**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE 2015-16**

**WEEKLY PLAN-CLASS 11 -CHEMISTRY**

Indian School Al Wadi Al Kabir - Syllabus break up for AUGUST 2015

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| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | | WEEK 4 | |
| **CHEMISTRY** | **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.   PRACTICAL: SALT III | * **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. * PRACTICAL: SALT IV | | * VSEPR theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules | |
| Syllabus break up for September 2015 | | | | | | |
| **CLASS 11** | WEEK 1 | WEEK 2 | | WEEK 3 | | WEEK 4 |
| **CHEMISTRY** | * Molecular orbital theory of homonuclear diatomic molecules (qualitative idea only), hydrogen bond.     PRACTICAL: SALT V | **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 * Resonance and hyper conjugation.   PRACTICAL – SALT VI | | * Homolytic and heterolytic fission of a covalent bond * Free radicals, carbocations, carbanions, electrophiles and nucleophiles, * Types of organic reactions |

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| Syllabus break up for October 2015 | | | | |
| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 |
| **CHEMISTRY** | * Methods of purification, * Qualitative and quantitative analysis   PRACTICAL – SALT VII | **Hydrocarbons**   * ***Alkanes***- Nomenclature, isomerism, conformation, 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 (Markonikov's addition and peroxide effect),  PRACTICAL – SALT VIII | * Ozonolysis, oxidation, mechanism of electrophilic addition. * ***Alkynes*** – Nomenclature, Structure of triple bond, * Physical properties, * Preparation, Chemical reactions: * ***Aromatic Hydrocarbons***: Introduction, IUPAC nomenclature, Benzene: Resonance, Aromaticity, * Chemical properties * Carcinogenicity and toxicity. |

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| Syllabus break up for November 2015 | | | | |
| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 |
| **CHEMISTRY** | **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 –  VOLUMETRIC ANALYSIS - I | * 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 Liquid State- vapour pressure, | * Viscosity * Surface tension   **Chemical Thermodynamics**   * System Surroundings, Work, Heat, Energy, * State functions. * First law of thermodynamics -internal energy and enthalpy, Heat capacity and specific heat, * Measurement of ΔU and ΔH   VOLUMETRIC ANALYSIS - II | * 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 |

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| Syllabus break up for December 2015 | | | |
| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 |
| **CHEMISTRY** | **Equilibrium**   * Dynamic equilibrium, Law of mass action, * Equilibrium constant, Factors affecting equilibrium, * Ionization of acids and bases, Ionization of polybasic acids, * Acid strength   VOLUMETRIC ANALYSIS - III | * Concept of pH, Henderson Equation, Hydrolysis of salts * Buffer solution, Solubility product, Common ion effect.   **Redox Reactions**   * Concept of oxidation and reduction, Redox reactions. | * Oxidation number, balancing redox reactions in terms of loss and gain of electrons. * Redox reactions as the basis for titrations * Applications of redox reactions * Daniell cell * Standard electrode potential   **WINTER HOLIDAYS** |

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| Syllabus break up for January 2016 | | | | |
| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 |
| **CHEMISTRY** | **s-Block elements**  *Group 1 and Group 2 Elements*   * General introduction, * Diagonal relationship, * Trends in the variation of properties, * Trends in chemical reactivity, * Uses.   PRACTICAL –  SALT ANALYSIS - PRACTICE | *Preparation and Properties of:*   * Sodium Carbonate, Sodium Chloride, Sodium Hydroxide Sodium Hydrogen carbonate, Calcium Oxide and Calcium Carbonate * Biological importance of Sodium, Potassium, Magnesium and Calcium. Uses | **Some p –Block Elements**   * General *Introduction to Group 13 Elements:* General introduction, * Trends in chemical reactivity, * Boron, Aluminium - physical and chemical properties, important compounds * Uses.   PRACTICAL –  VOLUMETRIC ANALYSIS - PRACTICE | * *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. |