Satyaniketan’s

Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur.

Tal. Akole. Dist. Ahmednagar.

Department of Chemistry

**FYBSc** ANNUAL TEACHING PLANNING 2016-17

**Physical & Inorganic Chemistry (R. C. Muthe)**

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| --- | --- |
| **Month** | **Chapters** |
| **June** | **TERM I**  **Chapter-1) Surface Chemistry**  **Catalysis** : Phenomena of catalysis, types of catalysis-homogeneous and heterogeneous catalysis, gaseous reactions on solid surfaces. |
| **July** | **Colloids**: Definition and classification, preparation of emulsions, gels and sols,properties of suspensoids  **Adsorption**: Types of adsorption, adsorption isotherms, Freundluich isotherm, Langmuirisotherm, adsorption of gases on solids, adsorption of solutes on solids, applications of  adsorption, |
| **August** | **Chapter-2) States of Matter**  **Introduction:** States of matter and their properties.  **Gaseous states**: Significance of ideal and kinetic gas equation (no derivation), Real gases-Compressibility factor, van der Waal’s equation of state, Isotherms of CO2, critical constants, correlation between critical constants and van der Waal’s constants.  **Liquid state** – Properties of liquids , Comparison between gaseous and solid state –Experimental determination of vapor pressure by isoteniscopic method and viscosity by Ostwald method, liquid crystals and their applications. |
| **September** | **Chapter-3) Chemical Mathematics**  **Functions and variables:** Variables as function , variables used in chemistry  **Derivative**: Rules of differentiation, examples on derivatives of algebraic, logarithmic and exponential functions, partial differentiation, conditions for maxima and minima, problems  related to chemistry. |
| **October** | --- |
| **November** | **TERM II**  **Chapter-1) Atomic Structure**  Introduction, atomic spectrum of hydrogen, Bohr model of hydrogen atom-derivation of atomic radius and energy, energy level diagram of hydrogen atom , Failure of Classical mechanics- black body radiation, photoelectric effect, electron diffraction, |
| **December** | atomic spectra,quantization of energy, de Broglie’s hypothesis, Heisenberg’s uncertainty principle (without proof), wave equation, time independent Schrödinger equation, hydrogen atom (expressions only)., wave functions for s and p atomic orbitals, |
| **January** | **Chapter-2) Chemical Thermodynamics**  Introduction, first law of thermodynamics and its limitations, Carnot cycle and efficiency,Entropy and second law of thermodynamics, entropy as a state function, Entropy change inisolated system, reversible and irreversible process, entropy change in ideal gases isothermal , isobaric , isochoric processes , entropy change in physical transitions , entropychange in chemical reactions, statistical definition of entropy, absolute entropy, third law of thermodynamics |
| **February** | Question Paper solving & Practice of problem based on chapters |

**F. Y. B. Sc.**

**Inorganic Chemistry Paper II Section II (Prof.H.M.Kakade)**

**Semester - Ist**

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| Sr. No. | Month | Topic | Periods |
| 1 | June | Chemistry of S-block element Recapitulation of periodical table | 02 |
| 2 | July | Special position of hydrogen in the long form of P.T. | 02 |
| 3 | August | Properties of s-block elements wrt electronic configuration  Extraction trends & properties,Introduction to crown ether | 03 |
| 4 | September | Cryptans, separation of s-block elements,using crown ether,  Compounds of s-block elements-oxides, hydroxides,peroxides, superoxides, | 03 |
| 5 | October | Application of s-block elements in industrial, biological and  Agricultural fields | 02 |

**Semester – IInd**

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| Sr. No. | Month | Topic | Periods |
| 1 | December | Chemistry of p- block elements ,position of elements in P.T.  Electronic configuration of elements trends in properties | 03 |
| 2 | January | Atomic size, ionization potential, electronegativity,  Electron affinity ,reactivity ,oxidation state, | 03 |
| 3 | February | Anamolous behavior of first member of each group.  Structure and properties of- borate, halides of aluminium, | 03 |
| 4 | March | Classification of silicates, oxyacids of P&S,interhalogen comp. | 03 |

**Organic Chemistry Paper II Section I (V. N. Gite)**

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| Sr. No. | Month | Topic | Periods |
| 1 | June | Chemical Bonding in Organic Molecules | 02 |
| 2 | July | Chemical Bonding in Organic Molecules | 08 |
| 3 | August | Chemical Bonding in Organic Molecules  Chemistry of Hydrocarbons | 02  06 |
| 4 | September | Chemistry of Hydrocarbons | 08 |
| 5 | October | Chemistry of Hydrocarbons | 02 |

**Semester – IInd**

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| Sr. No. | Month | Topic | Periods |
| 1 | December | Chemistry of Functional Groups | 02 |
| 2 | January | Halogen derivatives of Alkanes.  Alcohols & Ethers | 04  02 |
| 3 | February | Alcohols & Ethers, Benzene & its Reactions Phenols  Stereochemistry | 06  06 |
| 4 | March | Stereochemistry | 06 |