

**B.E. (FULL TIME) DEGREE END SEMESTER EXAMINATIONS - April / May 2011****MATERIALS SCIENCE AND ENGINEERING - 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)**

24

1. What is the difference between adhesive wear and abrasive wear?
2. Define Pilling-Bedworth ratio.
3. Define exchange current density.
4. What is Flade potential?
5. What is pitting corrosion?
6. What is fretting corrosion?
7. What is the purpose of corrosion testing?
8. What is a salt spray test?
9. Define cathodic protection.
10. What is the role of corrosion inhibitors?

**PART – B ( 5 X 16 = 80 Marks)**

- 11 Explain in detail intergranular corrosion and stress corrosion.
- 12.a) Explain in detail corrosion fatigue and high temperature oxidation.  
(OR)  
b) Discuss in detail concentration polarization and activation polarization.
- 13.a) Explain in detail the theories of passivity.  
(OR)  
b) Explain in detail atmospheric corrosion and dealloying.
- 14.a) Explain the susceptibility tests for intergranular corrosion.  
(OR)  
b) Explain the susceptibility tests for stress corrosion.
- 15.a) Discuss in detail electroless plating and anodising.  
(OR)  
b) Explain in detail the surfacing processes viz. physical vapour deposition and sputter coating.