



Aggarwal College Ballabgarh

LESSON PLAN

17 WEEKS (JAN-APRIL)-2025

Name of Faculty: Dr. Pooja Sharma

Designation/ Department: Assistant Professor / Chemistry

CLASS: B.Sc (H)		SEMESTER: 6 th	SECTION: A
SUBJECT: Inorganic Chemistry (Theory) - I			
Week			
1	8-1-2025	Criteria for choice of organic reagents,	
	9-1-2025	use of following reagents in inorganic analysis: DMG,	
	10-1-2025	naphthol, EDTA	
	11-1-2025	Acetylacetone	
	12-1-2025	S. U. N. D. A. Y.	
	15-1-2025	dithiozone	
2	16-1-2025	cupferron,	
	17-1-2025	Nitroso β -,	
	18-1-2025	dithiocarbamate	
	19-1-2025	S. U. N. D. A. Y.	
	22-1-2025	8-hydroxyquinoline	
	23-1-2025	Advantages and disadvantages of organic reagents in inorganic analysis	
	24-1-2025	Advantages and disadvantages of organic reagents in inorganic analysis	
3	25-1-2025	Presentation	
	26-1-2025	REPUBLIC DAY /S. U. N. D. A. Y.	
	29-1-2025	Presentation	

	30-1-2025	Presentation
	31-1-2025	Pesentation
	1-2-2025	Sources of errors in chemical analysis, , ,
	2-2-2025	S. U. N. D. A. Y/BASANT PANCHAMI
4	5-2-2025	Sources of errors in chemical analysis
	6-2-2025	classification of errors
	7-2-2025	precision, accuracy
	8-2-2025	statistical evaluation and interpretation of results in analytical chemistry (with numericals).
	9-2-2025	S. U. N. D. A. Y
	12-2-2025	HOLIDAY: GURU RAVIDAS JAYANTI
	13-2-2025	statistical evaluation and interpretation of results in analytical chemistry (with numericals).
5	14-2-2025	Inorganic Polymers: Definition, classification
	15-2-2025	polymers based on hetroatomic structure
	16-2-2025	S. U. N. D. A. Y.
	19-2-2025	PON polymer
	20-2-2025	polythiazyl,
	21-2-2025	synthetic inorganic fibres
	22-2-2025	Co-ordination polymers
6	23-2-2025	S. U. N. D. A. Y.
	26-2-2025	HOLIDAY: MAHA SHIVRATRI
	27-2-2025	Doubt Session
	28-2-2025	Test

	1-3-2025	Solvent Extraction: Basic principles of solvent extraction,
	2-3-2025	S. U. N. D. A. Y.
	5-3-2025	Solvent Extraction: Basic principles of solvent extraction
7	6-3-2025	classification and mechanism of extraction,
	7-3-2025	classification and mechanism of extraction,
	8-3-2025	extraction equilibria
	9-3-2025	S. U. N. D. A. Y.
	12-3-2025	techniques of extraction
	13-3-2025	applications in analytical chemistry.
	14-3-2025	Ion - Exchange: Characteristics of ion-exchangers, , and
8	15-3-2025	Ion - Exchange: Characteristics of ion-exchangers
	16-03-2025	S. U. N. D. A. Y.
	19-3-2025	mechanism of ion-exchange
	20-3-2025	, ion-exchange equilibria
	21-3-2025	plate theory for ion-exchange,
	22-3-2025	techniques of ion-exchange
	23-3-2025	S. U. N. D. A. Y.
9	26-3-2025	techniques of ion-exchange
	27-3-2025	applications of ion exchange for separations
	28-3-2025	Doubt Session
	29-3-2025	Test
	30-3-2025	S. U. N. D. A. Y.
	31-3-2025	HOLIDAY: ID-UL-FITR
	2-4-2025	Chromatography: Classification of chromatographic methods

10	3-4-2025	Chromatography: Classification of chromatographic methods
	4-4-2025	chromatographic terminology -
	5-4-2025	Rf value
	6-4-2025	S. U. N. D. A. Y.
	9-4-2025	, partition co-efficient
	10-4-2025	HOLIDAY: MAHAVIR JAYANTI
	11-4-2025	dynamics of chromatography
11	12-4-2025	basic principles of adsorption
	13-4-2025	S. U. N. D. A. Y.
	14-4-2025	HOLIDAY: AMBEDKAR JAYANTI
	16-4-2025	partition chromatography
	17-4-2025	applications
	18-4-2025	applications
	19-4-2025	Presentation
12	20-4-2025	S. U. N. D. A. Y.
	23-4-2025	Presentation
	24-4-2025	Presentation
	25-4-2025	Presentation
	26-4-2025	Presentation
	27-4-2025	S. U. N. D. A. Y.
	30-4-2025	HOLIDAY: AKSHAY TRITYA
13	01-05-2025	Doubt Session
	02-05-2025	Test
	03-05-2025	Assignment Submission

	04-05-2025	S. U. N. D. A. Y.
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Signature



Aggarwal College Ballabgarh

LESSON PLAN

17 WEEKS (JAN-APRIL)-2025

Name of Faculty: Dr. Pooja Shharma

Designation/ Department: Assistant Professor/Chemistry

CLASS: B.Sc H		SEMESTER: 2 nd	SECTION: A
SUBJECT: General Chemistry-IV			
Week			
	2-2-2025	S. U. N. D. A. Y/BASANT PANCHAMI	
	5-2-2025	Inert pair effect, diagonal relationship	
3	6-2-2025	preparations, properties, structure and uses of compounds like oxides, oxy-acids (comparison of acidic strength)	
	9-2-2025	S. U. N. D. A. Y	
	12-2-2025	HOLIDAY: GURU RAVIDAS JAYANTI	
	13-2-2025	, general characteristics of groups 13-17 elements, and halides of groups 13-17, hydrides of boron - diborane	
	16-2-2025	S. U. N. D. A. Y.	
	19-2-2025	borazine (preparation and uses), boric acids and borax.	
	20-2-2025	Chemistry of fullerenes	
	23-2-2025	S. U. N. D. A. Y.	
4	26-2-2025	HOLIDAY: MAHA SHIVRATRI	
	27-2-2025	silicates and type of silicates on structural basis	
	2-3-2025	S. U. N. D. A. Y.	
	5-3-2025	silicones, phosphonitric halides {(PNCl ₂) _n where n = 3 and 4}	

	6-3-2025	basic properties of halogens, interhalogens, pseudohalogen and polyhalides
	9-3-2025	S. U. N. D. A. Y.
5	12-3-2025	Acids and Bases: Arrhenius, Lux-flood, solvent system, Bronsted-Lowry, and Lewis concept of acids and bases, relative strength of acids and bases,
	13-3-2025	levelling effect, classification of acids and bases as hard and soft., Pearson's HSAB concept, applications of HSAB principle (acid-base strength and hardness and softness
	16-03-2025	S. U. N. D. A. Y.
	19-3-2025	Symbiosis, theoretical basis of hardness and softness, electronegativity, Non-Aqueous Solvents: Physical properties of a solvent, types of solvents and their general characteristics
	20-3-2025	Chemistry of Halogenated Hydrocarbons Alkyl Halides: Methods of preparation
	23-3-2025	S. U. N. D. A. Y.
	26-3-2025	factors affecting the rate of SN reactions. Elimination reactions- E1, E2 and E1cB mechanism, nucleophilic substitution vs elimination
6	27-3-2025	properties, nucleophilic substitution reactions SN1, SN2 and SNi mechanisms with stereochemical aspects .
	30-3-2025	S. U. N. D. A. Y.
	2-4-2025	Aryl Halides: Preparations (including preparation from diazonium salts) and properties,
	3-4-2025	nucleophilic aromatic substitution, S _N Ar, benzyne mechanism. Relative reactivity of alkyl, allyl, benzyl, vinyl and aryl halides towards nucleophilic substitution reactions.
	6-4-2025	S. U. N. D. A. Y.
	9-4-2025	Organometallic compounds of Mg (Grignard reagent)- use in synthesis of organic compounds.

	10-4-2025	HOLIDAY: MAHAVIR JAYANTI
7	11-4-2025	Presentation
	12-4-2025	Presentation
	13-4-2025	S. U. N. D. A. Y.
	14-4-2025	HOLIDAY: AMBEDKAR JAYANTI
	15-4-2025	reactions in non-aqueous solvents with reference to liquid HF, NH ₃ and liquid SO ₂ .
	20-4-2025	S. U. N. D. A. Y.
	23-4-2025	Thermodynamics-II Second Law: Concept of entropy, Free Energy Functions: Gibbs and Helmholtz energy, variation of S, G, A with T, V, P, free energy change and spontaneity.
8	24-4-2025	thermodynamic scale of temperature, statement of second law of thermodynamics, Gibbs-Helmholtz equation, Maxwell 32 relations, thermodynamic equation of state.
	27-4-2025	S. U. N. D. A. Y.
	30-4-2025	HOLIDAY: AKSHAY TRITYA
	01-05-2025	Carnot's cycles and its efficiency Carnot's theorem, calculation of entropy change for reversible and irreversible processes, Third Law: Statement of third law, concept of residual entropy, calculation of absolute entropy of molecules
	04-05-2025	S. U. N. D. A. Y.

Signature



Aggarwal College Ballabgarh

LESSON PLAN

17 WEEKS (JAN-APRIL)-2025

Name of Faculty: Dr. Pooja Sharma

Designation/ Department: Assistant Professor

CLASS: B.Sc H		SEMESTER: 4 th	SECTION: A
SUBJECT: Inorganic Chemistry			
Week			
1	8-1-2025	Isopolyacids of Mo and W.	
	11-1-2025	Isopolyacids of Mo and W	
	12-1-2025	S. U. N. D. A. Y.	
	15-1-2025	aqueous chemistry of Mo and W(VI)	
	18-1-2025	aqueous chemistry of Mo and W(VI)	
	19-1-2025	S. U. N. D. A. Y.	
2	22-1-2025	isopoly molybdates	
	25-1-2025	isopoly molybdates	
	26-1-2025	REPUBLIC DAY /S. U. N. D. A. Y.	
	29-1-2025	Isopolytungustates	
	1-2-2025	Isopolytungustates	
	2-2-2025	S. U. N. D. A. Y/BASANT PANCHAMI	
	5-2-2025	Acids and Bases	
3	8-2-2025	Arrhenius	
	9-2-2025	S. U. N. D. A. Y	
	12-2-2025	HOLIDAY: GURU RAVIDAS JAYANTI	

	15-2-2025	Arrhenius
	16-2-2025	S. U. N. D. A. Y.
	19-2-2025	Bronsted- Lowry
	22-2-2025	the Lux- Flood
4	23-2-2025	S. U. N. D. A. Y.
	26-2-2025	HOLIDAY: MAHA SHIVRATRI
	1-3-2025	solvent system
	2-3-2025	S. U. N. D. A. Y.
	5-3-2025	solvent system
	8-3-2025	Lewis concepts of acids and bases
	9-3-2025	S. U. N. D. A. Y.
5	12-3-2025	Lewis concepts of acids and bases
	15-3-2025	the levelling effect.
	16-03-2025	S. U. N. D. A. Y.
	19-3-2025	Chemistry of Lanthanide Elements
	22-3-2025	Chemistry of Lanthanide Elements
	23-3-2025	S. U. N. D. A. Y.
	26-3-2025	Electronic structure
6	29-3-2025	oxidation states
	30-3-2025	S. U. N. D. A. Y.
	2-4-2025	ionic radii , lanthanide contraction
	5-4-2025	complex formation, occurrence and isolation,
	6-4-2025	S. U. N. D. A. Y.
	9-4-2025	Chemistry of Actinides: General features and chemistry of actinides, ,

	10-4-2025	HOLIDAY: MAHAVIR JAYANTI
7	12-4-2025	chemistry of separation of Np, Pu and Am from U
	13-4-2025	S. U. N. D. A. Y.
	14-4-2025	HOLIDAY: AMBEDKAR JAYANTI
	16-4-2025	similarities between the later actinides and the later lanthanides
	19-4-2025	similarities between the later actinides and the later lanthanides
	20-4-2025	S. U. N. D. A. Y.
	23-4-2025	Doubt Session
8	26-4-2025	Test
	27-4-2025	S. U. N. D. A. Y.
	30-4-2025	HOLIDAY: AKSHAY TRITYA
	03-05-2025	Inorganic Assignment
	04-05-2025	S. U. N. D. A. Y.

Signature



Aggarwal College Ballabgarh

LESSON PLAN

17 WEEKS (JAN-APRIL)-2025

Name of Faculty: Dr. Pooja sharma

Designation/ Department: Chemistry/Assistant Chemistry

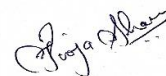
CLASS: M.Sc. P		SEMESTER: 2 nd	SECTION: A
SUBJECT: Inorganic Spectroscopy and Advanced Inorganic Chemistry			
Week			
	8-1-2025	Energy levels in diatomic molecules, introduction to electronic transition, assignment of transitions	
	9-1-2025	selection rules for EAS, p-d intermixing.	
	12-1-2025	S. U. N. D. A. Y.	
	13-1-2025	Quantum concept of NMR, larmor frequency, coupling constant,	
	14-1-2025	applications of spin-spin coupling in structure determination of inorganic compounds	
2	15-1-2025	population excess and types of relaxation, standard references for inorganic compounds, calculation of rates from NMR spectrum,	
	16-1-2025	determination of order by NMR, double resonance technique for inorganic compounds like B ₂ H ₆ , Al(BH ₄) ₃ etc	
	19-1-2025	S. U. N. D. A. Y.	
	20-1-2025	Characterization of metal hydrides complexes (counting signals), inorganic applications of NMR like ¹ H NMR, ¹¹ B NMR, ¹⁹ F NMR, ³¹ P NMR (dynamic and frozen spectra	
	21-1-2025	fluxional behaviour of inorganic molecules.	

	22-1-2025	Finger print regions of IR spectroscopy, Hooke's law & its applications for determination of stretching frequency.
	23-1-2025	. Application of infrared spectroscopy in the determination of inorganic compounds:
3	26-1-2025	REPUBLIC DAY /S. U. N. D. A. Y.
	27-1-2025	Determination of coordination site, identification of cis and trans isomers, structure elucidation of covalent molecules, H-bonding etc.
	28-1-2025	Doubt Session
	29-1-2025	Test
	30-1-2025	Test Discussion
	2-2-2025	S. U. N. D. A. Y/BASANT PANCHAMI
	3-2-2025	18-electron rule, counting methods and ligand contributions
4	4-2-2025	haptoligands with hapticity from two to eight
	5-2-2025	High nuclearity carbonyl clusters (HNCC)
	6-2-2025	Multi-nuclear carbonyl clusters: Low nuclearity carbonyl clusters (LNCC),
	9-2-2025	S. U. N. D. A. Y
	10-2-2025	clusters having interstitial atoms
	11-2-2025	electron counting schemes for high nuclearity clusters
	12-2-2025	HOLIDAY: GURU RAVIDAS JAYANTI
5	13-2-2025	polyhedral skeletal electron pair approach/Mingo's rules,
	16-2-2025	S. U. N. D. A. Y.
	17-2-2025	structure and bonding in higher boranes,
	18-2-2025	carboranes, applications of Wade's rules
	19-2-2025	Wade's rules

	20-2-2025	zintl-ions, isolobal analogy,
	23-2-2025	S. U. N. D. A. Y.
6	24-2-2025	dinuclear clusters (metal clusters containing M-M multiple bonds)
	25-2-2025	Presentation
	26-2-2025	HOLIDAY: MAHA SHIVRATRI
	27-2-2025	Presentation
	2-3-2025	S. U. N. D. A. Y.
	3-3-2025	Elementary theory of magneto-chemistry
	4-3-2025	dia, para, ferro and antiferro magnetism
7	5-3-2025	concept of magnetic susceptibility
	6-3-2025	methods for determination of magnetic susceptibility,
	9-3-2025	S. U. N. D. A. Y.
	10-3-2025	Curie and Curie-Weiss law for temperature dependence of magnetic susceptibility,
	11-3-2025	, temperature independent paramagnetic
	12-3-2025	calculation of magnetic moments of metal ions Cr ³⁺ , Co ³⁺ , Mn ²⁺ and Fe ²⁺ ,
	13-3-2025	Linde factor
8	16-03-2025	S. U. N. D. A. Y.
	17-3-2025	orbital contribution to the magnetic moment,
	18-3-2025	quenching of magnetic moment by crystal-field,
	19-3-2025	application of magneto-chemistry in structure determination
	20-3-2025	magnetic exchange coupling
	23-3-2025	S. U. N. D. A. Y.
	24-3-2025	spin state crossover in coordination compounds.
9	25-3-2025	μ_J and μ_{eff}

	26-3-2025	Doubt Session
	27-3-2025	Test
	30-3-2025	S. U. N. D. A. Y.
	31-3-2025	HOLIDAY: ID-UL-FITR
	1-4-2025	Spectroscopic ground states,
	2-4-2025	spin-orbit coupling in free metal ions for 3d- series of transition metals
10	3-4-2025	ground state terms for transition metals/ions,
	6-4-2025	S. U. N. D. A. Y.
	7-4-2025	Racah parameters and nephelauxetic effect, Orgel diagrams (d1 to d10)
	8-4-2025	Tanabe-Sugano diagrams for transition metal complexes (d1&d 2 states)
	9-4-2025	Tanabe-Sugano diagrams for transition metal complexes (d1&d 2 states)
	10-4-2025	HOLIDAY: MAHAVIR JAYANTI
	13-4-2025	S. U. N. D. A. Y.
11	14-4-2025	HOLIDAY: AMBEDKAR JAYANTI
	15-4-2025	elementary concept of Dq
	16-4-2025	B and β parameters,
	17-4-2025	effect of Jahn-Teller distortion on electronic spectra of 3d-series metal complexes,
	20-4-2025	S. U. N. D. A. Y.
	21-4-2025	charge transfer spectra,
	22-4-2025	electronic spectra of molecular addition compounds of iodine.
12	23-4-2025	Presentation
	24-4-2025	Presentation
	27-4-2025	S. U. N. D. A. Y.
	28-4-2025	Presentation

	29-4-2025	Presentation
	30-4-2025	HOLIDAY: AKSHAY TRITYA
	01-05-2025	Inorganic Assignments
13	04-05-2025	S. U. N. D. A. Y.



Signature