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B.E. (FULL TIME) DEGREE END SEMESTER EXAMINATIONS - APRIL / MAY 2014

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. Define passivity.
5. What is dealloying in corrosion?
6. Define intergranular corrosion.
7. State two purpose of corrosion testing.
8. What are the uses of ASTM standards for corrosion testing?
9. Define cathodic protection.
10. What is the use of corrosion inhibitor?

PART – B (5 x 16 = 80 Marks)

11. Explain in detail the susceptibility tests for intergranular corrosion and stress corrosion.
- 12.a) Explain in detail about pitting corrosion and uniform corrosion.
(OR)
b) Explain in detail about dezincification and erosion corrosion.
- 13.a) Define polarization. Explain in detail about concentration polarization and activation polarization.
(OR)
b) i) What is Flade potential? Explain. (4)
ii) Explain the theories of passivity. (12)
- 14.a) Explain atmospheric corrosion and stress corrosion with reference to industrial practice.
(OR)
b) Explain corrosion fatigue and high temperature oxidation with reference to industrial practice.
- 15.a) i) What is electroless plating? Explain. (6)
ii) Discuss in detail about anodizing. (10)
(OR)
b) Explain physical vapor deposition, ion implantation and plasma spray coating.