BOARD OF INTERMEDIATE EDUCATION, A.P., HYDERABAD

REVISION OF SYLLABUS

Subject – CHEMISTRY-II (w.e.f 2013-14)

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Chapter 1: SOLID STATE 1.1 General characteristics of solid state1.2 Amorphous and crystalline solids 1.3 Classification of crystalline solids based on different binding forces (molecular, ionic, metallic and covalent solids)1.4 Probing the structure of solids: X-ray crystallography 1.5 Crystal lattices and unit cells .Bravais lattices primitive and centred unit cells 1.6 Number of atoms in a unit cell (primitive, body centred and face centred cubic unit cell)1.7 Close packed structures: Close packing in one dimension, in two dimensions and in three dimensions- tetrahedral and octahedral voids- formula of a compound and number of voids filled- locating tetrahedral and octahedral voids 1.8 Packing efficiency in simple cubic, bcc and in hcp, ccp lattice. 1.9 Calculations involving unit cell dimensions-density of the unit cell. 1.10 Imperfections in solids-types of point defects-stoichiometric and non-stoichiometric defects 1.11 Electrical properties-conduction of electricity in metals, semiconductors and insulators- band theory of metals 1.12 Magnetic properties	**10**

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CHAPTER - 4	PERIODS
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cleansing action of soaps-preparation of colloids-purification of colloidal solutions- properties of colloidal solutions: Tyndal effect, colour,Brownian movement-charge on colloidal particles, electrophoresis 4.5 Emulsions 4.6 Colloids Around us- application of colloids	

CHAPTER - 5	PERIODS
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GROUP-17 ELEMENTS 6.18 Occurance, electronic configuration, atomic and ionic radii, ionisation enthalpy, electron gain enthalpy, electronegativity ,physical and chemical properties 6.19 Chlorine-preparation, properties and uses 6.20 Hydrogen chloride- preparation, properties and uses 6.21 Oxoacids of halogens 6.22 Interhalogen compounds **GROUP-18 ELEMENTS** 6.23 Occurance, electronic configuration, ionisation enthalpy,atomic radii electron gain enthalpy, physical and chemical properties(a) Xenon-fluorine compounds-XeF_2,XeF_4 and XeF_6 –preparation,hydrolysis and formation of fluoro anions-structures of XeF_2, XeF_4 and XeF_6 (b) Xenon-oxygen compounds XeO_3 and $XeOF_4$ - their formation and structures	

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cellulose and glycogen- Importance of carbohydrates 9.2 Aminoacids: Natural aminoacids-classification of aminoacids - structures and D and L forms-Zwitter ions Proteins: Structures, classification, fibrous and globular- primary, secondary, tertiary and quarternary structures of proteins- Denaturation of proteins 9.3 Enzymes: Enzymes,mechanism of enzyme action 9.4 Vitamins: Explanation-names- classification of vitamins - sources of vitamins-deficiency diseases of different types of vitamins 9.5. Nucleic acids: chemical composition of nucleic acids ,structures of nucleic acids, DNA finger printing biological functions of nucleic acids 9.6 Hormones:Definition, different types of hormones, their production, biological activity, diseases due to their abnormal activities	

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BOARD OF INTERMEDIATE EDUCATION,A.P,HYDERABAD

REVISION OF SYLLABUS

Subject –CHEMISTRY –I (w.e.f. 2012-13)

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2.5 Electronic configuration of elements and the periodic table 2.6 Electronic configuration and types of elements s,p,d.and f blocks. 2.7.1 Trends in physical properties: (a) Atomic radius (b) Ionic radius (c)Variation of size in inner transition elements. (d)Ionization enthalpy. (e) Electron gain enthalpy (f) Electro negativity. 2.7.2 Periodic trends in chemical properties: (a) Valence or Oxidation states. (b) Anomalous properties of second period elements – diagonal relationship. 2.7.3 Periodic trends and chemical reactivity 3. CHEMICAL BONDING AND MOLECULAR STRUCTURE 3.1 Kossel – Lewis approach to chemical bonding. 3.2 Ionic or electrovalent bond - Factors favourable for the formation of ionic compounds-Crystal structure of sodium chloride-General properties of ionic compounds. 3.3 Bond Parameters – bond length, bond angle, and bond enthalpy, bond order, resonance-Polarity of bonds dipole moment 3.4 Valence Shell Electron Pair Repulsion (VSEPR) theories. Predicting the geometry of simple molecules. 3.5 Valence bond theory-Orbital overlap concept-Directional properties of bonds-overlapping of atomic orbitals strength of sigma and pi bonds-Factors favouring the formation of covalent bonds 3.6 Hybridisation- different types of hybridization involving s, p and d orbitals- shapes of simple covalent molecules. 3.7 Coordinate bond –definition with examples.	20

3.8 Molecular orbital theory – Formation of molecular orbitals, Linear combination of atomic orbitals (LCAO)-conditions for combination of atomic orbitals - Energy level diagrams for molecular orbitals -Bonding in some homo nuclear diatomic molecules- H_2,He_2,Li_2,B_2,C_2,N_2,and O_2 3.9 Hydrogen bonding-cause of formation of hydrogen bond-Types of hydrogen bonds-inter and intra molecular-General properties of hydrogen bonds. 4. STATES OF MATTER: GASES AND LIQUIDS 4.1 Intermolecular forces 4.2 Thermal Energy 4.3 Intermolecular forces Vs Thermal interactions. 4.4 The Gaseous State. 4.5 The Gas Laws 4.6 Ideal gas equation. 4.7 Graham's law of diffusion – Dalton's Law of partial pressures. 4.8 Kinetic molecular theory of gases. 4.9 Kinetic gas equation of an ideal gas (No derivation) deduction of gas laws from Kinetic gas equation. 4.10 Distribution of molecular speeds – rms, average and most probable speeds-Kinetic energy of gas molecules. 4.11 Behaviour of real gases – Deviation from Ideal gas behaviour – Compressibility factor Vs Pressure diagrams of real gases. 4.12 Liquefaction of gases 4.13 Liquid State – Properties of Liquids in terms of Inter molecular interactions – Vapour pressure, Viscosity and Surface tension (Qualitative idea only. No mathematical derivation)	15

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7.6 Applications of Equilibrium constant. 7.7 Relationship between Equilibrium constant K, reaction quotient Q and Gibbs energy G. 7.8 Factors affecting Equilibria.-Le-chatlieprinciple application to industrial synthesis of Ammonia and Sulphur trioxide. 7.9 Ionic Equilibrium in solutions. 7.10 Acids, bases and salts- Arrhenius, Bronsted-Lowry and Lewis concepts of acids and bases. 7.11 Ionisation of Acids and Bases –Ionisation constant of water and it's ionic product- pH scale-ionisation constants of weak acids-ionisation of weak bases-relation between Ka and Kb-Di and poly basic acids and di and poly acidic Bases-Factors affecting acid strength-Common ion effect in the ionization of acids and bases-Hydrolysis of salts and pH of their solutions. 7.12 Buffer solutions-designing of buffer solution-Preparation of Acidic buffer 7.13 Solubility Equilibria of sparingly soluble salts. Solubility product constant Common ion effect on solubility of Ionic salts. 8. HYDROGEN AND ITS COMPOUNDS 8.1 Position of hydrogen in the periodic table. 8.2 Dihydrogen-Occurance and Isotopes. 8.3 Preparation of Dihydrogen 8.4 Properties of Dihydrogen 8.5 Hydrides: Ionic, covalent, and non-stiochiometric hydrides. 8.6 Water: Physical properties; structure of water, ice. Chemical properties of water; hard and soft water Temporary and permanent hardness of water 8.7 Hydrogen peroxide: Preparation; Physical properties; structure and chemical properties; storage and uses. 8.8 Heavy Water 8.9 Hydrogen as a fuel.	08

9. THE s – BLOCK ELEMENTS (ALKALI AND ALKALINE EARTH METALS) Group 1 Elements 9.1 Alkali metals; Electronic configurations; Atomic and Ionic radii; Ionization enthalpy; Hydration enthalpy; Physical properties; Chemical properties; Uses 9.2 General characteristics of the compounds of the alkali metals: Oxides; Halides; Salts of Oxy Acids. 9.3 Anomalous properties of Lithium: Differences and similarities with other alkali metals. Diagonal relationship; similarities between Lithium and Magnesium. 9.4 Some important compounds of Sodium: Sodium Carbonate; Sodium Chloride; Sodium Hydroxide; Sodium hydrogen carbonate. 9.5 Biological importance of Sodium and Potassium. Group 2 Elements: 9.6 Alkaline earth elements; Electronic configuration; Ionization enthalpy; Hydration enthalpy; Physical properties, Chemical properties; Uses. 9.7 General characteristics of compounds of the Alkaline Earth Metals: Oxides, hydroxides, halides, salts of Oxyacids (Carbonates; Sulphates and Nitrates). 9.8 Anomalous behavior of Beryllium; its diagonal relationship with Aluminum. 9.9 Some important compounds of calcium: Preparation and uses of Calcium Oxide ; Calcium Hydroxide; Calcium Carbonate;Plaster of Paris; Cement. 9.10 Biological importance of Calcium and Magnesium.	08

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12.6 Water Pollution: Causes of Water Pollution; International standards for drinking water. 12.7 Soil Pollution: Pesticides, Industrial Wastes. 12.8 Strategies to control environmental pollution- waste Management- collection and disposal. 12.9 Green Chemistry: Green chemistry in day-to-day life; Dry cleaning of clothes; Bleaching of paper; Synthesis of chemicals 13. ORGANIC CHEMISTRY-SOME BASIC PRINCIPLES AND TECHNIQUES AND HYDROCARBONS 13.1 General introduction. 13.2 Tetravalency of Carbon: shapes of organic compounds. 13.3 Structural representations of organic compounds. 13.4 Classification of organic compounds. 13.5 Nomenclature of organic compounds. 13.6 Isomerism. 13.7 Fundamental concepts in organic reaction mechanisms. 13.7.1 Fission of covalent bond. 13.7.2 Nucleophiles and electrophiles. 13.7.3 Electron movements in organic reactions. 13.7.4 Electron displacement effects in covalent bonds. 13.7.5 Types of Organic reactions. 13.8 Methods of purification of organic compounds. 13.9 Qualitative elemental analysis of organic compounds. 13.10 Quantitative elemental analysis of organic compounds. HYDROCARBONS 13.11 Classification of Hydrocarbons. 13.12 Alkanes – Nomenclature, isomerism (structural and conformations of ethane only) 13.12.1 Preparation of alkanes 13.12.2 Properties – Physical properties and chemical Reactivity, Substitution reactions – Halogenation(free radical mechanism), Combustion, Controlled	25

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REVISION OF SYLLABUS

Subject – MATHEMATICS –IA (w.e.f. 2012-13)

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