

**M.Phil. –Chemistry [Semester – II ]**  
**PAPER III – [Elective] PHYSICAL CHEMISTRY**  
**[50 MARKS]**

**Corrosion [25 marks]**

1. Electro chemical and thermodynamic approaches to corrosion – Pourbaix potential – Pourbaix diagrams – Energy transfer coefficients and equilibrium potentials – corrosion potential and corrosion current – Electrochemistry of localized corrosion – Modern metallic and non metallic materials for construction – Electrochemical and Radio chemical methods of studying corrosion – corrosion inhibitors.

References :

1. Corrosion and corrosion control -By Herbert H. Uhlig.

**2. Electrochemistry {25 marks }**

1. The activity of strong electrolytes – Fugacity – The activity of ions – activity coefficient – Theories of strong electrolytes – Debye-Hückel's Theory – Debye and Hückel's theory – The dissociation of polybasic acids – The acidity of acids and bases.
2. The electrode potential – Bulk structure of metals – The surface of metals – the surface of liquid polar phases – metal – metal contact – Electrons in liquid polar phases – measurement of potentials – potentials of zero charge and the nature of the medium – charge and potential distribution at interfaces – potential distribution in the Double layer – simultaneous charge and potential measurements – The electrokinetic potential.

References:

1. Text Book of electrochemistry  
-- By G.Kortum and J.O'M.Bockris.
2. An introduction to Electrochemistry  
-- By Samuel Glasstone