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| **SL.N0**  **BOKARO PUBLIC SCHOOL**  Sector - III/C, B.S.City  **SYLLABUS**  **Class: - XII Session: 2021-22 Subject: -Chemistry**  **Prescribed Book:- NCERT (Volume : 1 and 2 ) Subject Teacher: - Ajeet Kumar** | **Months** | **No of**  **days** | **Lesson Structure** | **Activities** |
| 01 | April | 22 | **Unit I: Solutions**  **Types of solutions, expression of concentration of solutions of solids in liquids, solubility of gases in liquids, solid solutions, colligative properties - relative lowering of vapour pressure, Raoult's law, elevation of boiling point, depression of freezing point, osmotic pressure, determination of molecular masses using colligative properties, abnormal molecular mass, Van't Hoff factor.**  **Unit II: Electrochemistry**  Redox reactions, conductance in electrolytic solutions, specific and molar conductivity, variations of conductivity with concentration, | Determination of concentration? Molarity of KMnO4 solution by titrating it against a standard solution of:  i) Oxalic acid,  ii) Ferrous Ammonium Sulphate download (2).jpg |
| 02 | May | 7 | **Unit III: Electrochemistry**  Kohlrausch's Law, electrolysis and law of electrolysis (elementary idea), dry cell-electrolytic cells and Galvanic cells, lead accumulator, EMF of a cell, standard electrode potential, Nernst equation and its 04application to chemical cells, Relation between Gibbs energy change and emf of a cell, fuel cells, corrosion. | **Qualitative analysis**  Determination of one cation and one anion in a given salt.  Cation ‒ Pb2+, Cu2+ As3+, Al3+, Fe3+, Mn2+ , Zn2+, Cu2+, Co2+, Ni2+, Ca2+, Sr2+, Ba2+, Mg2+, NH4+ |
| 03 | June | 15 | **Unit IV: Chemical Kinetics**  Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenius equation. | Anions ‒ CO3 2‒, S2‒, SO32‒, SO42‒, NO2‒, NO3‒, Cl‒, Br‒, I‒, PO43‒, C2O42‒, CH3COO‒ |
| 04 | July | 23 | **Unit V: d and f Block Elements**  General introduction, electronic configuration, occurrence and characteristics of transition metals, general trends in properties of the first row transition metals - metallic character, ionization enthalpy, oxidation states, ionic radii, colour, catalytic property, magnetic properties, interstitial compounds, alloy formation, preparation and properties of K2Cr2O7 and KMnO4.  Lanthanoids - Electronic configuration, oxidation states, chemical reactivity and lanthanoid contraction and its consequences.  Actinoids - Electronic configuration, oxidation states and comparison with lanthanoids  **Unit VI: Coordination Compounds**  Coordination compounds - Introduction, ligands, coordination number, colour, magnetic properties and shapes, IUPAC nomenclature of mononuclear coordination compounds. Bonding, Werner's theory, VBT, and CFT; structure and stereo isomerism, importance of coordination compounds (in qualitative inclusion, extraction of metals and biological system). | **Project Work**  • Study of the presence of oxalate ions in guava fruit at different stages of ripening.  Preparation of soyabean milk and its comparison with the natural milk with respect to curd formation, effect of temperature, etc |
| 05 | Aug | 18 | **Unit VII: Haloalkanes and Haloarenes**  Haloalkanes: Nomenclature, nature of C-X bond, physical and chemical properties, mechanism of substitution reactions, optical rotation.  Haloarenes: Nature of C -X bond, substitution reactions (Directive influence of halogen in monosubstituted compounds only.  Uses and environmental effects of - dichloromethane, trichloromethane, tetrachloromethane, iodoform, freons, DDT. | **Preparation of Inorganic Compounds**  i) Preparation of double salt of Ferrous Ammonium Sulphate or Potash Alum.  ii) Preparation of Potassium Ferric Oxalate.  **Preparation of Organic Compounds**  Preparation of any one of the following compounds  i) Acetanilide  ii) Di -benzal Acetone  iii) p-Nitroacetanilide  iv) Aniline yellow or 2 - Naphthol Aniline dye. |
| 06 | Sep | 09 | **Unit VIII: Alcohols, Phenols and Ethers**  Alcohols: Nomenclature, methods of preparation, physical and chemical properties (of primary alcohols only), identification of primary, secondary and tertiary alcohols, mechanism of dehydration, uses with special reference to methanol and ethanol.  Phenols: Nomenclature, methods of preparation, physical and chemical properties, acidic nature of phenol, electrophilic substitution reactions, uses of phenols.  Ethers: Nomenclature, methods of preparation, physical and chemical properties, uses. |  |
| 07 | Oct | 12 | UNIT – IX ALDEHYDE, KETONE AND CARBOXYLIC ACID |  |
| 08 | Nov | 20 | UNIT – X BIOMOLECULES |  |
| 09 | Dec | 19 | **REVISION and solution of last 10 years question papers** |  |
| 10 | Jan | 17 | **Test series and preparation for Board Exam - 22** |  |