

SARDAR PATEL UNIVERSITY**Programme: B.Sc (Chemistry)****Semester:****Syllabus with effect from:**

Paper Code: US05CCHE03	Total Credit: 3
Title Of Paper: Inorganic Chemistry	

Unit	Description in detail	Weighting (%)
I	Symmetry Introduction, Various types of symmetry elements, Point groups, Properties of point groups, To determine the point group of a molecule, Representations of groups, The character, Some important theorems concerning the irreducible representations and their characters, Character table for point groups C_{2v} and C_{3v} . Basic Text & Reference Books :- ➤ Introductory Quantum Chemistry- 4 th Edition By A K Chandra	
II	Introduction To The Transition Elements: Ligand Field Theory Introduction, Ligand field theory, The crystal field approach, The molecular orbital approach, Magnetic properties of transition metal complexes, Electronic absorption spectroscopy, Some generalizations concerning ligand field splitting and spectra, Structural and thermodynamic effects of d-orbital splitting. Basic Text & Reference Books :- ➤ Basic Inorganic Chemistry- 3 rd Edition By F. Albert Cotton, Geoffrey Wilkinson & Paul L. Gaus	
III	Wave Mechanics Wave equation, Interpretation of Ψ and Heisenberg's uncertainty principle, Properties of Ψ , Operators, Second postulate of quantum mechanics, Setting up of operators for different observable, Third postulate of quantum mechanics, Fourth postulate of quantum mechanics, One dimensional box, Normalization and orthogonality, Characteristics of the wave functions, Three-dimensional box, Electron in a ring. Basic Text & Reference Books :- ➤ Introductory Quantum Chemistry- 4 th Edition By A K Chandra	
IV	Thermodynamic And Kinetic Aspects Of Metal Complexes Stability Of Complexes In Aqueous Solution: Definition of stability, stepwise formation of complexes, Stepwise formation and overall formation constants, kinetic vs. thermodynamic stability, labile and inert octahedral complexes according to CFT, factors affecting on the stability of complexes, experimental determination of stability constant and composition of a complex (spectrophotometric method, Job's method of continuous variation, Potentiometric Bjerrum method). Ligand Substitution Reactions In Octahedral Complexes: Transition state or activated complex, Types of substitution reactions, Labile and inert complexes, Acid hydrolysis reactions, Base hydrolysis reactions of	



<p>six-coordinated Co (III) ammine complexes, Anation reactions, Substitution reactions without breaking metal ligand bond.</p> <p>Ligand Substitution Reaction In Square-Planar Complexes: The trans effect, Theories of trans effect, mechanism of substitution reactions, Factors affecting the rates of substitution reaction in square planar complexes.</p> <p>Basic Text & Reference Books :-</p> <ul style="list-style-type: none">➤ Selected Topics in Inorganic Chemistry – 7th Edition, Wahid U Malik, G.D.Tuli, R.D.Madan	
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