

## **PUC 2 SEMESTER 2 Chemistry**

**(Subject Code: No. of credits: 4)**

### **Syllabus:**

**Unit I: Solid state chemistry :** 1.1 General characteristics of solid state; 1.2 Types of crystals; 1.3 Crystal structure system and Bravais lattices; 1.4 Bragg's equation; 1.5 Calculations of density of unit cell, number of atoms per unit cell in solids.

**Unit II: Chemical kinetics :** 2.1 Concept of reaction rate, Rate law, units of rate and rate constant; 2.2 Factors affecting rate of a reaction, law of mass action; 2.3 Order and molecularity of a reaction, integrate rate equations and half life (only zero and first order); 2.4 Methods of determining reaction order; 2.5 Collision theory; concept of activation energy, Arrhenius equation; 2.6 Problems; 2.7 Catalysis.

**Unit III: d and f block elements and co-ordination chemistry:** 3.1 General trends in properties of first row transition metals; 3.2 Potassium dichromate and potassium permanganate; 3.3 Lanthanides and actinides; 3.4 Coordination compounds; 3.5 Theories of coordination compounds; 3.6 Isomerism.

**Unit IV: General metallurgy:** 4.1 general principles of metallurgy; 4.2 Occurrence and principle of extraction of Cu and Zn 4.3 Occurrence and principles of Fe; 4.4 Process of molten electrolysis of Al and Mg.

**Unit V: Electro chemistry:** 5.1 Electrolytes and non electrolytes, electrolysis; 5.2 Faraday's law of electrolysis and applications 5.3 Conductance in electrolytic solutions: 5.4 Kohlrausch's law and its applications; 5.5 Electrochemical cells; 5.6 EMF of the cell, Nernst equation; 5.7 Cells-primary, secondary and fuel cells; 5.8 Corrosion.

**Unit VI: Surface chemistry and chemistry in everyday life:** 6.1 Surface chemistry; 6.2 Factors affecting adsorption; 6.3 Colloidal state: distinction between true solutions, colloids and suspensions: lyophilic lyophobic, macro molecular solids; 6.4 Properties of colloids, Tyndall effect, Brownian movement and electrophoresis emulsion-types of emulsions, micelles; 6.5 Chemistry in everyday life I; 6.6 Chemistry in everyday life II.

### **Resources:**

1. (1). Books: (i) Inorganic Chemistry by O.P.Tandon, (ii) Organic Chemistry by O.P.Tandon, (iii) NCERT Chemistry XI part I, (iv) Physical Chemistry by O.P.Tandon, (v) NCERT Chemistry XI part II, (vi) NCERT Chemistry XII part I, (vii) NCERT Chemistry XII part II, (ix) IP Telugu academy chemistry for first year, (x) IP Telugu academy chemistry for second year, (xi) Concise Inorganic chemistry by J D Lee, (xii) Principles of Physical Chemistry by Puri, Sharma and Pathana. (xiii) Organic Chemistry by Robert, Thornton and Morrison