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**Answer any four questions****Q1-a-** Explain by sketch and equations how a piece of iron corrodes in : [6.5]

1-Acidic environment

2-Neutral environment

**b-**What are the principles of inhibitors function.[6]**Q2-a-** What's the effect of velocity, Turbulence and Impingement of environment in corrosion , and how to prevent ?[6.5]**b-** Explain three Inspection methods.[6]**Q3-a-** Explain with sketch how oxidizers inhibit corrosion.[6.5]**b-** Specify the Anode and cathode and how corrosion happens (by Equations):

and how to prevent corrosion?[6]

Fe/Cu , Cu/ Al , Zn /Fe

**Q4-a-**What are the properties and methods of metallic coatings?[6.5]**b-**Write four advantages of Impressed current Cathodic protection against Sacrificial anode.[6]**Q5-a-**Mention Types of Hydrogen Damage Corrosion , and how to prevent them.[6.5]**b-**What are the materials used in both Impressed Current and Sacrificial anode cathodic protection?[6]