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B.E/B.Tech (Full-Time) DEGREE END SEMESTER EXAMINATIONS, NOV/DEC2013
MATERIALS SCIENCE AND ENGINEERING BRANCH
FOURTH SEMSTER-REGULATION 2008

ML9253 NON FERROUS METALLURGY

Time: 3Hr

Max.Mark:100

Answer ALL Questions

25

Part –A (10x2=20 Marks)

1. Why most copper-zinc alloys are not age hardenable?
2. Why are tin bronzes suitable for use as bearings?
3. Explain the meaning of the digits in the following aluminium alloys: 2107-T4; 5056-H16
4. Why do many aluminium alloys respond to age hardening? Give some examples?
5. What is the effect of zirconium additions to magnesium alloys
6. What are the two crystal structures of titanium, and what is the transformation temperature?
7. What is the effect of sulfur addition with nickel alloy?
8. Zinc cannot be work hardened at room temperature- True or false: Justify your answer.
9. Compare the lead base and tin base babbitts with regard to properties and applications.
10. What are the disadvantages of silver?

Part – B (5x16 = 80 Marks)

- 11 (i) Discuss the important properties and microstructure of age hardenable Aluminium alloys (16)
- 12a (i) Draw the phase diagram of Cu-Zn and explain the different phase formation at different region (12)
(ii) Discuss the properties and applications of Cu-Ni alloy (4)
- OR
- 12b (i) Discuss the important metallurgical properties of different bronzes (12)
(ii) Discuss the properties and applications of Cu-Cr alloy (6)
- 13a Discuss the important characteristics of Magnesium alloys (16)
- OR
- 13b (i) Explain the phase diagram of Ti-Al system and discuss the characteristics of different phases (16)
- 14a (i) Draw the Al-Zn Phase diagram and discuss different phases in it. (16)
- OR
- 14b (i) Discuss the properties and applications of Nickel alloys (16)
- 15a Write the metallurgical properties of (16)
(1) Silver copper alloys
(2) Platinum alloys
(3) Platinum –Rhodium alloys
(4) Iridium
- OR
- 15b (i) Draw the phase diagram of silver – copper system and discuss different phases (16)