

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-III • EXAMINATION – SUMMER • 2014****Subject Code: 3335503****Date: 24-06-2014****Subject Name: Materials 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.

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|-------------|---|-----------|
| Q.1 | (a) List different properties of material and explain technological properties | 07 |
| | (b) Explain effect of different alloying element on properties of steel. | 07 |
| Q.2 | (a) What is stainless steel? List different types of S.S Explain chemical composition, properties and application of any one. | 07 |
| | (b) Write brief note on H.S.L.A. steel. | 07 |
| | OR | |
| | (b) Explain properties and application of Aluminum. | 07 |
| Q.3 | (a) Explain properties and application of Nickel. | 07 |
| | (b) Explain different material and their requirement for high temperature service. Write applications where high temperature service material required. | 07 |
| | OR | |
| Q.3 | (a) Write properties and application of Glass. | 07 |
| | (b) Write properties and application of Elastomer. | 07 |
| Q.4 | (a) Write properties and applications of plastic. | 07 |
| | (b) Explain SC, BCC, FCC, HCP, crystal structure of metal With neat sketch | 07 |
| | OR | |
| Q. 4 | (a) Draw neat sketch of IC diagram and write three important reactions. | 07 |
| | (b) Draw neat sketch of TTT diagram. | 07 |
| Q.5 | (a) Explain metallurgical microscope with neat sketch. | 07 |
| | (b) Explain effect of grain size on mechanical properties of metal. | 07 |
| | OR | |
| Q.5 | (a) Define the “heat treatment process”, classify it and explain purpose of heat treatment. | 07 |
| | (b) Explain Material Test Certificate (MTC) | 07 |
