

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemistry and Biochemistry - NOC:Elementary Electrochemistry

Subject Co-ordinator - Prof. Angshuman Roy Choudhury

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - Introduction to Elementary Electrochemistry
- Lecture 2 - The Laws of Electrochemistry and Electrolysis
- Lecture 3 - Applications of Faraday's Laws of Electrolysis
- Lecture 4 - Electrolytic Conduction: Arrhenius Theory of Electrolytic Dissociation
- Lecture 5 - Electrochemical/Galvanic Cell: Construction and Cell Reactions
- Lecture 6 - Numerical Problems on Faraday's Laws of Electrolysis
- Lecture 7 - Estimation of EMF of a Cell Using Potentiometer
- Lecture 8 - EMF of a Cell and Free Energy Change of a Reaction
- Lecture 9 - EMF of a Cell and Equilibrium Constant of a Reaction: The Nernst Equation
- Lecture 10 - Various Types of Electrodes (Glass, SHE, Calomel) in Electrochemistry
- Lecture 11 - Electrode Potential and Applications of Nernst Equation
- Lecture 12 - Numerical Problems: Nernst Equation, EMF of Half Cell Reactions
- Lecture 13 - Measurement of Cell EMF
- Lecture 14 - Electrochemical Cells: Liquid Junction Potential
- Lecture 15 - Electrolytic Solutions: Determination of Activity Coefficient
- Lecture 16 - Theory of Potentiometric Titrations
- Lecture 17 - Preparation of Primary Standard and Standardization of NaOH
- Lecture 18 - Potentiometric Titration of Strong Acid and Strong Base
- Lecture 19 - Potentiometric Titration of Weak Acid with Strong Base
- Lecture 20 - Potentiometric Titration of Dibasic Acid with Strong Base
- Lecture 21 - Experimental Calculation of Potentiometric Titrations
- Lecture 22 - Conductance and Conductivity of the Solution
- Lecture 23 - Experimental Methods to Determine Transport Number
- Lecture 24 - Experimental Method to Calculate Transport Number
- Lecture 25 - Electrolytic Solutions
- Lecture 26 - Conductance Measurement
- Lecture 27 - Variation of Conductance with Concentration
- Lecture 28 - Ionic Mobilities in terms of ion Conductivities
- Lecture 29 - Application of Conductance Measurement - Part 1

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- Lecture 30 - Application of Conductance Measurement - Part 2
- Lecture 31 - Activities in Electrolytic Solutions
- Lecture 32 - Ionic Strength of an Electrolyte and its Importance
- Lecture 33 - Hydration of Ions and Their Ionic Mobility
- Lecture 34 - Solubility and Activity Product
- Lecture 35 - Applications of EMF and Conductance Measurement
- Lecture 36 - Dissociation Constant of Weak Acids
- Lecture 37 - Conductometric Titrations of Strong Acid with Strong Base
- Lecture 38 - Conductometric Titrations of Weak Acid with Strong Base
- Lecture 39 - Estimation of HCl and Ammonium Chloride in a Triple Mixture using NaOH
- Lecture 40 - Estimation of Total Chloride ion Concentration in Triple Mixture using Primary Standard AgNO₃
- Lecture 41 - Validation of Ostwald Dilution Law using HCl
- Lecture 42 - Validation of Ostwald Dilution Law using Acetic Acid
- Lecture 43 - Calculation and Graph Plotting for Conductometric Experiments