

TERMWISE SYLLABUS	
SESSION-2018-19	
CLASS- XI	
SUBJECT: CHEMISTRY	
TERM-I	
July-2018 to Sept 2018	CONTENTS
	Unit I: Some Basic Concepts of Chemistry
	General Introduction: Importance and scope of chemistry.
	Nature of matter, laws of chemical combination, Dalton's
	Atomic and molecular masses, mole concept and molar mass, percentage composition, empirical and molecular formula, chemical reactions, stoichiometry and calculations based on stoichiometry
	Unit II: Structure of Atom
	Bohr's model and its limitations, concept of shells and subshells, dual nature of matter and light, de Broglie's relationship, Heisenberg uncertainty principle, concept of orbitals, quantum numbers, shapes of s, p and d orbitals, rules for filling electrons in orbitals - Aufbau principle, Pauli's exclusion principle and Hund's rule, electronic configuration of atoms, stability of half-filled and completely filled orbitals.
	NCERT Questions
	Practicals:
	<ol style="list-style-type: none"> Content Based Experiment(One) Prepare the standard solution of Oxalic acid and with its help determine the strength of the given solution of Sodium Hydroxide by titration method. Analyse Inorganic salt for one cation and one anion(One Salt).
YUVA Session No.11.3- How Can I Be Assertive?	
	Unit III: Classification of Elements and Periodicity in Properties
	Modern periodic law and the present form of periodic table, periodic trends in properties of elements -atomic radii, ionic radii, inert gas radii, Ionization Ionization enthalpy, electron gain enthalpy, electronegativity, valency. Nomenclature of elements with atomic number greater than 100.
	NCERT Questions
	Unit IV: Chemical Bonding and Molecular structure
	Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure, polar character of covalent bond, covalent character of ionic bond, valence bond theory, character of covalent bond, covalent character of ionic bond, valence bond theory, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, resonance, geometry of covalent molecules, VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules, molecular orbittheory of homonuclear diatomic molecules(qualitative idea only), hydrogen bond.
	NCERT Questions
	Practicals:
	<ol style="list-style-type: none"> Content Based Experiment(One) Content Based Experiment(One) Analyse Inorganic salt for one cation and one anion(one salt) Content Based Experiment(One)
	YUVA Session No.11.5- Developing Good Relationship.

Unit V: States of Matter: Gases, Liquids and Solids

Three states of matter, intermolecular interactions, types of bonding, melting and boiling points, role of gas laws in elucidating the concept of the molecule, Boyle's law, Charles law, Gay Lussac's law, Avogadro's law, ideal behaviour, empirical derivation of gas equation, Avogadro's number, ideal gas equation. Deviation from ideal behaviour, liquefaction of gases, critical temperature, kinetic energy and molecular speeds (elementary idea) Liquid State: vapour pressure, viscosity and surface tension (qualitative idea only, no mathematical derivations) Solid state: Classification of solids based on different binding forces: molecular, ionic, covalent and metallic solids, amorphous and crystalline solids (elementary idea). Unit cell in two dimensional and three dimensional lattices, calculation of density of unit cell, packing in solids, packing efficiency, voids, number of atoms per unit cell in a cubic unit cell, point defects, electrical and magnetic properties.

NCERT Questions

Practicals:

- Analyse Inorganic salt for one cation and one anion(One Salt)

REVISION: Units I to V for Term -1

**MID TERM EXAMINATION 2018-19
TERM-II****Discussion of Question Paper of First term****OCTOBER
2018 to
FEBRUARY
2019****Unit VI: Chemical Thermodynamics**

Concepts of System and types of systems, surroundings, work, heat, energy, extensive and intensive properties, state functions. First law of thermodynamics -internal energy and enthalpy, heat capacity and specific heat, measurement of ΔU and ΔH , Hess's law of constant heat summation, enthalpy of bond dissociation, combustion, formation, atomization, sublimation, phase transition, ionization, solution and dilution. Second law of Thermodynamics (brief introduction). Introduction of entropy as a state function, Gibb's energy change for spontaneous and non- spontaneous processes, criteria for equilibrium. Third law of thermodynamics (brief introduction).

NCERT Questions

Unit VII: Equilibrium

Equilibrium in physical and chemical processes, dynamic nature of equilibrium, law of mass action, equilibrium constant, factors affecting equilibrium- Le Chatelier's principle, ionic equilibrium- ionization of acids and bases, strong and weak electrolytes, degree of ionization, ionization of poly basic acids, acid strength, concept of pH, Henderson Equation, hydrolysis of salts (elementary idea), buffer solution, solubility product, common ion effect (with illustrative examples).

NCERT Questions & numericals.

Practicals:

- Content Based Experiment(One)
- Prepare help standard solution of Sodium Carbonate and with its help determine the strength of the given solution of Hydrochloric acid using titration method
- Analyse Inorganic salt for one cation and one anion (one Salt)

	<p>Unit VIII: Redox Reactions Concept of oxidation and reduction, redox reactions, oxidation number, balancing redox reactions, in terms of loss and gain of electrons and change in oxidation number, applications of redox reactions. NCERT Questions</p>
	<p>Unit IX: Hydrogen Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses of hydrogen, hydrides-ionic covalent and interstitial; physical and chemical properties of water, heavy water, hydrogen peroxide -preparation, reactions and structure and use; hydrogen as a fuel. NCERT Questions</p>
	<p>Unit X: s-Block Elements (Alkali and Alkaline Earth Metals) Group 1 and Group 2 Elements General introduction, electronic configuration, occurrence, anomalous properties of the first element of each group, diagonal relationship, trends in the variation of properties (such as ionization enthalpy, atomic and ionic radii), trends in chemical reactivity with oxygen, water, hydrogen and halogens, uses. Preparation and Properties of Some Important Compounds: Sodium Carbonate, Sodium Chloride, Sodium Hydroxide and Sodium Hydrogencarbonate, Biological importance of Sodium and Potassium. Calcium Oxide and Calcium Carbonate and their industrial uses, biological importance of Magnesium and Calcium.. NCERT Questions</p>
	<p>Practicals: 12. Content Based Experiment(One) 13. Content Based Experiment(One) 14. Analyse Inorganic salt for one cation and one anion (one Salt)</p>
	<p>YUVA SESSION 11.6 Learning to manage stressful feelings!</p>
	<p>Unit XI: p -Block Elements General Introduction to p -Block Elements Group 13 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous properties of first element of the group, Boron - physical and chemical properties, some important compounds, Borax, Boric acid, Boron Hydrides, Aluminium: Reactions with acids and alkalies, uses. Group 14 Elements: General introduction, electronic configuration, occurrence, variation of properties, oxidation states, trends in chemical reactivity, anomalous behaviour of first elements. Carbon-catenation, allotropic forms, physical and chemical properties; uses of some important compounds: oxides. Important compounds of Silicon and a few uses: Silicon Tetrachloride, Silicones, Silicates and Zeolites, their uses. Group -15 Elements: General introduction, electronic configuration, occurrence, oxidation states, trends in physical and chemical properties; Nitrogen preparation properties and uses; compounds of Nitrogen, preparation and properties of Ammonia and Nitric Acid, Oxides of Nitrogen(Structure only) ; Phosphorus - allotropic forms, compounds of Phosphorus: Preparation and Properties of Phosphine, Halides and Oxoacids (elementary idea only). NCERT Questions</p>
	<p>UNIT XII-Organic Chemistry - Some Basic Principles and Techniques</p>
	<p>General introduction, methods of purification, qualitative and quantitative analysis, classification and IUPAC nomenclature of organic compounds. Electronic displacements in a covalent bond: inductive effect, electromeric effect, resonance and hyper conjugation. Homolytic and heterolytic fission of a covalent bond: free radicals, carbocations, carbanions, electrophiles and nucleophiles, types of organic reactions. Qualitativeand Quantittive Analysis NCERT Questions</p>

	<p>Practicals:</p> <p>15. Content Based Experiment(One)</p> <p>16. Analyse Inorganic salt for one cation and one anion (one Salt)</p> <p>17. Content Based Experiment(One)</p> <p>18. Analyse Inorganic salt for one cation and one anion (one Salt)</p>
	YUVA Session 11.10: Respect and Care
	WINTER BREAK
	Unit XIII: Hydrocarbons
	Classification of Hydrocarbons Aliphatic Hydrocarbons:
	Aliphatic Hydrocarbons:
	Alkanes - Nomenclature, isomerism, conformation (ethane only), physical properties, chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. Alkenes - Nomenclature, structure of double bond (ethene), geometrical isomerism, physical properties, methods of preparation, chemical reactions: addition of hydrogen, halogen, water, hydrogen halides (Markownikov's addition and peroxide effect), ozonolysis, oxidation, mechanism of electrophilic addition. Alkynes - Nomenclature, structure of triple bond (ethyne), physical properties, methods of preparation, chemical reactions: acidic character of alkynes, addition reaction of - hydrogen, halogens, hydrogen halides and water. Aromatic Hydrocarbons: Introduction, IUPAC nomenclature, benzene: resonance, aromaticity, chemical properties: mechanism of electrophilic substitution. Nitration, sulphonation, halogenation, Friedel Craft's alkylation and acylation, directive influence of functional group in monosubstituted benzene. Carcinogenicity and toxicity. NCERT Questions
	<p>Practicals:</p> <p>19. Content Based Experiment(One)</p>
	<p>Unit XIV: Environmental Chemistry</p> <p>Environmental pollution - air, water and soil pollution, chemical reactions in atmosphere, smog, major atmospheric pollutants, acid rain, ozone and its reactions, effects of depletion of ozone layer, greenhouse effect and global warming- pollution due to industrial wastes, green chemistry as an alternative tool for reducing pollution, strategies for control of environmental pollution.</p>
	SYLLABUS COMPLETION : 31 JANUARY 2019
	NCERT Questions
	Revision of Units - 1 to 14 including
	Revision from support material
	Annual Examination
Note :	Syllabus of first term also included in second term examination