**INDIAN SCHOOL AL WADI AL KABIR**

**DEPARTMENT OF SCIENCE 2016-17**

**WEEKLY PLAN- CLASS-11 - CHEMISTRY**

Indian School Al Wadi Al Kabir - Syllabus break up for AUGUST 2016

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| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 |
| **CHEMISTRY** | * **Chemical Bonding and Molecular structure**

Valence electrons, ionic bond, covalent bond, bond parameters, Lewis structure.PRACTICAL: SALT IV | * Polar character of covalent bond, covalent character of ionic bond, VSEPR theory

UNIT TEST 2 | * Resonance, geometry of covalent molecules.

PRACTICAL: SALT V | * Valence bond theory, concept of hybridization, involving s, p and d orbitals and shapes of some simple molecules
 | * Molecular orbital theory of homonuclear diatomic molecules(qualitative idea only), hydrogen bond.

PRACTICAL: SALT VI |

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| **CLASS 11** | WEEKS 1and 2 | WEEK 3 | WEEK 4 | WEEK 5 |
| **CHEMISTRY** | * **Organic Chemistry -Some Basic Principles and Technique**

General introduction, Structural representationsof organic compoundsClassification and IUPAC nomenclature of organic compounds. | * **Organic Chemistry -Some Basic Principles and Technique**

General introduction, Structural representationsof organic compoundsClassification and IUPAC nomenclature of organic compounds* ASSESSMENT 1
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| **CLASS 11** | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 |
| **CHEMISTRY** | * 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,

PRACTICAL: SALT VII | * Types of organic reactions
* Methods of purification,
* Qualitative and quantitative analysis
 | **Hydrocarbons*** ***Alkanes***- Nomenclature, isomerism, conformation, physical properties
* Chemical reactions including free radical mechanism of halogenation, combustion and pyrolysis.

PRACTICAL: SALT VIII | * ***Alkenes*** - Nomenclature, structure of double bond (ethene), geometrical isomerism
* Physicalproperties, methods of preparation
* Chemical reactions: addition of hydrogen, halogen, water,

 hydrogen halides (Markonikov's addition and peroxide effect). |

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| **CLASS 11** | WEEKS 1 and 2 | WEEK 3 | WEEK 4 | WEEK 5 |
| **CHEMISTRY** | * Ozonolysis, mechanism of electrophilic addition.
* ***Alkynes*** – Nomenclature, Structure of triple bond,
* Preparation, Chemical reactions:
* ***Aromatic Hydrocarbons***: IUPAC nomenclature, Resonance, Aromaticity,
* Chemical properties
* Carcinogenicity and toxicity.

VOLUMETRIC ANALYSIS - I | **States of Matter: Gases and Liquids*** Three states of matter, Intermolecular interactions, Melting and boiling points,
* Boyle's law, Charles law, Gay Lussac'slaw, Avogadro's law
* Ideal behaviour, Empirical derivation of gas equation,
* Ideal gas equation. Liquefaction of gases,
 | * Critical temperature
* Kinetic energy, 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.

VOLUMETRIC ANALYSIS - II | * 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-spontaneousprocesses, Criteria for equilibrium,
* Third law of thermodynamics
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| **CLASS 11** | WEEKS 1 and 2 | WEEK 3 | WEEK 4 |
| **CHEMISTRY** | **Equilibrium*** Dynamic equilibrium, Law of mass action,
* Equilibrium constant, Factors affecting equilibrium,
* Ionizationof 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 reactionsin terms of loss and gain of electrons.
 | * Redox reactions as the basis for titrations
* Applications of redox reactions
* Daniell cell
* Standard electrode potential

ASSESSMENT 2**WINTER HOLIDAYS** |

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| **CLASS 11** | WEEKS 2 AND 3 | WEEK 4 | WEEK 5 |
| **CHEMISTRY** | **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 – SALT ANALYSIS - PRACTICE | **Some p –BlockElements*** 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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| **CLASS 11** | WEEK 1 and 2 | WEEK 3 and 4 |
| **CHEMISTRY** | **REVISION** | ASSESSMENT 3 |