Govt. College for Women, Gharaunda

Lesson Plan

April 2022 to July 2022 (Even Semester)

B.Sc. Chemistry 4th Semester

Ms. Rachna &
Mr. Sukh Raj

Subject : Chemistry

Week 1	
11 April to 16 April	Discussion of previous semester paper.
	Introduction to new syllabus
Week 2	
18 April to 23 April	Thermodynamics
	Second law of thermodynamics, need for the law, different
	statements of the law, Carnot's cycle s and its efficiency, Carnot' s theorem and its problems
Week 3	
25 April to 30 April	Thermodynamics scale of temperature. Concept of entropy
	– entropy as a state function, entropy as a function of V & T,
	entropy as a function of P & T, entropy change in physical change, entropy as a criteria of spontaneity and equilibrium.
Week 4	
2 May to 7 May	problems based on entropy.
	Third law of thermodynamic s: Nernst heat theorem, statement of
	concept of residual entropy, evaluation of absolute entropy from heat capacity data.
Week 5	
9 May to 14 May	Gibbs function (G) and Helmholtz function (A) as thermodynamic quantities, Gas criteria for thermodynamic equilibrium and spontaneity, its advantage over entropy change. Variation of G with P, V and T.
	Numerical based on thermodynamics
Week 6	
16 May to 21 May	Problems based on thermodynamics
	Test 1
Week 7	
	Lanthanides: Electronic structure, oxidation states, magnetic properties, complex

23 May to 28 May	formation, colour, ionic radii and lanthanide contraction,
	Conceptual questions

Week 8	
30 May to 4 June	occurrence, separation of Lanthanides
	Lanthanide compounds.
	Actinides: General characteristics of actinides,
Week 9	
6 June to 11 June	chemistry of separation of Np, Pu and Am from uranium,
	Transuranic elements, comparison of properties of Lanthanides and actinides with transition elements.
Week 10	
13 June to 18 June	Test 2
	Chemistry of analysis of various groups of basic and acidic radicals
Week 11	
20 June to 25 June	chemistry of identification of acid radicals in typical combination
	chemistry of interference of acid radicals including their removal in the analysis of basic radical
Week 12	
27 June to 2 July	common ion effect, solubility product
	Theory of precipitation, co-precipitation, post-precipitation
Week 13	
4 July to 10 July	purification of precipitates
	Chemistry of analysis of various groups of basic radicals

Govt. College for Women, Gharaunda
Lesson Plan

April 2022 to July 2022 (Even Semester)

B.Sc. Chemistry 2nd Semester

Ms. Rachna &
Mr. Sukh Raj

Subject : Chemistry

Week 1	
11 April to 16 April	Discussion of previous semester paper.
	Introduction to new syllabus
Week 2	
18 April to 23 April	Hydrogen bonding, definition, types and effects
	Application of Hydrogen bonding and conceptual questions based on it
	Discussion on Vander Waals forces
Week 3	
25 April to 30 April	Metallic bonding, valence bond theories, band theory
	Semiconductors, conductors, insulators
	Discussion of questions from previous year papers.
Week 4	
2 May to 7 May	S block elements, comparative study, diagonal relationship
	Hydrides, oxides, halides, hydroxides of s-block elements
	Behaviour of solutions in liquid ammonia and related questions
Week 5	
9 May to 14 May	Chemistry of noble gases
	General properties , low reactivity and chemistry of xenon
	Structure or bonding of fluorides, oxides and oxyfluorides of Xe
Week 6	
16 May to 21 May	P -block , general configurations, general trends of physical properties, inert pair effect.
	Introduction of 13th group and general trends
	Diborane- preparation structure and properties
Week 7	
23 May to 28 May	Borazine -chemical properties, structure and bonding
	problems solutions of first two chapters
	Problems solutions of next two chapters
Week 8	
30 May to 4 June	Test 1
	Introduction of 14th family and trends
	carbides, silicates and fluoro carbons.

Week 9	
6 June to 11 June	Oxides, oxyacid of Nitrogen family
	Structures of different forms of Phosphorus
	Conceptual questions related to 13 and 14 family
Week 10	
13 June to 18 June	Oxy acids of sulphur – structure and acidic strength,
	Hydrogen Peroxide – properties and uses
Week 11	
20 June to 25 June	Test 2
	Interhalogen compounds (their properties and structures), Hydra and oxy acids of
	chlorine – structure and comparison of acid strength,
Week 12	
27 June to 2 July	cationic nature of Iodine
	Kinetic, Rate of reaction, rate equation and its types
	factors influencing the rate of a reaction – concentration, temperature, pressure
Week 13	
4 July to 9 July	factors influencing the rate of a reaction solvent, light, catalyst. Order of a reaction, integrated rate expression for zero order, first order, second and third order
	Half-life period of a reaction
Week 14	
10 July	Effect of temperature on
	the rate of reaction – Arrhenius equation. Theories of reaction rate
	– Simple collision theory for unimolecular collision.
	Transition state theory of bimolecular reactions.

Govt. College for Women, Gharaunda
Lesson Plan

April 2022 to July 2022 (Even Semester)

B.Sc. Chemistry 6th Semester

Ms. Rachna & Mr. Sukh Raj

Subject : Chemistry

Week 1	
11 April to 16 April	Discussion of previous semester paper.
	Basic Introduction to new syllabus
Week 2	
18 April to 23 April	Acids and Bases
	Arrhenius, Bronsted-lowry, Lux-flood, solvent system and Lewis's concept of acids
	and bases, relative strength of acids and bases,
Week 3	
25 April to 30 April	levelling solvents, hard and soft acids and bases(HSAB),
	Applications of HSAB principle.
	problems
Week 4	
2 May to 7 May	Silicones and Phosphazenes
	Nomenclature, classification, preparation
	uses of silicones, elastomers
Week 5	
9 May to 14 May	polysiloxane copolymers, poly phosphazenes and bonding in triphosphazene.
	revision of chapter-Silicones and Phosphazenes with problems
	Problems discussion
Week 6	
16 May to 21 May	Test 1
	Bio inorganic chemistry
	Metal ions present in biological system, classification on the basis of action (essential, non-essential, trace, toxic)
Week 7	
23 May to 28 May	Metalloporphyrin's with special reference to haemoglobin and myoglobin.
	Biological role of Na+, K+, Ca+2, Mg+2, Fe+2 ions,
	Revision
Week 8	
	Cooperative effect, Bohr effect.

30 May to 4 June	
Week 9	
6 June to 11 June	Organometallic chemistry
	Definition, classification and nomenclature of organometallic compounds,
	preparation of organometallic compounds, properties and bonding of alkyls of Li, Al, Hg and Sn, concept of hapticity of organic ligand, Structure and bonding in metal-ethylenic complexes classification in metal carbonyls, preparation, Properties and bonding in mononuclear carbonyls, Structure of Ferrocene
Week 10	
13 June to 14 June	Laws of photochemistry: Grotthus-Drapper law, Stark- Einstein law (law of photochemical equivalence),
	Jablonski diagram depicting various processes occurring in the excited state, and remaining part of Photochemistry