

Govt. College For Girls, Unhant

Lesson Plan (2023-24)

Name of the Assistant/ Associate Professor:- Sh. Samesh Chand & ~~Dr. Suresh Chandra~~

Class and Section: B.Sc 2nd Sem.

Subject: chemistry

Paper: Inorganic and Organic chemistry

Week1	Topics to be covered
	<b>Hydrogen Bonding &amp; Vander Waals Forces</b> Hydrogen Bonding – Definition, , . <b>types and applications.</b>
	Types, effects of hydrogen bonding on properties of substances
	applicat ion Brief discussion of various types of Vander Waals Forces
	Metallic Bond and Semiconductors
	Metallic Bond- Brie f introduction to meta llic bond,
	band theory of meta llic bond Semiconductors- Introduction
Week 2	<b>s-Block Elements</b>
	diagonal relationships
	Comparative study of the elements including salient features of hydrides (methods of preparation excluded)
	solvation and complexation tendencies including their function in biosystems.
	<b>Chemis try of Noble Gases</b> Chemical properties of the noble gases with emphasis on their low chemical reactivity,
	chemistry of xenon
Week3	structure and bonding of fluorides
	ox ides & oxyfluorides of xenon.
	<b>p-Block Elements</b>
	,
	<b>Boron family (13<sup>th</sup> gp):-</b> Diborane – properties and structure (as an example of electron – deficient compound and multicentre bonding)
	Emphasis on comparative study of properties of p-block elements (including diagonal relationship and excluding methods of preparation).

Week 4	Borazene – chemical properties and structure
	Trihalides of Boron – Trends in Lewis acid character structure of aluminium (III) chloride.
	<b>Carbon Family (14<sup>th</sup> group)</b>
	carbides, fluorocarbons
	silicates structural aspects),
	Catenation,
Week 5	p π– d π bonding (an idea),
	silicons – general methods of preparations
	properties and uses.
	<b>Nitrogen Family (15<sup>th</sup> group)</b>
	Oxides – structures of oxides of N,P..
	oxyacids – structure and relative acid strengths of oxyacids of Nitrogen and phosphorus
Week 6	Structure of white, yellow and red phosphorus.
	<b>Oxygen Family (16<sup>th</sup> group)</b>
	Oxyacids of sulphur – structures
	acidic strength H <sub>2</sub> O <sub>2</sub> –structure, properties and uses.
	<b>Halogen Family (17<sup>th</sup> group)</b>
	Basic properties of halogen, interhalogens types properties
Week 7	hydro and oxyacids of chlorine – structure and comparison of acid strength
	IMPORTANT QUESTIONS
	<b>Alkenes</b>
	Nomenclature of alkenes, , , □, , , ,
	. The Saytzeff rule, Hofmann elimination
	physical properties and relative stabilities of alkenes.
Week 8	Chemical reactions of alkenes
	mechanisms involved in hydrogenation
	electrophilic and free radical additions
	Markownikoff's rule
hydroboration–oxidation	

	Replacement of diazo group by H, OH, F, Cl, Br, I, NO <sub>2</sub> and CN groups,
	reduction of diazonium salts to hydrazines
	coupling reaction and its synthetic application.
	structure of benzene diazonium chloride
	Assignment and announcement of test
Week 9	<b>1. Nitro Compounds</b> Preparation of nitro alkanes and nitro arenes
	their chemical reactions.
	Mechanism of electrophilic substitution reactions in nitro arenes
	reductions in acidic, neutral and alkaline medium.
	Test of earlier unit
	Assignment and announcement of test
Week 10	<b>Aldehydes and Ketones</b> Nomenclature and structure of the carbonyl group.,.
	Synthesis of aldehydes and
	advantage of oxidation of alcohols with chromium trioxide (Sarett reagent)
	Physical properties
	Comparison of reactivities of aldehydes and ketones.
	Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin,
Week 11	Condensation with ammonia and its derivatives
	Wittig reaction.
	Mannich reaction.
	Oxidation of aldehydes,
	Baeyer–Villiger oxidation of ketones
	Cannizzaro reaction
Week 12	.,. MPV,
	Clemmensen

	aldol, condensations
	Perkin condensations
	Wolff-Kishner reduction
	LiAlH <sub>4</sub> and NaBH <sub>4</sub> reductions
Week13	Knoevenagel reductions
	pyridinium chlorochromate (PCC) and pyridinium dichromate.,
	ketones with particular reference to the synthesis of aldehydes from acid chlorides
Week 14	revision
	test
	Assignments collection
Week 15	revision
	test
	Assignments collection

*Devi*


Government College For Girls, Unhani (M.Garh)

Department of Chemistry

Lesson Plan Even Semester 2023-24 B.Sc 6<sup>th</sup> & 4<sup>th</sup>

Name of Assistant Professor – Ms. Deepika Kalon

Month	Week	B.Sc II	B.Sc III
February	1	F block Elements	Organometallic Chemistry
	2	F block Elements	Organometallic Chemistry
	3	Inorganic Analysis-1	Acid Base Concepts
	4	Inorganic Analysis-2	Revision, Electronic Spectrum
March	1	IR Spectroscopy	Bioinorganic Chemistry, Phase equilibrium
	2	IR Spectroscopy	Bioinorganic Chemistry, Photochemistry
	3	Revision	Silicon And Phosphazenes, Dilute Solution, Colligative Property
April	1	Amines	Heterocyclic Compounds Organosulphur Compounds
	2	Amines	Organic Synthesis, Synthetic Polymers
	3	Revision	Amino Acids, Peptides
	4	Revision	Revision

  
Deepika Kalon  
Department of Chemistry