SARDAR PATEL UNIVERSITY
Programme: B.Sc
Semester: I
Syllabus with effect from: June-2011

Paper Code: US01CCHE02	Total Credit: 2
Title of Paper: Inorganic Chemistry	

Unit	Description in Detail	Weightage (%)
I	**Atomic Structure** De Broglie's Concept of Dual Character of Matter, De Broglie's Wave Equation, Derivation of De Broglie's Equation, Heisenberg's Uncertainty Principle, Problems Based on De Broglie's Wave Equation and Heisenberg's Uncertainty Principle, Schrodinger Wave Equation, Derivation of Schrödinger Wave Equation, Other Forms of Schrödinger Wave Equation, To Convert Cartesian Coordinates into Polar Coordinates, Schrödinger Wave Equation for H Atom in Cartesian and Polar Coordinates, Significance of Ø and Ø2 , Electron Probability Function D, Plot of Rn, l against r and its Relation with the Electron Probability Density Around Point at a Distance of r from the Nucleus, Values of Angular Wave Function èi,m x Öm for s and p Orbital and to their Shapes, Shielding Effect and Effective Nuclear Charge, Factors Affecting the Magnitude of ó and Ziff and their Variation in the Periodic Table, Slater.s Rule for Calculating ó and Zeff, Problems.	25%
II	**Periodic Properties** Brief Introduction of Periodic Table, Ionization Energy, Successive Ionization Energies, factors Affecting Magnitude of Ionization Energy, Variation of IE Values in Main Group Elements, Variation of IE Values in Different Groups, Ionization Energies of Iso electronic Species, to Find out the Order of Second IE Values of the Elements of Second Period, Difference Between Ionization Potential and Electrode Potential of a Metal. Electron Affinity, Relation Between EA of X (g) Atom and IE of X-(g) Ion, EA2, Represents Energy Required, Factors Affecting the Magnitude of ElectronAffinity, Variation of Electron Affinity in Main Group Elements of the Periodic Table, Variation of Electron Affinity Values of Elements of Different Groups. Electronegativity, Different Methods Used for Calculating Electro negativity, Factors Affecting the Magnitude of Electro negativity, Variation ofElectro negativity in a Group of s and p Block Elements, Variation of Electro negativity of The Elements of Different Group. Variation of Electro negativity in a Period of s and p Block Elements, Applications of Electro negativity.	25%
III	**Chemical Bond - I** The Lewis Theory, Sidgwick . Powell Theory, Valence Shell Electron Pair Repulsion (VSEPR) Theory, effect of Lone Paris, Effect of Eletronegativity, Isoelectronic Principle, Some Example using VSEPR Theory, Valence Bond Theory (VBT), Hybridization involving s and p Orbitals (sp, sp2, sp3)	25%
IV	**Chemical Bond - II** Molecular Orbital Method, LCAO Mehtod, s-s Combination of Orbital, s-p Combination of Orbitals, p-p Combination of Orbitals, Rules for Linear Combination of Atomic Orbitals, Examples of Molecular Orbital Treatment	25%

	for Homo Nuclear Diatomic Molecules H_2+, H_2, He_2+,He_2, Li_2, Be_2, B_2, C_2, N_2,O_2, O_2-, O_2-2 and F_2.	

Basic Text & Reference Books:

- Advanced Inorganic Chemistry Volume I, Satyaprakash, G D Tuli, S K Basu, R D Madan. (UNIT - 1)
- Advanced Inorganic Chemistry Volume I, Satyaprakash, G D Tuli, S K Basu, R D Madan. (UNIT - 2)
- Concise Inorganic Chemistry, 5th Edition, J D Lee. (UNIT - 3)
- Concise Inorganic Chemistry, 5th Edition, J D Lee. (UNIT - 4)