NPTEL Video Course - Chemistry and Biochemistry - NOC:Concepts of Chemistry for Engineering

Subject Co-ordinator - Prof. Anindya Datta

Co-ordinating Institute - IIT - Bombay

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

Lecture 30 - Crystal Field Theory: Octahedral Complex
Lecture 31 - Crystal Field Theory: Tetrahedral Complex
Lecture 32 - Crystal Field Theory: Octahedral vs. Tetrahedral Complex
Lecture 33 - Application of CFSE: Spinel and J-T Distortion
Lecture 34 - Introduction to Molecular Magnetism
Lecture 35 - Problem Solving Approach
Lecture 36 - Magnetism
Lecture 37 - Spectroscopic Term Symbol
Lecture 38 - Magnetic States of Matter: Paramagnetic, Ferro and Antiferromagnetic
Lecture 39 - Band structures of solid materials
Lecture 40 - Density of states and doping in semiconductors
Lecture 41 - Introduction to molecular spectroscopy
Lecture 42 - Rotational spectroscopy
Lecture 43 - Vibrational spectroscopy
Lecture 44 - Electronic Spectroscopy - I
Lecture 45 - Electronic Spectroscopy - II
Lecture 46 - Electronic Spectroscopy - III
Lecture 47 - Fluorescence Spectroscopy
Lecture 48 - Fundamentals of NMR spectroscopy and MRI
Lecture 49 - Surface characterization techniques
Lecture 50 - Introduction to thermodynamics: Work, heat and energy
Lecture 51 - First law of thermodynamics: Diathermic and adiabatic systems,exothermic and endothermic process
Lecture 52 - Enthalpy, Hess's law
Lecture 53 - Second law of thermodynamics: Entropy and third law of thermodynamics
Lecture 54 - Helmholtz and Gibbs free energies, Concept of spontaneity
Lecture 55 - Electrochemical equilibrium, Nernst equation
Lecture 56 - Acid base and solubility equilibria
Lecture 57 - Corrosion
Lecture 58 - Extraction of metals
Lecture 59 - Ellingham Diagram
Lecture 60 - Problems From Thermodynamics
Lecture 61 - Intermolecular forces: Electrostatic and Ion-Dipole Interaction
Lecture 62 - Intermolecular forces: Dipole-dipole, hydrogen bonding
Lecture 63 - Real gases - Part 1
Lecture 64 - Real gases - Part 2
Lecture 65 - Introduction to Potential Energy Surfaces
Lecture 66 - Potential energy surface of H3 system
Lecture 67 - Salient features of H3 potential energy surface
Lecture 68 - Potential Energy Surfaces of HCN and H2F system

Lecture 69 - Representation of three dimensional structures
Lecture 70 - Structural isomers and stereoisomers
Lecture 71 - Configurations, Symmetry and Chirality
Lecture 72 - Enantiomers and Diastereomers
Lecture 73 - Optical activity, Conformational analysis, and absolute configuration
Lecture 74 - Substitution reactions
Lecture 75 - Elimination reactions
Lecture 76 - Addition, Oxidation and Reduction reactions
Lecture 77 - Synthesis of a drug molecule