2013**

Subject Name: Materials and Metallurgy

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **English version is considered to be Authentic.**

Q.1	(a)	Draw commercial forms of metal and write its IS number	**07**
	(b)	Compare Metallic and Non-metallic materials	**07**
Q.2			
	(a)	List different properties of material and explain technological properties	**07**
	(b)	Explain effect of grain size on mechanical properties of metal	**07**
		OR	
	(b)	Explain different factors affecting selection of materials for engineering purpose	**07**
Q.3			
	(a)	Define the term "Steel". Explain classification of steel.	**07**
	(b)	Explain effect of different alloying element on properties of steel.	**07**
		OR	
Q.3	(a)	What is Stainless Steel. List different types of S.S. Explain chemical composition, properties and application of any one.	**07**
	(b)	Explain material test certificate	**07**
Q.4			
	(a)	Explain properties and application of Nickel	**07**
	(b)	List different types of composite materials and explain any one	**07**
		OR	
Q. 4	(a)	Write chemical composition, mechanical properties and application of BIS 2062, SA 515 GR 60, SA 105, SA 240 TP 304, 316L ,310,347	**07**
	(b)	Write brief note on cladded materials	**07**
Q.5			
	(a)	Write definition of (1) Crystal (2) Structure (3) Space lattice (4) Unit cell (5) Ion (6) Atom (7) Bonds	**07**
	(b)	List different micro constituents of iron and steel and explain them in brief.	**07**
		OR	
Q.5	(a)	Explain effect of heat treatment on properties of metal	**07**
	(b)	Explain different variable affecting fatigue life of a material	**07**

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