Govt. College Bherian (Pehowa)
Lesson Plan

February 2024 to May 2024 (Even Semester)

MDC Chemistry 2nd Semester

Dr. Prerna

Subject : Chemistry

Week 1	
19 February to 24 February	(Hargobind Khurana,
	Dr. P.C. Ray, Sir C.V. Raman, Dr. A.P.J. Abdul Kalam)
Week 2	
26 February to 2 March	Brief Biography of Renowned Indian Scientists
	C. N. R. Rao, Dr. Vikram Sara Bhai, Dr. Homi Jahangir Bhabha,
	Dr. J.C. Bose, Dr. S. N. Bose
Week 3	
4 March to 9 March	
	MCQ questions discussion on brief biography of all discussed scientists.
	Test-1
Week 4	
11 March to 16 March	Periodic table, classification of elements
	All blocks, recognition of elements, metals and non-metals
Week 5	
18 March to 22 March	Physical and chemical properties of metals
	Physical and chemical properties of metals and non-metals
Week 6	
23 March to 31 March	Holi break
	Assignment work on biography of scientists
Week 7	
1 April to 6 April	Ore and Minerals
	Ore and Minerals of Iron, Copper, Aluminium,
	Alloys, examples and compositions
Week 8	
8 April to 13 April	Classification of matter, properties, uses of solids, liquids and gases
	Practical: To prepare Plaster of Paris
Week 9	
15 April to 20 April	ideal gas equation
	real gas equation,

	Practical : To prepare Potash Alum
Week 10	
22 April to 27 April	some important compounds: baking soda,
	washing soda, plaster of Paris,
	gypsum,, glass
Week 11	
29 April to 4 May	Practical: To study the effect of acid on Baking and washing soda
	Green revolution
	soil: types of soil
Week 12	
6 May to 11 May	soil: its components for fertility,
	grow condition, pH,
	irrigation.
Week 13	
13 May to 18 May	biofertilizers, chemical fertilizers
	their uses, acid rain.
Week 14	
20 May to 25 May	Practical : To perform the action of water on quick lime and identify the nature of reaction (Exo/Endothermic)
Week 15	
27 May 31 May	Revision
	Revision
	Revision

Govt. College, Bherian (Pehowa)
Lesson Plan

January 2024 to April 2024 (Even Semester)

B.Sc. Chemistry 4th Semester

Dr. Prerna

Subject : Chemistry

Week 1	
15 January to 20 January	Preparation of models for science exhibition
Week 2	
22 January to 27 January	Lanthanides: Electronic structure, oxidation states, magnetic properties, complex formation, colour, ionic radii and lanthanide contraction, Conceptual questions
Week 3	
29 January to 3 February	occurrence, separation of Lanthanides Lanthanide compounds. Actinides: General characteristics of actinides,
Week 4	
5 February to 10 February	chemistry of separation of Np, Pu and Am from uranium, Transuranic elements, comparison of properties of Lanthanides and actinides with transition elements.
Week 5	
12 February to 17 February	Test-1 Electrolytic and Galvanic cells – reversible & irreversible cells, conventional representation of electrochemical cells.
Week 6	
19 February to 24 February	Types of reversible electrodes – metal- metal ion, gas electrode, metal – insoluble salt- anion and redox electrodes. Electrode reactions, Nernst equations, derivation of cell EMF and single electrode potential.
Week 7	
26 February to 2 March	Standard Hydrogen electrode, reference electrodes, standard electrode potential, sign conventions, Concentration cells with and without transference, liquid junction potential and its measurement
Week 8	
4 March to 9 March	Applications of EMF measurement in solubility product and potentiometric titrations using glass electrode.
Week 9	

11 March to 16 March	Calculation of thermodynamic quantities of cell reaction (▲G, ▲H & K).
	Numerical problems
	Conceptual questions of Electrochemistry
Week 10	
18 March to 22 March	Introduction to qualitative and quantitative analysis
	Preliminary test for cations and anions
	Chemistry of analysis of various groups of basic and acidic radicals
Week 11	
23 March to 31 March	Holi Break
	Assignment work
Week 12	
1 April to 6 April	Test-2
	chemistry of identification of acid radicals in typical combination
	Confirmatory test of acidic radicals
Week 13	
8 April to 13 April	preliminary and confirmatory test of Group 1 to 6 basic radicals, common ion effect, solubility product
Week 14	
15 April to 20 April	
	Theory of precipitation, co-precipitation, post-precipitation, purification of precipitates
	chemistry of interference of acid radicals including their removal in the analysis of basic radical
Week 15	
22 April to 27 April	Previous year question papers solutions of Quantitative and qualitative analysis
	Previous year question papers solutions of Lanthanides
	Previous year question papers solutions of Actinides

Govt. College, Bherian (Pehowa)
Lesson Plan

January 2024 to April 2024 (Even Semester)

B.Sc. Chemistry 6th Semester

Dr. Prerna

Subject : Chemistry

Week 1	
15 January to 20 January	Preparation of models for Inter-District Science Exhibition 2023-23
Week 2	
22 January to 27 January	Acids and Bases introduction
	Arrhenius, Bronsted-lowry, Lux-flood, solvent system
	Lewis concept of acids and bases
Week 3	
29 January to 3 February	relative strength of acids and bases, hard and soft acids and bases(HSAB),
	Applications of HSAB principle. Problems
	Limitations of Pearson principle
Week 4	
5 February to 10 February	Bio inorganic chemistry
	Metal ions present in biological system, classification on the basis of action (essential, non-essential, trace, toxic)
	Biological role of Na+, K+, Ca+2, Mg+2, Fe+2 ions,
Week 5	
12 February to 17 February	Metalloporphyrin's with special reference to haemoglobin and myoglobin.
	Cooperative effect, Bohr effect of Hb, Mb
	Nitrogen fixation
Week 6	
19 February to 24 February	Nomenclature, classification, preparation and uses of silicones,
	elastomers, uses and properties
	polysiloxane copolymers, reactions involved
Week 7	
26 February to 2 March	poly phosphazenes and bonding in triphosphazene
	Interaction of radiation with matter, difference between thermal and photochemical processes.
Week 8	

4 March to 9 March	Laws of photochemistry: Grotthus-Drapper law, Stark- Einstein law (law of photochemical equivalence),
	Jablonski diagram depicting various processes occurring in the excited state,
Week 9	
11 March to 16 March	qualitative description of fluorescence, phosphorescence
	non-radiative processes (internal conversion, intersystem crossing)
	quantum yield, photosensitized reactions-energy transfer processes (simple examples).
Week 10	
18 March to 22 March	Definition, classification and nomenclature of organometallic compounds,
	preparation of organometallic compounds
	properties and bonding of alkyls of Li, Al, Hg and Sn,
Week 11	
23 March to 31 March	Holi Break
	Assignment for writing and Questions-answers of 2 Chapters for revision
Week 12	
1 April to 6 April	Class Test-1
	Structure of Ferrocene
	classification in metal carbonyls, preparation
Week 13	
8 April to 13 April	Properties and bonding in mononuclear carbonyls
	concept of hapticity of organic ligand, Structure and bonding in metal-ethylenic complexes
Week 14	
15 April to 20 April	Introduction to statistical mechanics Need for statistical thermodynamics, thermodynamic probability, Maxwell Boltzmann distribution statistics
	Born Oppenheimer approximation, partition partition
Week 15	
22 April to 27 April	Partition function and its physical significance. Factorization of partition function.
	Class Test-2
	Revision