

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER -III • EXAMINATION –SUMMER-2015

Subject Code: 335502**Date: 06 /05 /2015****Subject Name: Materials & Metallurgy****Time: 2:30 pm to 5:00 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)

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|------|-----|----------------------------------------------------------------------------------------------------------------------------------|----|
| Q.1 | (a) | Define the term “Materials “, “Materials science” and “Metallurgy”. Explain importance of metallurgy for a fabrication engineer. | 07 |
| | (b) | Compare metallic and Non – metallic materials | 07 |
| Q.2 | (a) | Classify the ferrous material in chart form. | 07 |
| | (b) | What is alloy steel? Explain advantage and limitation of alloy steel. | 07 |
| OR | | | |
| | (b) | Explain material test certificate. | 07 |
| Q.3 | (a) | Explain properties and application of copper. | 07 |
| | (b) | Explain properties and application of Aluminum. | 07 |
| OR | | | |
| Q.3 | (a) | Explain properties and application of Nickel. | 07 |
| | (b) | Write properties and application of Elastomer. | 07 |
| Q.4 | (a) | List different types of composite materials and explain any one. | 07 |
| | (b) | Write requirement of good thermal insulating material. Classify different thermal insulating Materials. | 07 |
| OR | | | |
| Q. 4 | (a) | Write definition of
(1) Crystal (2) Structure (3) Space lattice (4) Unit cell (5) Ion (6) Atom (7) Bonds | 07 |
| | (b) | Explain creep curve with neat sketch. | 07 |
| Q.5 | (a) | Draw neat sketch of IC diagram and write three important reactions. | 07 |
| | (b) | Draw neat sketch of TTT diagram. | 07 |
| OR | | | |
| Q.5 | (a) | Define the “heat treatment process”, classify it and explain purpose of heat treatment. | 07 |
| | (b) | Write full form of ASME, EN, BIS, DIN, AISI,API and SAE. | 07 |
