

# DAV Public School

Sec-3, Dhurwa, Ranchi - 4

Session 2019-20

Class - XII Science (Chemistry)

Topic / Syllabus to be taught month wise.

<b>Apr-19</b>	<b>Chapter 1</b> <b>solution</b> Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.	Period - 10 Marks - 6
	Monthly Test - Chapter 1 ( 30 Marks)	
<b>May-19</b>	<b>Chapter 9</b> <b>Haloalkanes and Haloarenes</b> Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation. Haloarenes: Nature of C-X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only). Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT.	Periods - 12 Marks - 4
	<b>Chapter - 14</b> <b>Polymers</b> Copolymerization, some important polymers: natural and synthetic like polythene, nylon polyesters, bakelite, rubber. Biodegradable and nonbiodegradable polymers.	Periods - 6 Marks - 3
	Monthly Test - Chapter 9 & 14 ( 30 Marks)	
<b>Jun-19</b>	<b>Chapter 3</b> <b>Chemical Kinetics</b> Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation.	Period - 10 Marks - 6
	Monthly Test - Chapter 3 ( 30 Marks)	
<b>Jul-19</b>	<b>Chapter 5</b> <b>General Principles and Processes of Isolation of Elements</b> Principles and methods of extraction - concentration, oxidation, reduction -electrolytic method and refining; occurrence and principles of extraction of aluminium, copper, zinc and iron	Periods - 8 Marks - 3
	<b>Chapter 6</b> <b>p -Block Elements</b> Group 16 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties, dioxygen: Preparation, Properties and uses, classification of Oxides, Ozone, Sulphur - allotropic forms; compounds of Sulphur: Preparation Properties and uses of Sulphur-dioxide, Sulphuric Acid: industrial process of manufacture, properties and uses; Oxoacids of Sulphur (Structures only). Group 17 Elements: General introduction, electronic configuration, oxidation states, occurrence, trends in physical and chemical properties; compounds of halogens, Preparation, properties and uses of Chlorine and Hydrochloric acid, interhalogen compounds, Oxoacids of halogens (structures only). Group 18 Elements: General introduction, electronic configuration, occurrence, trends in physical and chemical properties, uses.	Periods - 14 Marks - 8

<u>Jul-19</u>	<b>Chapter - 15</b> <b>Chemistry in Everyday life</b>	Periods - 6 Marks - 3
	Chemicals in medicines - analgesics, tranquilizers antiseptics, disinfectants, antimicrobials, antifertility drugs, antibiotics, antacids, antihistamines. Chemicals in food - preservatives, artificial sweetening agents, elementary idea of antioxidants. Cleansing agents- soaps and detergents, cleansing action	
	Monthly Test - Chapter 5,6 & 15 ( 30 Marks)	
<u>Aug-19</u>	<b>Chapter 7</b> <b>d and f - Block Elements</b>	Periods - 12 Marks - 5
	General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of K <sub>2</sub> Cr <sub>2</sub> O <sub>7</sub> and KMnO <sub>4</sub> . Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences. Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids.	
	<b>Chapter - 8</b> <b>Co-ordination Compounds</b>	
	Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereoisomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system).	Periods - 12 Marks - 3
	<b>Chapter - 13</b> <b>Biomolecules</b>	Periods - 12 Marks - 4
	Carbohydrates - Classification (aldoses and ketoses), monosaccharides (glucose and fructose), D-L configuration oligosaccharides (sucrose, lactose, maltose), polysaccharides (starch, cellulose, glycogen); Importance of carbohydrates. Proteins -Elementary idea of - amino acids, peptide bond, polypeptides, proteins, structure of proteins - primary, secondary, tertiary structure and quaternary structures (qualitative idea only), denaturation of proteins; enzymes. Hormones - Elementary idea excluding structure. Vitamins - Classification and functions. Nucleic Acids: DNA and RNA.	
	<b>Revision of chapter - 1,3,5,6,7,8,9,13,14 &amp; 15</b> <b>Half yearly exam</b>	
<u>Sep-19</u>	<b>Chapter - 10</b> <b>Alcohals, Phenols and Ethers</b>	Periods - 12 Marks - 4
	<b>Alcohols:</b> Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol. <b>Phenols:</b> Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols. <b>Ethers:</b> Nomenclature, methods of preparation, physical and chemical properties, uses.	

<b>Oct-19</b>	<p style="text-align: center;"><b>Chapter -11</b> <b>Aldehydes, Ketones and Carboxylic Acids</b></p> <p>Aldehydes and Ketones: Nomenclature, nature of carbonyl group, methods of preparation, physical and chemical properties, mechanism of nucleophilic addition, reactivity of alpha hydrogen in aldehydes, uses. Carboxylic Acids: Nomenclature, acidic nature, methods of preparation, physical and chemical properties; uses.</p>	<p>Periods - 14 Marks - 6</p>
	<p style="text-align: center;"><b>Chapter - 2</b> <b>Electrochemistry</b></p> <p>Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Unit No. Title No. of Periods Marks Unit I Solutions 10 23 Unit II Electrochemistry 12 Unit III Chemical Kinetics 10 Unit IV Surface Chemistry 08 Unit V General Principles and Processes of Isolation of Elements 08 Unit VI p -Block Elements 14 Unit VI d -and f -Block Elements 12 19 Unit VII Coordination Compounds 12 Unit VIII Haloalkanes and Haloarenes 12 28 Unit IX Alcohols, Phenols and Ethers 12 Unit X Aldehydes, Ketones and Carboxylic Acids 14 Unit XI Organic Compounds containing Nitrogen 12 Unit XII Biomolecules 12 Unit XIII Polymers 06 Unit XIV Chemistry in Everyday Life 06 Total 160 70 Galvanic cells, lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its application to chemical cells, Relation between Gibbs energy change and EMF of a cell, fuel cells, corrosion.</p>	<p>periods - 12 Marks - 6</p>
	Monthly Test - Chapter 10, 11 & 12 ( 30 Marks)	
<b>Nov-19</b>	<p style="text-align: center;"><b>Chapter - 4</b> <b>Surface Chemistry</b></p> <p>Adsorption - physisorption and chemisorption, factors affecting adsorption of gases on solids, catalysis, homogenous and heterogenous activity and selectivity; enzyme catalysis colloidal state distinction between true solutions, colloids and suspension; lyophilic, lyophobic multi-molecular and macromolecular colloids; properties of colloids; Tyndall effect, Brownian movement, electrophoresis, coagulation, emulsion - types of emulsions.</p>	<p>Periods - 8 Marks - 5</p>
	<p style="text-align: center;"><b>Chapter - 12</b> <b>Organic compounds containing Nitrogen</b></p> <p>Amines: Nomenclature, classification, structure, methods of preparation, physical and chemical properties, uses, identification of primary, secondary and tertiary amines. Cyanides and Isocyanides - will be mentioned at relevant places in text. Diazonium salts: Preparation, chemical reactions and importance in synthetic organic chemistry.</p>	<p>Periods - 12 Marks - 4</p>
	Monthly Test - Chapter 4 & 12 ( 30 Marks)	

<b>Syllabus For Half Yearly Exam -2019</b>		
<b>Chapter</b>	<b>Chapter Name</b>	<b>Marks</b>
1	Solution	8
3	Chemical Kinetics	8
5	General Principles and Process of Isolation of Elements	6
6	p-block Element	10
7	d and f- block Element	8
8	Co-ordination Compounds	6
9	Haloalkanes and Haloarenes	7
13	Biomolecules	6
14	Ploymers	5
15	Chemistry in Everyday Life	6
<b>Total</b>		<b>70</b>

<b>Syllabus For Pre-Board Exam -2019</b>		
<b>Chapter</b>	<b>Chapter Name</b>	<b>Marks</b>
1	Solution	6
2	Electrochemistry	6
3	Chemical Kinetics	6
4	Surface Chemistry	5
5	General Principles and Process of Isolation of Elements	3
6	p-block Element	8
7	d and f- block Element	5
8	Co-ordination Compounds	3
9	Haloalkanes and Haloarenes	4
10	Alcohals, Phenols and Ethers	4
11	Aldehydes, Ketones and Carboxylic Acids	6
12	Organic compounds containing Nitrogen	4
13	Biomolecules	4
14	Ploymers	3
15	Chemistry in Everyday Life	3
<b>Total</b>		<b>70</b>