

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA ENGINEERING – SEMESTER –III • EXAMINATION – SUMMER 2014**

**Subject Code: 335502****Date: 17/06/2014****Subject Name: Materials & Metallurgy****Time: 10:30 am – 1:00 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. Each question carry equal marks (14 marks)

- Q.1 (a) Classify the engineering materials in chart form 07  
(b) List different properties of material and explain any five mechanical properties 07
- Q.2 (a) Explain chemical composition, properties and application of Gray Cast Iron. 07  
(b) Explain effect of different alloying element on properties of steel. 07  
OR  
(b) Explain material test certificate. 07
- Q.3 (a) What is Brasses? List different brasses and explain chemical composition, properties and application of any two. 07  
(b) Compare ferrous and non ferrous metal 07  
OR
- Q.3 (a) What is a composite material? Classify composite materials. 07  
(b) Write brief note on cladding materials 07
- Q.4 (a) Draw neat sketch of IC diagram and write three important reactions. 07  
(b) Draw neat sketch of TTT diagram. 07  
OR
- Q. 4 (a) Explain procedure for preparing micro test specimen. 07  
(b) Explain Annealing process in brief with neat sketch. 07
- Q.5 (a) Draw neat sketch of heat treatment diagram. 07  
(b) Define following terms 07  
(1)Failure (2) fracture (3) fatigue or endurance limit (5) creep  
(6) strengthening of metal (7) age hardening .  
OR
- Q.5 (a) Explain creep curve with neat sketch. 07  
(b) Write chemical composition, mechanical properties and application of  
BIS 2002, BIS 2062, SA 515 GR 60, SA105,386, SA 240 TP 304, 316L, EN 8 07

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