

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 clad 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
