

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering - SEMESTER-III • EXAMINATION – WINTER • 2014

Subject Code: 3335503

Date: 29-11-2014

Subject Name: Material and Metallurgy

Time: 10:30 am - 01:00 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) Compare metallic and Non – metallic materials **07**
- (b) Explain the effect of different alloying element on properties of steel. **07**
- Q.2**
- (a) Explain the stress strain diagram with neat sketch and Explain the following terms w. r. to stress strain curve **07**
1. Yield strength 2. Ultimate tensile strength
3. % reduction in area 4. Breaking strength
- (b) Classify the various ferrous materials in chart form **07**
- OR**
- (b) Explain the chemical compositions, properties and application of Gray Cast Iron. **07**
- Q.3** (a) List out the various properties of material. **07**
Explain any five mechanical properties of materials.
- (b) What is a stainless steel? **07**
List out the various types of S.S.?
Explain the chemical compositions, properties and applications of each.
- OR**
- Q.3** (a) Explain the various properties and application of copper. **07**
- (b) Explain the various properties and application of Titanium. **07**
- Q.4** (a) Describe the properties and application of Teflon. **07**
- (b) Write a brief note on cladding materials used in fabrication work. **07**
- OR**
- Q.4** (a) Write definition of **07**
(1) Crystal (2) Structure (3) Space lattice (4) Unit cell
(5) Ion (6) Atom (7) Bonds
- (b) Explain the metallurgical microscope with neat sketch. **07**
- Q.5** (a) Draw a neat sketch of I. C. Diagram and write three important reactions. **07**
- (b) Draw a neat sketch of T. T. T. Diagram. **07**
- OR**
- Q.5** (a) Explain in brief with neat sketch Normalizing process **07**
- (b) Write brief note about ASME Sec - II . **07**