Sangola Taluka Shetkari shikshan Prasarak Mandal's

VIDNYAN MAHAVIDYALA, SANGOLA

(Teaching Plan)

Department Of chemistry

Name of Faculty**: Mr. A. R. Ingawale (**Associate Professor)

Academic Year**: 2018 – 19** Class: **B.Sc. II** Semesters**: IV**

Paper No. **: I** Paper Name**: Physical chemistry**

Sr.No.	Class	Month	Chapter Details
1	B.Sc. II	December	**UNIT-I 1.** **Electrochemistry : (18)** 1.1. Introduction, conduction of electricity, Types of conductors : electronic and electrolytic. 1.2. Explanation of terms : Conductance, Specific resistance, specific conductance, Equivalent conductance, Molecular conductance. 1.3. Variation of specific and equivalent conductance with concentration, Equivalent conductance at infinite dilution. $\lambda\infty - b\ c$ from graph)**=**(Mention Onsager equation, λv 1.4. Migration of ions, Hittorf's rule, Transport number, Determination of transport number by moving boundary method, factors influencing transport number: Nature of electrolyte, concentration, temperature, complex formation and Degree of hydration.
2	B.Sc. II	January	1.5. Kohlrausch law, Applications of Kohlrausch law : i. Determination of relationship between ionic conductance, ionic mobility and transport number. ii. Determination of equivalent conductance at infinite dilution of weak electrolytes. iii. Determination of degree of dissociation of weak electrolyte. iv. Determination of ionic product of water. v.

			Determination of solubility of sparingly soluble salts. 1.6. Numerical problems. **2. Thermodynamics (10)** 2.1. Introduction, concept of entropy, Entropy as a state function: Definition, mathematical expression, unit, physical significance of entropy. 2.2. Entropy changes for reversible and irreversible processes in isolated systems. 2.3. Entropy changes for an ideal gas as a function of V and T and as a function of P and T. 2.4. Entropy change in mixing of gases 2.5. Entropy change in physical transformations : i. Fusion of a solid. ii. Vaporization of a liquid. iii. Transition from one crystalline form to another. 2.6. Third law of thermodynamics, Absolute entropy and Evaluation of absolute entropy, use of absolute entropies: Determination of entropy changes in chemical reactions. 2.7. Numerical problems.
3	B.Sc. II	February	**4. Distribution Law (07)** 4.1. Introduction 4.2. Nernst distribution law, its limitations and modification with respect to association and dissociation of solute in one of the solvents 4.3. Applications of distribution law in i. Process of extraction (derivation expect) ii. Determination of solubility iii. Distribution indicators iv. Determination of molecular weight 4.4. Numerical problems expected
4	B.Sc. II	March	**UNIT-II** **3. The Solid State (10)** 3.1. Introduction, space lattice, lattice sites, lattice planes, Unit Cell. 3.2. Laws of crystallography : i. Law of constancy of interfacial angles. ii. Law of rational indices iii. Law of crystal symmetry. 3.3. Weiss indices and Miller indices. 3.4. Cubic lattice and types of cubic lattice, planes or faces of a simple cubic system, spacings of lattice planes. 3.5. Diffraction of X-rays, Derivation of Bragg's equation. 3.6. Determination of crystal structure of NaCl and KCl on the basis of Bragg's equation. 3.7. Numerical problems.