Lesson Plan (Odd Semester) Session 2023-24

Name of the Assistant Professor: Virender Kumar

Class:- **B.Sc III (Vth Sem)** Subject:-Chemistry

Period	Topics to be covered	Topic of Assignments / Tests to be given to the students
24 July to 15 August	**Inorganic Chemistry (Chapter I) Metal-ligand bonding in transition metal complexes**: Limitation of valence bond theory, an elementary idea of crystal-field theory, crystal field splitting in octahedral, tetrahedral and square planer complexes, factor affecting crystal-field parameter	
16 August to 31 August	**Inorganic Chemistry (Chapter II)** Thermodynamics and kinetics aspects of metal complexes and factor affecting the stability, irving William Series, substitutions reaction of square planar complexes of Pt[II].	
01 September to 15 September	**Organic Chemistry (Chapter-I):** NMR Spectroscopy-introduction, Principle of nuclear magnetic resonance, PMR spectrum, number of signals, peak areas, equivalent and nonequivalent protons positions of signals and chemical shift,shielding and deshielding of protons, Proton counting, splitting of signals and coupling constants, magnetic equivalence of protons. Discussion of PMR spectra of the molecules: ethyl bromide, n-propyl bromide, isopropyl bromide. Discussion of PMR spectra of the molecules: 1,1-dibromoethane, ethanol, acetaldehyde, ethyl acetate. Discussion of PMR spectra of the molecules: toluene, benzaldehyde and acetophenone Simple problems on PMR spectroscopy for structure determination of organic compounds	**Class Test:** Chapter: Metal-ligand bonding in transition metal complexes: **Assignments:** NMR

16 September -30 September	**Inorganic Chemistry; Chapter 3** (Magnetic properties of Transition Metal Complexes); **Chapter:4** (Electronic Spectra of Transition Metal Complexes)	
01 October-15 October	**Organic Chemistry (Chapter-II): Carbohydrates:** Classification and nomenclature of Monosaccharide's , D-glucose, Mechanism of osazone formation, Lobry de bruyn van Ekenstien rearrangement, Open chain structure of glucose and Fructose, interconversion of glucose and fructose, chain lengthening and chain shortening of aldoses, Configurationof monosaccharides, Erythro and threodiastereomers. Conversion of glucose into mannose. Formation of glycosides, Determination of ring size of glucose and fructose. Mechanism of mutarotation. cyclicstructure of D(+)-glucose & D(-) fructose, Structur es of ribose and deoxyribose.An introduction to di saccharides, sucrose and lactose, Maltose Haworth projection formulae, polysaccharides, Structure of Amylose and amylopectin, Starch and cellulose **Organic Chemistry(Chapter-III) Organometallic Compounds:** introduction, the Grignard reagents-formation, structure and chemical reactions of Grignard reagent,Organozinc compounds: formation, chemical reactions, Organo lithium compounds: formation	Class Test: Organometallic Chemistry Assignments: Quantum Mechanics
16 October-upto exam	Physical Chemistry	

Virender Kaur