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B.E. (FULL TIME) DEGREE END SEMESTER EXAMINATIONS - NOV. / DEC. 2011

MATERIALS SCIENCE AND ENGINEERING BRANCH

V SEMESTER - REGULATION 2008

ML 9306 – CORROSION AND SURFACE ENGINEERING

Time : 3 Hours

Max. Marks : 100

ANSWER ALL QUESTIONS

PART – A (10 X 2 = 20 Marks)

1. What is the difference between adhesive wear and abrasive wear?
2. Define Pilling – Bedworth ratio.
3. Define exchange current density.
4. What is polarization?
5. What is atmospheric corrosion?
6. Define dealloying.
7. What are the purposes of corrosion testing?
8. Give two advantages of ASTM standard for corrosion testing.
9. What is cathodic protection?
10. What is the use of corrosion inhibitor?

PART – B (5 X 16 = 80 Marks)

- 11 Explain in detail about pitting corrosion and intergranular corrosion.
- 12.a) i) Explain in detail about concentration polarization and activation polarization. (12)
ii) Give the Tafel equation and name the different terms in it. (4)
(OR)
- b) i) What is passivity? Explain. (4)
ii) Explain in detail the theories of passivity. (12)
- 13.a) Explain in detail about stress corrosion and corrosion fatigue.
(OR)
- b) Explain in detail about crevice corrosion and high temperature oxidation.
- 14.a) Explain in detail about susceptibility test for intergranular corrosion.
(OR)
- b) i) What is salt spray test? Explain. (6)
ii) Write short note on ASTM standards for corrosion testing. (10)
- 15.a) Write short notes on electroless plating and anodizing.
(OR)
- b) Write short notes on sputter coating, plasma spray coating and ion implantation.