SMSD Govt. College Nangal Chaudhary (Mahendergarh)
Lesson Plan- B.Sc. IInd Semester (Non Medical)
Inorganic/ Physical Chemistry-Session 2023-24

Date	Day	Topic
		Inorganic Chemistry
12-01-2024	Friday	Section-A Hydrogen Bonding & Vander Waals Forces, Hydrogen Bonding – Definition, Types
13-01-2024	Saturday	Section-A Effects of hydrogen bonding on properties of substances, Application Brief discussion of various types of Vander Waals Forces,
19-01-2024	Friday	Section-A Metallic Bond and Semiconductors, Metallic Bond- Brief introduction to metallic bond, Band theory of metallic bond.
20-01-2024	Saturday	Section-A Semiconductors- Introduction, types and applications.
26-01-2024	Friday	**Republic Day- Holiday**
27-01-2024	Saturday	Section-B s-Block Elements-Comparative study of the elements including , diagonal relationships,
02-02-2024	Friday	Section-B Salient features of hydrides (methods of preparation excluded)
03-02-2024	Saturday	Section-B Solvation and Complexation tendencies including their function in biosystems
		Physical Chemistry
09-02-2024	Friday	Section – A Kinetics-I Rate of reaction, rate equation, factors influencing the rate of a reaction –concentration, temperature, pressure, solvent, light, catalyst.
10-02-2024	Saturday	Section – A Factors influencing the rate of a reaction –concentration, temperature, pressure, solvent, light, catalyst.
16-02-2024	Friday	Section – A- Order of a reaction, integrated rate expression for zero order, first order, Second order and Third order.
17-02-2024	Saturday	Section – A Half life period of a reaction. Methods of determination of order of reaction.
23-02-2024	Friday	Section – B Kinetics-II-Effect of temperature on the rate of reaction – Arrhenius equation. Theories of reaction rate.
24-02-2024	Saturday	**Guru Ravidas Jayanti- Holiday**
26-02-2024	Monday	Section – B Simple collision theory for Unimolecular and bimolecular collision.
27-02-2024	Tuesday	Section – B Transition state theory of Bimolecular reactions.
04-03-2024	Monday	Section-C Electrochemistry-I-Electrolytic conduction, factors affecting electrolytic conduction

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05-03-2024	Tuesday	Section-C Specific, conductance, molar conductance, equivalent conductance and relation among them, their variation with concentration.
11-03-2024	Monday	Section-C Specific, conductance, molar conductance,equivalent conductance and relation among them, their vartion with concentration.
12-03-2024	Tuesday	Section-C Arrhenius theory of ionization, Ostwald's Dilution Law. Debye- Huckel – Onsager's equation for strong electrolytes (elementary treatment only)
18-03-2024	Monday	Section-C Transport number, definition and determination by Hittorfs methods, (numerical included)
19-03-2024	Tuesday	Section-C Transport number, definition and determination by Hittorfs methods, (numerical included)
23-03-2024 To 31-03-2024		Holi festival Holidays
01-01-2024	Monday	Section-D Electrochemistry-II-Application of Kohlarausch's Law in calculation of conductance of weak electrolytes at infinite dilution.
02-04-2024	Tuesday	Section-D Applications of conductivity measurements: determination of degree of dissociation, determination of Ka of acids
08-04-2024	Monday	Section-D Determination of Ka of acids determination of solubility product of sparingly soluble salts, Conductometric titrations
09-04-2024	Tuesday	Section-D Definition of pH and pKa, Buffer solution, Buffer action,
15-04-2024	Monday	Section-D Buffer action, Henderson –Hazel equation, Buffer mechanism of buffer action., Buffer mechanism of buffer action.
16-04-2024	Tuesday	Conceptual and Exam related Important Questions
22-04-2024	Monday	Conceptual and Exam related Important Questions
23-04-2024	Tuesday	Conceptual and Exam related Important Questions
		Term End Semester Exam Starts

Sumar

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DATE	CURRICULUM (BSc II SEM) session 2023-24
12-01-24 to 27-01-24	**SECTION – C** **p-Block Elements** Emphasis on comparative study of properties of p-block elements (including diagonal relationship and excluding methods of preparation). **Boron family (13th gp):-** Diborane – properties and structure (as an example of electron – deficient compound and multicentre bonding), Borazene – chemical properties and structure Trihalides of Boron – Trends in fewis acid character structure of aluminium (III) chloride.
29-01-24 to 03-02-24	**Carbon Family (14th group)** Catenation, p π– d π bonding (an idea), carbides, fluorocarbons, silicates structural aspects), silicons – general methods of preparations, properties and uses.
05-02-24 to 10-02-24	**SECTION-D** **Nitrogen Family (15th group)** Oxides – structures of oxides of N,P. oxyacids – structure and relative acid strengths of oxyacids of Nitrogen and phosphorus. Structure of white, yellow and red phosphorus.
12-02-24 to 17-02-24	**Oxygen Family (16th group)** Oxyacids of sulphur – structures and acidic strength H_2O_2 –structure, properties and uses. **Halogen Family (17th group)** Basic properties of halogen, interhalogens types properties, hydro and oxyacids of chlorine – structure and comparison of acid strength.
19-02-24 to 24-02-24	**Organic chemistry** **Section-A** **Alkenes** Nomenclatu re of alkenes, , mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides,. The Saytzeff rule, Hofmann elimination, physical p roperties and relative stabilities of alkenes. Chemical reactions of alkenes mechanisms involved in hydrogenation, electrophilic and free radical additions, Markownikoff's rule, hydroboration–oxidation, oxymercurationreduction, ozonolysis, hydration, hydroxylation and oxidation with $KMnO_4$.

26-02-24 to 02-03-24	**Section-B** **Arenes and Aromaticity** Nomenclatu re of benzene deriva tives:. Aromatic nucleus and side chain. Aromaticity: the Huckel rule, aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non – aromatic compounds.
04-03-24 to 09-03-24	Aromatic electrophilic substitution general pattern of the mechanism, mechansim of nitration, halogenation, sulphonation, and Friedel-Crafts reaction. Energy profile diagrams. Activating, deactivating substituent and orientation.
18-03-24 to 22-03-24	**Section-C** **Dienes and Alkynes** Nomenclature and classification of dienes: isolated, conjugated and cumulated dienes. Structure of butadiene, Chemical reactions 1,2 and 1,4 additions (Electrophilic & free radical mechanism), Diels-Alder reaction,
01-04-24 to 06-04-24	Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilic addition reactions, hydroboration- oxidation of alkynes
08-04-24 to 13-04-24	**Section-D** **Alkyl and Aryl Halides** Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms and stereochemistry of nucleophilic substitution reactions of alkyl halides, S_N2 and $S_N1$reactions with energy profile diagrams.
15-04-24 to 20-04-24	Methods of formation and reactions of aryl halides, The additionelimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions. Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides.
21/04/24 onward	REVISION