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| **Indian School Al Wadi Al Kabir**  **Syllabus break up for 2018-19**  **Chemistry (August to March)** | | | | | |
| Class 11  chemistry | Week1  (1 - 2) | Week2  (5 - 9) | Week3  (12 - 16) | Week4  (19 - 23) | Week5  (26 -30) |
| **August**  **(1-31)** | **Classification of elements and periodicity in properties**  Trends in chemical properties | **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, resonance, geometry of covalent molecules | Concept of hybridization, involving s, p and d orbitals  Shapes of some simple molecules, molecular orbital theory of homonuclear diatomic molecules, hydrogen bond.  Bond order  Magnetism and stability of molecules | **Organic Chemistry -Some Basic Principles and Technique**  General introduction, Structural representations  of organic compounds  Classification and IUPAC nomenclature of organic compounds. | Electronic displacements in a covalent bond inductive effect, electromeric effect  Homolytic and heterolytic fission of a covalent bond  Free radicals, carbocations, carbanions, electrophiles and nucleophiles,  Resonance and hyper conjugation. |

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| **PRACTICAL :**   * ANALYSIS OF SALT V |

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| **SEPTEMBER**  **(01 – 30)** | **(02 - 06)**  **Hydrocarbons**  Alkanes  Nomenclature  Chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis. | **(09 - 13)**  ASSESSMENT I | **(16 - 20)**  ASSESSMENT I | **(23-27)**  ASSESSMENT I | **(30)**  ASSESSMENT I |
| **PRACTICAL :**   * ANALYSIS OF SALT V | | | | | |

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| **October (1 - 31)** | **(1-4)**   * ***Alkenes*** - Nomenclature, structure of double bond (ethene), geometrical isomerism * Physical properties, methods of preparation | **(07 - 11)**   * Chemical reactions: addition of hydrogen, halogen, water,   Hydrogen halides (Markonikov's addition and peroxide effect). | **(14 - 18)**   * Ozonolysis, mechanism of electrophilic addition. * ***Alkynes*** – Nomenclature, Structure of triple bond,   Preparation, Chemical reactions: | **(21 - 24)**   * ***Aromatic Hydrocarbons***: IUPAC nomenclature, Resonance, Aromaticity, * Chemical properties * Carcinogenicity and toxicity. | **(28 - 31)**  **STATES OF MATTER**  **States of Matter: Gases and Liquids**  Three states of matter, Intermolecular interactions, Melting and boiling points,  Boyle's law, Charles law, Gay Lussac's law, Avogadro's law |
| **PRACTICAL :**   * ANALYSIS OF SALT VI | | | | | |

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| **November (1 - 30)** | **(1-2)**   * Ideal behaviour, Empirical derivation of gas equation,   Ideal gas equation. Liquefaction of gases   * Critical temperature * Kinetic energy, Viscosity * Surface tension | **(04 - 08)**  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.  Band theory of metals, conductors, semiconductors and insulators and n & p type semiconductors | **(11 - 15)**  **Thermodynamics**   * System Surroundings, Work, Heat, Energy, * State functions. * First law of thermodynamics -internal energy and enthalpy, Heat capacity and specific heat. | **(18 - 22)**   * Measurement of ΔU and ΔH * Hess's law, * Enthalpy of bond dissociation, * Combustion, Formation, Atomization, Sublimation * Second law of Thermodynamics, * Gibb's energy change for spontaneous and non-spontaneous processes, Criteria for equilibrium, * Third law of thermodynamics | **(25 - 29)**  **Equilibrium**   * Dynamic equilibrium, Law of mass action, * Equilibrium constant, Factors affecting equilibrium, |
| **PRACTICAL :**   * VOLUMETRIC ANALYSIS –I | | | | | |

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| **DECEMBER**  **(01 – 31)** | **(02 - 06)**   * Ionizationof acids and bases, Ionization of polybasic acids, * Acid strength * Concept of pH, Henderson Equation, Hydrolysis of salts | **(09 - 13)**  **ASSESSMENT II** | **(16 - 20)**  **ASSESSMENT II** | **(23 - 27)**  **WINTER BREAK** | **(30 - 31)**  WINTER BREAK |
| **PRACTICAL :**   * VOLUMETRIC ANALYSIS - II | | | | | |

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| **JANUARY**  **(01 – 31)** | **(01 - 03)**  **WINTER BREAK** | **(06 -10)**  **WINTER BREAK**   * Buffer solution | **(13 - 17)**  **Redox Reactions**   * Concept of oxidation and reduction, Redox reactions. * Oxidation number, balancing redox reactionsin terms of loss and gain of electrons. * Redox reactions as the basis for titrations * Applications of redox reactions * Daniell cell * Standard electrode potential | **(20 - 24)**  **Hydrogen**   * Position of hydrogen in periodic table, occurrence, isotopes, preparation, properties and uses ofHydrogen. * Hydrides-ionic covalent and interstitial. * Physical and chemical properties of water, Heavy water. * Hydrogen peroxide -preparation, reactions and structure and use. Hydrogen as afuel. | **(27 - 31)**  **s-Block elements**  *Group 1 and Group 2 Elements*   * General introduction, * Diagonal relationship, * Trends in the variation of properties, * Trends in chemical reactivity   Biological importance of Sodium, Potassium, Magnesium and Calcium |
| **PRACTICAL :**ANALYSIS OF SALT – VII | | | | | |

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| **FEBRUARY**  **(01 – 28)** | **(03 - 07)**  **Some p –BlockElements**   * General *Introduction to Group 13 Elements:*General introduction, * Trends in chemical reactivity, * Boron, Aluminium - physical and chemical properties, important compounds * Uses * *Group 14 Elements:*Introduction, * Trends in chemical reactivity, * Carbon-catenation, allotropic forms, physical and chemical properties; Compounds of Silicon, Uses: Silicon Tetrachloride, Silicones, * Silicates and Zeolites, their uses. | **(10 - 14)**  REVISION | **(17 - 21)**  **ASSESSMENT III** | **(24 - 28)**  ASSESSMENT III |  |