

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-III • EXAMINATION – SUMMER • 2014

Subject Code: 133403

Date: 28-05-2014

Subject Name: Engineering Materials and Metallurgy

Time: 02.30 pm - 05.30 pm

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) Write the procedure to conduct Impact Testing with neat sketch. **07**
(b) Explain about Normalizing and its purpose. **07**

Q.2 (a) Sketch and explain the Iron – Iron Carbide equilibrium diagram. **07**
(b) Distinguish between Thermoplastics and Thermosetting plastics with suitable example. **07**

OR

(b) Classify phase diagram. Draw and explain about cooling curve for pure metal. **07**
Q.3 (a) Write the purpose of alloying. Write the advantages and disadvantages of Alloy Steel. **07**
(b) Write the effect of Silicon and Vanadium as an alloying element to add on Steel. **07**

OR

Q.3 (a) Write the effect of Tungsten and Manganese as an alloying element to add on Steel. **07**
(b) Write the characteristics, properties and uses of Magnesium alloy. **07**

Q.4 (a) Sketch and explain the Jominy end-quench hardenability test and Jominy curve. **07**
(b) Define Carburizing. Write the process, characteristics and uses of Carburizing. **07**

OR

Q.4 (a) Write the stages of heat treatment process. Write short notes on Annealing. **07**
(b) Define Hardening. Write short notes on Hardening and its procedure. **07**

Q.5 (a) Write the procedure for measuring Hardness by using Rockwell Test with a sketch. **07**
(b) Explain in brief about Composite materials and its properties. **07**

OR

Q.5 (a) Write the steps to construct Isothermal transformation diagram (TTT) with sketch. **07**
(b) How to determine Creep limit by using Creep Testing Method with procedure. **07**
