

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016

Subject Code:2172112**Date:21/11/2016**

Subject Name:Physical Metallurgy of Special Purpose Non-ferrous Metals and Alloys (Department Elective - I)

Time:10.30 AM to 1.00 PM**Total Marks: 70****Instructions:**

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

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|------------|-----|--|-----------|
| Q.1 | (a) | Discuss selection of Titanium-alloys for service. | 07 |
| | (b) | Describe advantage & limitations of non-ferrous metals & alloys. | 07 |
| Q.2 | (a) | Discuss heat treatment of alpha-beta alloys in titanium. | 07 |
| | (b) | What is the effect of Nickel on thermal expansion of Iron? Explain Invar material. | 07 |
| OR | | | |
| | (b) | Sketch phase diagram for brass and discuss its properties and applications. | 07 |
| Q.3 | (a) | Write note on Antifriction Alloys (Babbit Alloys). | 07 |
| | (b) | Discuss effect of alloying elements in Ti alloys. | 07 |
| OR | | | |
| Q.3 | (a) | Describe properties and applications magnesium alloys. | 07 |
| | (b) | Discuss its properties and applications of lead alloys. | 07 |
| Q.4 | (a) | Write note on heat treatment of Al alloys and its effect on properties. | 07 |
| | (b) | Discuss detailed classification of Al-alloys. | 07 |
| OR | | | |
| Q.4 | (a) | Discuss properties and applications of tin alloys. | 07 |
| | (b) | Explain Solution heat treatment process for Aluminum Alloys. | 07 |
| Q.5 | (a) | Using Cu-Sn phase diagram explain effect of Sn on properties of Bronze. | 07 |
| | (b) | Discuss composition, properties and applications of Nichrome and Hastelloy. | 07 |
| OR | | | |
| Q.5 | (a) | Discuss silver – copper alloys using phase diagram. | 07 |
| | (b) | Write brief note on aluminum bronze and phosphorus bronze. | 07 |
