35133

MSc. DEGREE EXAMINATION – OCTOBER 2015
THIRD SEMESTER
Material Science & Nano Technology
Paper III –ALLOYS AND PAINTS

Time : 3 Hours | Max.Marks : 75

PART – A (5 X 3 = 15 Marks)
Answer any FIVE questions.
Each Question carries Three (3) marks.
Each Answer should not exceed One (1) page.

1. Discuss electro valence compounds.
2. Write the general features of shape memory alloys.
3. Distinguish between unary phase diagrams and binary phase diagrams.
4. Write the significance of phase diagrams in alloy formation.
5. Write the functions of primers, sealers and undercoats.
6. Discuss synthesis of resins.
7. Write about hardness and bending tests.
8. Discuss the factors affecting the establishment of adhesion bond.

PART – B (4 X15 = 60 Marks)
Answer ALL questions.
Each Question carries Fifteen (15) marks.
Each Answer should not exceed Six (6) pages.

9. (a) Write a note on substitutional and interstial solid solutions.
   (b) Explain Hume Rother's rules for primary substitution solid solubility.

(OR)

10. Write about Cu-Zn-Al shape memory alloys. Write the applications of shape memory alloys.

11. Write a note on phase rules and explain the binary phase diagrams of Fe-C system.

(OR)

12. Write the limitations of phase diagrams. Explain Pb-Sn phase diagrams.

13. Write a note on basic ingredients of paints. Write the distinctions between air dried and baked paints.

(OR)

14. Discuss the fundamentals of film formation. Write the factors that influence the coating properties.

15. Discuss the optical properties of coatings and discuss ageing properties

(OR)

16. Discuss in detail the non destructive tests of paints.

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