

**CH102 Chemistry-I (3-1-0) Credits: 4**

**Theory: 100**

**Sessional: 50**

**Time: 3 hours**

**Unit-I**

**General Chemistry**

55

Marks

Quantum ideas for discussing atomic and molecular structure- chemical bonding; Molecular and Crystal structure-Covalent inorganic and Organic Compounds, ionic solids; hybridization, close packing of atoms and ions. Insulator and conductors-electronic structure and properties of solids.

Acid and bases- pH and pKa; Oxidation and Reduction, standard reduction Potential.

Laws and application of thermodynamics-  
phase Rule, critical behavior of substances, Chemical kinetics , catalysis, Electrolytic conduction and electrolysis

**Unit-II**

**Electrochemistry**

30

Marks

Electrochemical Cells- EMF of a cell, Electrodes, reference electrodes, ion-selective electrodes, glass electrodes, Commercial electrochemical cells and batteries: batteries-properties, classification, cell reactions and performance. Lead-acid battery, dry cell, Ni-cd battery, lithium battery, alkaline battery, Fuel cell.

Corrosion and material oxidation: Chemical and electrochemical corrosion, pitting and water line corrosion, passivation of surfaces, protective measures against corrosion-anodizing, galvanizing. Corrosion inhibition

**Unit-III**

**Chemistry in Everyday life**

15 Marks

Chemistry and modern society- general aspects; plastics, reinforced plastics and rubbers as materials for the production of household goods; Polymers in medicine and surgery; batteries for powering domestic appliances; Paints and dyes, Lubricants; adhesives; soaps and detergents; Oils and fats, Elements of Nutritional Chemistry; drugs and cosmetics