**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
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| 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.
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