

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-III • EXAMINATION – WINTER 2013****Subject Code: 3335503****Date: 30-11-2013****Subject Name: Materials & Metallurgy****Time: 02:30 pm - 05:00 pm****Total Marks: 70****Instructions:**

1. Attempt all 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) List out the different mechanical properties of materials and explain any five. **07**
 (b) Explain the chemical composition, properties and application of Gray Cast Iron. **07**
- Q.2** (a) Explain effect of various alloying element on properties of steel. **07**
 (b) Explain chemical composition and properties of Austenitic stainless steel, Ferritic stainless steel and Duplex stainless steel. **07**
- OR
- (b) Explain properties and application of the Titanium. **07**
- Q.3** (a) Explain different material and their requirement for high temperature service. Write applications where high temperature service material required. **07**
 (b) Described the properties and applications of ceramic material. **07**
- OR
- Q.3** (a) Described the properties and applications of plastic. **07**
 (b) Write brief note on clad materials. **07**
- Q.4** (a) Explain in brief with neat sketch crystal structure of SC, BCC, FCC, HCP of the various metals. **07**
 (b) List out the different micro constituents of iron and explain them in brief. **07**
- OR
- Q.4** (a) Draw neat sketch of IC diagram and show different micro constituents observed in it. **07**
 (b) Explain in brief with neat sketch of T T T diagram. **07**
- Q.5** (a) Define the “heat treatment process”. Explain purpose/functions and principle of heat treatment process. **07**
 (b) Write brief note on ASME Sec-2. **07**
- OR
- Q.5** (a) Explain Austempering and Mar tempering process in brief. **07**
 (b) Write chemical composition, mechanical properties and application of Following ferrous alloys **07**

Sr.no	Description	Sr.no	Description
1	BIS 2062	5	SA 386
2	SA 515 GR 70	6	SA 240 TP 304
3	SA105	7	SA 240 TP 347
4	SA 240 TP 316L		
