H.K.E. SOCIETY'S

B.V. BHOOMARADDI COLLEGE OF ARTS, SCIENCE AND COMMERCE, BIDAR

DEPARTMENT OF ***CHEMISTRY***

Individual Session Plan for 2022-23

Name of the Staff: **Dr. Mallikarjun Kote** Designation: Assistant professor

Paper Title: Inorganic and physical chemistry-I Class: **B.Sc.** II Semester

Learning Outcomes:

L1. To study the properties of group 1 and 2 elements and comparison.

L2 To understand the comparative study of properties of group II elements with respect to their physical properties.

L3 To understand the concept of ionic equilibrium and ionic product of water.

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L4 To know the degree of ionization and application of solubility product.

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Teaching Learning Plan

Unit	Topic	Lecture Hours	Teaching pedagogy	Resources
II	S, P, D, and F-block elements, the long form of periodic table, details discussion of the following properties of the elements with reference to s and p-block elements.	3		T_1
	Atomic radii, ionic and crystal radii, covalent radii, van der waal's, ionization enthalpy, successive ionization enthalpies, factors affecting ionization energy, applications of ionization enthalpy.	4	Lecture Chalk & Talk	
	Electron gain enthalpy, trends of electron gain enthalpy, electronegativity, pauillings , mulken's, allred rechow's and mulliken-jaffe's, hybridization, group electronegativity.	4		T_1
	Trends in the chemistry of the compounds of groups 13 to 17 are to be discussed.	3		T_1

II	**OE: Enzymes and correlation with drug action:** mechanism of enzyme action. Factors affecting enzyme action, co-enzymes and cofactors, and their role in biological reactions, specificity of enzymes action. Enzymes inhibitors and their importance phenomenon of inhibition Drug action receptors, theory, structures, activities, relationships of drug molecules, binding role of OH group, $-NH_2$ group double bond and aromatic ring. Lipids, introduction to lipids, classifications, biological importance of triglycerides, phospholipids, glycolipids and steroids.	7 7	Lecture Chalk & Talk	T_1 T_1 T_1 T_2 T_2

Resources:

Text Books:

1. T_1 – BSc I Sem NEP Chemistry book by S Chand
2. T_2 – BSc I Sem NEP Chemistry book by Dr. Sheelvanth

Question Bank:

Short answer Questions:

1. what is S-block.
2. write the p-block elements.
3. Classify the periodic table.
4. Define ionic bond.
5. Explain covalent bond.

Long Answers Questions:

1. What are s-block elements.
2. How to classy the periodic table.
3. Discussed about d-block elements.
4. write a note on ionization energy.
5. write a note on p-block elements.

Topics for Seminar and Group discussion:

1. periodic table.
2. classifications.
3. ionization enthalpy.
4. Electronegativity.
5. Group 13 to 17 elements.

Staff Member

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DEPARTMENT OF ***CHEMISTRY***

Individual Session Plan for 2022-23

Name of the Staff: **Dr. Mallikarjun Kote** Designation: Assistant professor

Paper Title: Inorganic and physical chemistry-II Class: **B.Sc.** IV Semester

Learning Outcomes:

L1. To study the properties of d-block and f-block elements

L2. To study the VBT postulates, nomenclature, structure & stereoisomerism in complexes.

L3. To study the CFT, spectrochemical series and structure and hybridization of the complex compounds.

Teaching Learning Plan

Unit	Topic	Lecture Hours	Teaching pedagogy	Resources
I	**Structure and bonding:** The ionic bond, structure of ionic solid, radius ratio, rules, calculation of some limiting radius ratio values, coordination number 3, coordination number 4, coordination number 6, Clouse packing,	3	Lecture Chalk & Talk	T_1
	Classification of ionic structure, ionic compounds of the type AX, AX_2 ,layer structure, limitations of radius ratio concept, lattice energy born Heber cycle, derivation of bond -lande equation, and its draw backs, Kapuscinski equation, solvation energy , salability ionic solids, polarizing power and its polystability, fajans rule, with applications.	2		T_1 T_1
	Covalent bond, valence bond theory, the leves theory, the octet rule, sidwick theory, valence shell, electron pair, repulstion, VESPER theory, effect of ionic pair, electronegativity, isolectric principle, examples using VSEPR theory, BF_3, NH_3, H_2O, pcl_5, IF_7, limitations of VSEPR.	5 4	Lecture Chalk & Talk	T_1 T_1

Resources:

Text Books:

1. T_1 – BSc IV Sem NEP Chemistry book by S Chand
2. T_2 – BSc IV Sem NEP Chemistry book by Dr. Sheelvanth

Question Bank:

Short answer Questions:

1. Define ionic bond.
2. What are the properties of ionic compound?
3. Explain Clouse packing.
4. Polarizing power.
5. Define covalent bond .

Long Answers Questions:

1. What are the limitations of ionic radii?
2. What is isoelectric effect?
3. Explain sidwick theory.
4. Explain valence bond theory.

Topics for Seminar and Group discussion:

1. Ionic bonding.
2. Covalent bond.
3. VSEPR theory.

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DEPARTMENT OF ***CHEMISTRY***

Individual Session Plan for 2022-23

Name of the Staff: **Dr. Mallikarjun Kote** Designation: Assistant professor

Paper Title: Industrial Chemical and Environment Class: **BSc.VI** Semester

Learning Outcomes:

L1. To study the general preparations and uses of Hair dye, shampoo, lotions, face powder, lipsticks, cold ceramics.

L2. To learn the preparation of Cosmetics like shampoo, face creams, nail polish, talcum powder etc.

L3.To study the types of petroleum, synthetic fuels, synthetic lubricants and their properties

Teaching Learning Plan

Unit	Topic	Lecture Hours	Teaching pedagogy	Resources
1	**Cement:** Introduction, definition, raw materials, grades of cements, manufacture of cement by Portland cement, dry cement and wet process, mechanism of setting of cement, types of cements and their uses. RCC.		Lecture Chalk & Talk	
	Ceramics and Glass:	10		T_1
	Ceramics: introduction, classification, clay definition, properties and uses.		GC	
2	**Glass:** properties, types, manufacture of soda glass. Composition and application of borosilicate, metallic, optical glasses and polycarbonate glasses, safety glasses, fire and bullet proof glasses.	10	Lecture Chalk & Talk	T_1
	Paints, pigments and varnishes: paints introduction, requirements, constituents of paints, formulation of paints, failure of paints, paints films, emulation paints, manufacture of white lead using Dutch process and uses. Pigments: red pigments, white pigments, varnishes, spirit and oil varnishes.			
3	**Fuel chemistry:** petroleum and petrochemical		Lecture	

	industry: composition of crude petroleum, refining and different types of petroleum products and their applications.	10	Chalk & Talk	T_1

Resources:

Text Books:

1. T_1 – Essentials of Analytical Chemistry by Arun Bhal, B. S. Bhal and G. D. Tuli.
2. T_2 – Principles of Analytical Chemistry by Puri, Sharma and Pathania.
3. GC – Google Crome....

Question Bank:

1. Define cement.
2. What is the composition of cement?
3. What are raw materials of cement.
4. Explain dry cement.

Long Answers Questions:

1. Explain how do you manufacture of dry cement?
5. Explain how do you wet cement?
6. Write the uses of cement.
7. Discussed about ceramics.

Topics for Seminar and Group discussion:

1.cements.
2. ceramics.
3.varnishes.
4.Paints.

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