

Paper : III CHN-703(I)(Crns)

Unit :1

Factors affecting on the corrosion of Iron Steel :

Aqueous environment, Effect of dissolved oxygen, Temperature, pH, salts metallurgical factors, varieties of Iron Steel, composition, heat treatment.

Unit : 2

Inhibitors and Passivators :

Theories of passivity, Mechanism of passivation, Application of passivators.

Packing inhibitors, slushing compounds, vapour phase inhibitors.

Unit :3

Cathodic and Anodic protection :

Theory of cathodic protection, Methods of cathodic and anodic protection.

Unit :4

a. Coatings for corrosion resistance :

Methods of application, classification, Inorganic and organic coatings.

b. Alloying for corrosion resistance :

Stainless steel, Monel metal, Incelel, Hastalloy.

Paper : III CHN-703(I)(Coord) Co-ordination Chemistry

Unit :-1

© Other methods of studying coordination compounds :

Molar conductivities, cyclic voltammetry, X-ray crystallography.

Unit :-2

© Magneto Chemistry :

Introduction. Origin of para-magnetism, Derivation of Van Vleck's equation, Calculation of magnetic susceptibility considering effect of spin-orbit coupling and magnetic fields as sequential perturbation. Ferromagnetism and Anti ferromagnetism. Anti ferromagnetic exchange pathways, direct metal-metal interaction. Super exchange model, magnetic susceptibility of binuclear complexes.

Unit :-3

© Complex equilibria :

Introduction. Computation of Stability constants from equilibrium data. Basic principles, Mathematical functions and their inter relationships. Method of computing stability constants.

© Half-integral n-values, correction term method, Graphical methods. Numerical methods Experimental determination of composition and stability, Solvent extraction. Ion exchange and polarographic methods.

Unit :- 4

© Applications of coordination compounds in various fields.