**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College**:G.V.M GIRLS COLLEGE **Academic session**: 2017-2018 **Semester**:Even **For the month of** :JAN-APRIL,2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S.No.*** | ***Name of assistant professor*** | ***Subject&Month*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/tests to be given to the students*** |
| 1 | B.S SAINI | PHYSICAL CHEMISTRY  (M.Sc FINAL)  JANUARY  (PHYSICAL SPECIAL- IV) | **WEEK-1:**  POLYMERS:- classification of polymer,condensation and addition polymers and its mechanism  **WEEK-2:**  Size distribution in linear condensation, molecular size control,degree of polymerisation, stereochemistry of polymer chain  **WEEK-3:**  Ionic polymerisation kinetics of cationic and anionic polymerisation,criteria for polymer solubility, mass no.and mass avg.  **WEEK-4:**  Determination of molecular weight of polymer by osmometry, viscometry, light scattering and sedimentation method | PRESENTATION ON MECHANISM OF POLYMERISATION | TEST OF MECHANISMS AND DETERMINATION OF MOLECULAR WEIGHT BY DIFF.  METHODS |
| 2 |  | FEBRAURY  (PHYSICAL SPECIAL-V) | **WEEK-1**  STATISTICAL THERMODYNAMICS:- Bose-Einstein statistics, fermi dirac statistics, statistics of photon gas, extreme gas degeneration  **WEEK-2:**  Energy of fermi dirac and bose Einstein,themionic emission,comparison of maxwell,bose Einstein and fermi dirac  **WEEK-3:**  NON EQUILIBRIUM THERMODYNAMICS:-  Entropy production, Entropy production in heat flow ,mass flow,electric currents ,chemical reactions  **WEEK-4:**  Saxens rule, electro kinetic phenomena,onsagers reciprocity relation,theory of fluctuations, fluctuations in energy and density. Distribution function and fluctuations | CLASS SEMINAR  AND POWERPOINT PRESENTATION OF STATISTICAL THERMODYNAMICS | TEST OF NON EQUILIBRIUM THERMODYNAMICS |
| 3 |  | MARCH  (PHYSICAL SPECIAL-VI) | **WEEK-1:**  INDUSTRIAL CORROSION PROBLEMS:  Atmospheric corrosion and high temperature oxidation.  **WEEK-2:**  Corrosion due to acids, corrosion due to metal surface cleaning and descaling, corrosion in chemical industries, corrosion in oil and gas wells  **WEEK:-3**  Corrosion in refinery, petrochemical plants , corrosion in fertiliser industries, corrosion in various type of industries  **WEEK-4:**  Corrosion in industrial cooling water system, corrosion in boilers, condensate pipe lines | GROUP DISCUSSION ON APPLICATIONS OF CORROSION | TEST OF SECTION B  ASSIGNMENT ON INDUSTRIAL CORROSION |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 |  | PHYSICAL  CHEMISTRY  (M.Sc previous)  JANUARY | WEEK-1Schrodinger wave equation for a particle in a three dimensional box. The concept of degeneracy among energy levels for a particle in three dimensional box  WEEK-2 Schrodinger wave equation for a linear harmonic oscillator & its solution by polynomial method.    WEEK-3 Schrodinger wave equation for three dimensional Rigid rotator, energy of rigid rotator, space quantization;    WEEK-4 the magnitude of their values, probability distribution function, radial distribution function and shape of atomic orbitals (s,p & d). | CLASS SEMINAR ON S.W.E | ASSIGNMENT ON S.H.O |
| 2 |  | FEBRUARY | WEEK-1 Schrodinger wave equation for hydrogen atom  WEEK-2separation of variable in polar spherical coordinates and its solution, principle, azimuthal and magnetic quantum numbers    WEEK-3. Zero point energy of a particle possessing harmonic motion and its consequence.  WEEK-4 Ion Transport in solutions: Ionic movement under the influence of an electric field |  |  |
| 3 |  | MARCH | WEEK-1 mobility of ions, ionic drift velocity and its relation with current density,  WEEK-2Einstein relation between the absolute mobility and diffusion coefficient, the Stokes- Einstein relation  WEEK-3 the Nernst -Einstein equation, Waldens rule, the Rate- Process approach to ionic migration  WEEK-4 the Rate process equation for equivalent conductivity, total driving force for ionic transport | PRESENTATION on ELECTROCHEMISTRY | TEST OF S.W.E For Hatom,rigid rotar |
| 4 |  | APRIL | WEEK-1 Nernst - Planck Flux equation, ionic drift and diffusion potential , the Onsager phenomenological equations  WEEK-2 The basic equation for the diffusion, Planck- Henderson equation for the diffusion potential. |  | TEST OF ELECTROCHEMISTRY |
| 5 |  | MAY | UNIVERSITY EXAMS |  |  |

**SUMMARY OF LESSON PLAN OF COLLEGE FACULTY**

**Name of College:** G.V.M. Girls College, Sonipat (Haryana) **Academic Session:** 2017-18 **Semester:** Even **For the month of:** January, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | DR. GOBIND GOYAT | Organic Chemistry M.Sc.(P) | **Week 1**  Winter vacation | PPT  NET/JRF & GATE related doubt session | Test of all covered topics  Assignment on neighbouring group participation by π and σ bonds |
| **Week 2**  Aliphatic Nucleophilic Substtitution:  The SN2, SN1, mixed SN1 and SN2, SNi. |
| **Week 3**  SN1’, SN2’, SNi’ and SET mechanisms. |
| **Week 4**  The neighbouring group mechanisms, neighbouring group participation by π and σ bonds. |
| 2 | DR. GOBIND GOYAT | Organic Chemistry  M.Sc.(F) | **Week 1**  Winter vacation | PPT  NET/JRF & GATE related doubt session | Test of all covered topics |
| **Week 2**  Photochemical Reactions:  Interaction of electromagnetic radiation with matter, types of excitations,fate of excited molecule, quantum yield, transfer of excitation energy, actinometry. |
| **Week 3**  Photochemistry of Alkenes:  Intramolecular reactions of the olefinic bond- geometrical isomerism, cyclisation reactions, rearrangement of 1,4 and 1,5 –dienes. |
| **Week 4**  Photochemistry of Carbonyl Compounds:  Intramolecular reactions of carbonyl compounds, saturated, cyclic, acyclic, and α, β unsaturated compounds. Cyclohexadienones. |

**Name of College:** G.V.M. Girls College, Sonipat (Haryana) **Academic Session:** 2017-18 **Semester:** Even **For the month of:** February, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | DR. GOBIND GOYAT | Organic Chemistry M.Sc.(P) | **Week 1**  Anchimeric assistance. Classical and nonclassical carbocations, phenonium ions, common carbocation rearrangements. | PPT  NET/JRF & GATE related doubt session | Test of all covered topics |
| **Week 2**  Applications of NMR spectroscopy in the detection of carbocations. Reactivity- effects of substrate structure. |
| **Week 3**  Attacking nucleophile, leaving group and reaction medium |
| **Week 4**  Holi Break. |
| 2 | DR. GOBIND GOYAT | Organic Chemistry  M.Sc.(F) | **Week 1**  Intermolecular cycloaddition reactions –dimerisations and oxetane formation. | PPT  NET/JRF & GATE related doubt session | Test of all covered topics  Assignment on Photochemistry of Carbonyl Compounds |
| **Week 2**  Photochemistry of Aromatic Compounds:  Isomerisations, additions and substitutions. |
| **Week 3**  Miscellaneous Photochemical Reactions: Photo-Fries reactions of anilides. Photo-Fries rearrangement. Barton reaction. |
| **Week 4**  Holi Break |

**Name of College:** G.V.M. Girls College, Sonipat (Haryana) **Academic Session:** 2017-18 **Semester:** Even **For the month of:** March, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | DR. GOBIND GOYAT | Organic Chemistry M.Sc.(P) | **Week 1**  Ambident nucleophiles and regioselectivity. Phase transfer catalysis. | PPT  NET/JRF & GATE related doubt session | Test of all covered topics |
| **Week 2**  The neighbouring group mechanisms, neighbouring group participation by π and σ bonds. |
| **Week 3**  Anchimeric assistance. Classical and nonclassical carbocations, |
| **Week 4**  Phenonium ions, common carbocation rearrangements. |
| 2 | DR. GOBIND GOYAT | Organic Chemistry  M.Sc.(F) | **Week 1**  Singlet molecular oxygen reactions. Photodegradation of polymers. Free radicals stability, generation and detection. Types of free radical reactions, free radicals substitution at an aromatic substrate, Hunsdiecker reaction. | PPT  NET/JRF & GATE related doubt session | Test of all covered topics |
| **Week 2**  Molecular orbital symmetry, Frontier orbitals of ethylene, 1,3-butadiene, 1,3,5-hexatriene and allyl system. Classification of pericyclic reactions. Woodward – Hoffmann correlation diagrams. FMO and PMO approach. |
| **Week 3**  Electrocyclic reactions – conrotatory and disrotatory motions, 4n, 4n+2 and allyl systems. Cycloadditions – antarafacial and suprafacial additions, 4n and 4n+2 systems |
| **Week 4**  Sigmatropic rearrangements – suprafacial and antarafacial shifts of H, sigmatropic shifts involving carbon moieties, 3,3-and 5,5-sigmatropic rearrangements. Claisen and Cope rearrangements |

**Name of College:** G.V.M. Girls College, Sonipat (Haryana) **Academic Session:** 2017-18 **Semester:** Even **For the month of:** April, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | DR. GOBIND GOYAT | Organic Chemistry M.Sc.(P) | **Week 1**  Applications of NMR spectroscopy in the detection of carbocations | PPT  NET/JRF & GATE related doubt session | Sessional covering entire syllabus |
| **Week 2**  Reactivity- effects of substrate structure. attacking nucleophile, leaving group and reaction medium |
| 2 | DR. GOBIND GOYAT | Organic Chemistry  M.Sc.(F) | **Week 1** .  General Reagents:  DCC I, 1,3-dithianes, Polyphosphoric acid, Diazomethane, Ethyldiazoacetate, Boron Trifluoride, | PPT  NET/JRF & GATE related doubt session | Sessional covering entire syllabus |
| **Week 2**  Trifluoro acetic acid, Cuprous chloride, N-Bromosuccinamide, Mont-K-10, and KSF (clays). Phase Transfer catalysts. |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even**For the month of:**January, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.PoojaWadhwa  (P.G. department of Chemistry) | Organic Chemistry Msc.PreviousYr | **Week 1**  Aliphatic Electrophilic Substitution ,Bimolecular Mechanism , SE 2, SE 1 and SEi | Discussion of examples of various types of mechanism  Power Point presentation on various energy profile diagrams for Aromatic Electrophilic Substitution | Test of Aliphatic Electrophilic Substitution  Assignment on Orientation and reactivity |
| **Week 2**  Electrophilic Substitution accompanied by double bond shifts , effects of substrate , leaving group and solvent polarity on reactivity. |
| **Week 3**  Aromatic Electrophilic Substitution , The Arenium ion mechanism, Orientation and Reactivity , Orientation in other ring systems |
| **Week 4**  Energy Profile Diagrams , Ortho/Para ratio , Ipso Attack |
| 2 |  | Organic Chemistry Msc Final Yr | **Week 1**  Terpenoids , Classification , nomenclature and occurrence of terpenoids , general methods of structural determination | Power point presentation on classification and occurrence of various terpenoids | Test on structure determination of terpenoids |
| **Week 2**  Isoprene rule , structure and determination , stereochemistry of citral and farnesol |
| **Week 3**  Zingibrene , Santonin , a-Cadinine |
| **Week 4**  Camphor |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:**Even**For the month of:**Feburary, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.PoojaWadhwa  (P.G. department of Chemistry) | Organic Chemistry Msc.PreviousYr | **Week 1**  Aromatic Electrophilic Substitution(continued), Quantitative treatment of reactivity in substrates and electrophiles, diazonium coupling | Discussion of examples of various types of mechanisms | Test on various name reactions |
| **Week 2**  Vilsmeir reaction , Gattermann Koch reaction, Aromatic nucleophilic substitution  Ar SN1 and Ar SN2 mechanisms |
| **Week 3**  Benzyne and SRN1 mechanism , Reactivity-Effect of substrate ,structure ,attaching nucleophile,leaving group |
| **Week 4**  Holi Break. |
| 2 |  | Organic Chemistry Msc Final Yr | **Week 1**  Terpenoids(contd) , Santonin, Abietic Acid | Group discussion on various terpenoids and doubt removal session | Assignment on biosynthesis of terpenoids |
| **Week 2**  Biogenetic Pathways and Biosynthesis of terpenoids. |
| **Week 3**  Steroids and Hormones , Occurrence and General methods.of isolation , Structure and synthesis of Adernaline |
| **Week 4**  Holi Break |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even**For the month of:** March, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.PoojaWadhwa  (P.G. department of Chemistry) | Organic Chemistry Msc Previous Yr | **Week 1**  Aromatic NucleophilicSubstitution(contd), The Von Richter rearrangement. SommeletHanser , Smiles Rearrangement | Powerpoint presentation on various concepts in NMR Spectroscopy. | Assignment on applications of UV spectroscopy. |
| **Week 2**  General Spectroscopy-Principles of UV spectroscopy |
| **Week 3**  Applications of UV Spectroscopy in structural elucidation of organic compunds. |
| **Week 4**  NMR Spectra-spin active nuclei , chemical shift , shielding and deshielding ,internal standards , equivalent and non-equivalent protons |
| 2 |  | Organic Chemistry Msc Final Yr | **Week 1**  Structure elucidation of Cholesterol | Power point presentation highlighting the structure and biological role of various hormones | Test on structure and synthesis of cholesterol |
| **Week 2**  Synthesis of cholesterol ,Bile acids. |
| **Week 3**  Oestrogens , Testosterone , Progesterone , Estrone, Synthetic and Non steroidal estrogens . |
| **Week 4**  Rearrangements- Pinacol-Pinacolone , Wagner-Meerwein , Demajanov rearrangements |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even**For the month of:**April, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.PoojaWadhwa  (P.G. department of Chemistry) | Organic Chemistry Msc.PreviousYr | **Week 1**  Spin Spin Coupling , Effects of changing solvents and hydrogen bonding on chemical shifts , Anisotropic effects | Class discussion of applications of NMR and numerical problems | Sessional covering entire syllabus |
| **Week 2**  Applications of NMR spectroscopy in structure elucidation of organic compounds. |
| 2 |  | Organic Chemistry Msc Final Yr | **Week 1**.  Benzil-Benzilic acid , Favorskii , Arndt-Eistert synthesis , NeberRarrangements | Class discussion on various examples of reactions | Sessional covering entire syllabus |
| **Week 2**  Beckmann ,Hofman, Curtius, Schmidt, Baeyer-Villiger and Shapiro reaction. |

**Name of Assistant Professor:** Ms. Namerta

**Class and Section B.Sc 2nd year 4th**  Semester and Section-A

**Subject: Physical Chemistry**

**Lesson Plan**: 18Weeks (from January 2018 to April 2018)

|  |
| --- |
| Week 1, **January 1 to January 7**  Chapter 1: Thermodynamics |
| Assignments |
| Week 1, Day 1, January 1 Introduction-Need for second law |
| Week 1, Day 2, January 2 Carnot cycle and its efficiency |
| Week 1, Day 3, January 3 Carnot theorem |
| Week 1, Day 4, January 4 ………….. |
| Week 1, Day 5, January 5 **Holiday** |
| Week 1, Day 6, January 6 ………….. |
| Week 2, **January 8 to January14**  Chapter : Thermodynamics |
| Assignments |
| Week 2, Day 1, January 8 Thermodynamic scale of temperature |
| Week 2, Day 2, January 9 Concept of entropy |
| Week 2, Day 3, January 10 Entropy change in reversible and irreversible process |
| Week 2, Day 4, January 11……………… |
| Week 2, Day 5, January 12 …………….. |
| Week 2, Day 6, January 13 ………………. |
| Week 3, **January 15 to January 21**  Chapter Thermodynamics |
| Assignments |
| Week 3, Day 1, January 15 Clausius inequality, Entropy change of universe |
| Week 3, Day 2, January 16 Entropy change for an ideal gas and during physical change |
| Week 3, Day 3, January 17 Entropy change on mixing of ideal gases |
| Week 3, Day 4, January 18 ………………. |
| Week 3, Day 5, January 19 ……………… |
| Week 3, Day 6, January 20 ……………… |
| Week 4, **January 22 to January 28**  Chapter Thermodynamics |
| Assignments |
| Week 4, Day 1, January 22 **Holiday** |
| Week 4, Day 2, January 23 Numerical problems, Physical significance of entropy |
| Week 4, Day 3, January 24 Feedback and class test |
| Week 4, Day 4, January 25 ………… |
| Week 4, Day 5, January 26 **Holiday** |
| Week 4, Day 6, January 27 ………… |
| Week 5, **January 29 to February4**  Chapter Thermodynamics-3 |
| Assignments |
| Week 5, Day 1, January 29 Introduction-work function and Gibbʹs free energy |
| Week 5, Day2, January 30 Variation of work function with T and V |
| Week 5, Day 3, January 31 **Holiday** |
| Week 5, Day 4, February 1 ………….. |
| Week 5, Day 5, February 2 ……………. |
| Week 5, Day 6, February 3 ………………. |
| **Week 6, February 5to February 11**  Chapter Thermodynamics-3 |
| Assignments |
| Week 6, Day 1, February 5 Variation of Gibbʹs free energy with T and P |
| Week 6, Day 2, February 6 Criteria for feasibility |
| Week 6, Day 3, February 7 Gibbʹs Helmholtz equation and its applications |
| Week 6, Day 4, February 8 …………. |
| Week 6, Day 5, February 9 ………….. |
| Week 6, Day 6, February 10 **Holiday** |
| Week 7, **February 12 to February 18**  Chapter Thermodynamics-3 |
| Assignments |
| Week 7, Day 1, February 12 Nernst heat theorem and Third law of thermodynamics |
| Week 7, Day 2, February 13 **Holiday** |
| Week 7, Day 3, February 14 Tests of third law of thermodynamics |
| Week 7, Day 4, February 15 ……………… |
| Week 7, Day 5, February 16 …………….. |
| Week 7, Day 6, February 17 ……………… |
| Week 8 **February 19 to February25**  Chapter Thermodynamics-3 |
| Assignments |
| Week 8, Day 1, February 19 Residual entropy |
| Week 8, Day 2, February 20 Feedback and class test |
| Week 8, Day 3, February 21 Electrochemistry- Introduction |
| Week 8, Day 4, February 22 ……………. |
| Week 8, Day 5, February 23 …………… |
| Week 8, Day 6, February 24 |
| Week 9, **February26 to March4**  Chapter Electrochemistry |
| Assignments |
| Week 9, Day 1, February 26 Electrode potential and its measurement, Standard cell |
| Week 9, Day 2, February 27 Reversible and irreversible cells |
| Week 9, Day 3, February 28 **Holiday** |
| Week 9, Day 4, March 1 **Holiday** |
| Week 9, Day 5, March 2 **Holiday** |
| Week 9, Day 6, March 3 **Holiday** |
| Week 10, **March 5 to March11**  Chapter Electrochemistry |
| Assignments |
| Week 10, Day 1, March 5 Reversible electrodes |
| Week 10, Day 2, March 6 Relation between electrical energy and chemical energy |
| Week 10, Day 3, March 7 Calculation of thermodynamic quantities of cell reactions |
| Week 10, Day 4, March 8 ……………. |
| Week 10, Day 5, March 9 …………….. |
| Week 10, Day 6, March 10 ……………. |
| Week 11, **March 12 to March 18**  Chapter Electrochemistry |
| Assignments |
| Week 11, Day 1, March 12 Standard hydrogen and other reference electrodes |
| Week 11, Day 2, March 13 Electrochemical series and its applications |
| Week 11, Day 3, March 14 Activity and activity coefficient of electrolytes |
| Week 11, Day 4, March 15 ………. |
| Week 11, Day 5, March 16 ………… |
| Week 11, Day 6, March 17 ……….. |
| Week 12, **March 19 to March25**  Chapter Electrochemistry |
| Assignments |
| Week 12, Day 1, March 19Thermodynamics of reversible cells |
| Week 12, Day 2, March 20 Nernst equation for electrode potential |
| Week 12, Day 3, March 21 Calculation of equilibrium constant |
| Week 12, Day 4, March 22 ……….. |
| Week 12, Day 5, March 23……….. |
| Week 12, Day 6, March 24………. |
| Week 13, **March26to April 1**  Chapter Electrochemistry |
| Assignments |
| Week 13, Day 1, March 26 Concentration cells and its types |
| Week 13, Day 2, March 27 EMF of concentration cells without transference  ce |
| Week 13, Day 3, March 28 EMF of concentration cells with transference |
| Week 13, Day 4, March 29 **Holiday** |
| Week 13, Day 5, March 30……… |
| Week 13, Day 6, March 31……… |
| Week 14, **April 2 to April 8**  Chapter Electrochemistry |
| Assignments |
| Week 14, Day 1, April 2 Liquid junction potential and determination of activities and activity coefficients from EMF measurements |
| Week 14, Day 2, April 3 Applications of EMF measurements-in calculation of free energy and equilibrium constant |
| Week 14, Day 3, April 4 Feedback and class test |
| Week 14, Day 4, April 5……….. |
| Week 14, Day 5, April 6………… |
| Week 14, Day 6, April 7……….. |
| Week 15, **April 9 to April15**  Chapter Electrochemistry |
| Assignments |
| Week15 , Day 1, April 9 EMF measurements in calculation of valency of ions |
| Week 15, Day 2, April 10 EMF measurements in calculation of solubility and solubility product |
| Week 15, Day 3, April 11 Numerical problems |
| Week 15, Day 4, April 12………… |
| Week 15, Day 5, April 13………….. |
| Week 15, Day 6, April 14 **Holiday** |
| Week 16, **April 16 to April22**  Chapter Electrochemistry |
| Assignments |
| Week 16, Day 1, April 16 Determination of pH using hydrogen electrode |
| Week 16, Day 2, April 17 Determination of pH using quinhydrone electrode |
| Week 16, Day 3, April 18 **Holiday** |
| Week 16, Day 4, April 19………… |
| Week 16, Day 5, April 20………….. |
| Week 16, Day 6, April 21……….. |
| Week17 **April 23 to April29**  Chapter Electrochemistry |
| Assignments |
| Week17 , Day 1, April 23 Determination of pH using glass electrode |
| Week 17, Day 2, April 24 Potentiometric titrations |
| Week 17, Day 3, April 25 Feedback and class test |
| Week 17, Day 4, April 26………. |
| Week 17, Day 5, April 27………… |
| Week 17, Day 6, April 28………… |
| Week 18 **April 30 to May 6**  Chapter Electrochemistry |
| Assignments |
| Week18 , Day 1, April 30 **Holiday** |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r:even **For the month of** january 2018.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms.Kiran | B.Sc. I medical,N.M.  B.Sc. 1 BIO-Tech.  ORGANIC CHEMISTRY | **Week 1 Alkenes-**Nomenclature of alkenes, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides.  **Week 2** The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes.  **Week 3** Chemical reactions of alkenes mechanisms involved in hydrogenation, electrophilic and free radical additions,  **Week 4** Markownikoff’s rule, hydroboration–oxidation, oxymercurationreduction, ozonolysis, hydration, hydroxylation and oxidation with KMnO4 | Class Discussion | Board test , Assignment |
|  |  | B.Sc. II Bio-Tech.  INORGANIC CHEMISTRY | **Week 1 Chemis try of f – block elements**  **Lanthanides**  Electronic structure, oxidation states  **Week 2** ionic radii and lanthanide  contraction, complex formation, **Week 3** occurrence and isolation,  lanthanide compounds. | Seminar | Assignment and test of unit 1 |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r: even **For the month of** feburary, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms. Kiran | B.Sc. I YEAR | **Week 1 Arenes and Aromaticity-**Nomenclature of benzene derivatives: Aromatic nucleus and side chain. Aromaticity: the Huckel rule,  **Week 2** aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non – aromatic compounds.  **Week 3** Aromatic electrophilic substitution general pattern of the mechanism, mechansim of nitration, halogenation, sulphonation,  **Week 4** Friedel-Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation. | Class discussION | Assignment ,Test |
|  |  | B.Sc. 2 year | **Week 1 Chemis try of f – block elements**  **Actinides**  General features and chemistry of actinides,  **Week 2** chemistry of  separation of Np, Pu and Am from U,  **Week 3** Comparison of properties of Lanthanides and Actinides and with  trans ition elements . | Presentation | Assignment,Test |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r:even **For the month of** march 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1 | Ms. Kiran | B.Sc. I YEAR  Med., N.M.  BIO-Tech.  ORGANIC  CHEMISTRY | **Week 1 Dienes and Alkynes-**Nomenclature and classification of dienes: isolated, conjugated and cumulateddienes.  **Week 2** Structure of butadiene. Chemical reactions 1,2 and 1,4 additions (Electrophilic & free radical mechanism),Diels-Alder reaction,  **Week 3** Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilicaddition reactions, hydroboration-oxidation of alkynes. | Class discussion | Test of complete unit 3. |
|  |  | B.Sc. II YEAR  Bio-Tech.  INORGANIC CHEMISTRY | **Week 1 Theory of Quali tative and Quanti tative Inorganic Analysis-I**  Chemistry of analysis of various acidic radicals,  **Week 2** Chemistry of  identification of acid radicals in typical combinations,  **Week 3** Chemistry  of interference of acid radicals including their removal in the  analys is of basic radicals. | Seminar | Assignment and test of unit 3 |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r: even **For the month of** april 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms. Kiran | B.Sc. I YEAR  Med. ,N.M.,  Boi-Tech.  ORGANIC  CHEMISTRY | **Week 1 Alkyl and Aryl Halides-**Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms and stereochemistry ofnucleophilic substitution reactions of alkyl halides, SN2 and SN1reactions with energy profile diagrams.  **Week 2** Methods of formation and reactions of aryl halides. The addition elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.  Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides. | Class discussion | Assignment, Test |
|  |  | B.Sc. II YEAR-  BIO-Tech.  INORGANIC CHEMISTRY | **Week 1 Theory of Quali tative and Quanti tative Inorganic Analysis-II**  Chemistry of analysis of various groups of basic radicals,  **Week 2** Theory  of precipitation, co-precipitation, Post- precipitation, purification  of precipitates. |  | Assignment and test of unit 4 |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:**January, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.Sangeeta | Organic Chemistry BSc. Ist N.M. (A) | **Week 1 Alkenes-**Nomenclature of alkenes, mechanisms of dehydration of alcohols and dehydrohalogenation of alkyl halides.  **Week 2** The Saytzeff rule, Hofmann elimination, physical properties and relative stabilities of alkenes.  **Week 3** Chemical reactions of alkenes mechanisms involved in hydrogenation, electrophilic and free radical additions,  **Week 4** Markownikoff’s rule, hydroboration–oxidation, oxymercurationreduction, ozonolysis, hydration, hydroxylation and oxidation with KMnO4. | Board test | Assignment and test. |
|  |  | Organic Chemistry Bsc. IInd N.M. (A) | **Week 1 Infrared (IR) absorption spectroscopy-**  Molecular vibrations, Hooke's law, selection rules, intensity and position of IR bands,  **Week 2** measurement of IR spectrum, fingerprint region, characteristic absorptions of various functional groups and  **Week 3** interpretation of IR spectra of simple organic compounds.  **Week 4** Applications of IR spectroscopy in structure elucidation of simple organic compounds. | Class discussion and Power point presentation on I.R | Assignment and test. |
|  |  | Inorganic Chemistry BSc. IIIrd N.M. (A) | **Week 1 OrganometallicChemistry-**Definition, nomenclature and classification of organometallic compounds.  **Week 2** Preparation, properties, and bonding of alkyls of Li,  Al, Hg, and Sn  **Week 3** a brief account of metal ethylenic complexes, mononuclear carbonyls **Week 4** the nature of bonding in metal carbonyls. | Seminar  Board test | Assignment |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:**Feburary, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Sangeeta | Organic Chemistry BSc. Ist N.M. (A) | **Week 1 Arenes and Aromaticity-**Nomenclature of benzene derivatives: Aromatic nucleus and side chain. Aromaticity: the Huckel rule,  **Week 2** aromatic ions, annulenes up to 10 carbon atoms, aromatic, anti - aromatic and non – aromatic compounds.  **Week 3** Aromatic electrophilic substitution general pattern of the mechanism, mechansim of nitration, halogenation, sulphonation,  **Week 4** Friedel-Crafts reaction. Energy profile diagrams. Activating, deactivating substituents and orientation. | Seminar | Assignment and test of aromaticity |
|  |  | Organic Chemistry Bsc. IInd N.M. (A) | **Week 1 Aldehydes and Ketones**  Nomenclature and structure of the carbonyl group. Synthesis of aldehydes  and ketones with particular reference to the synthesis of aldehydes from acid  chlorides  **Week 2**  advantage of oxidation of alcohols with chromium trioxide (Sarett  reagent)  pyridinium chlorochromate (PCC) and pyridinium dichromate.,  Physical properties. Comparison of reactivities of aldehydes and ketones.  **Week 3** Mechanism of nucleophilic additions to carbonyl group with particular  emphasis on benzoin, aldol, Perkin and Knoevenagel condensations.  Condensation with ammonia and its derivatives.  **Week 4** Wittig reaction,Mannich  reaction.Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones,  Cannizzaro reaction. MPV, Clemmensen, Wolff-Kishner, LiAlH4 and  NaBH4 reductions. | Board test | Assignment and test |
|  |  | Inorganic Chemistry BSc. IIIrd N.M. (A) | **Week 1 Acids and Bases, HSAB Concept-**Arrhenius, Bronsted – Lowry, the Lux – Flood,  \**Week 2** Solvent system and Lewis concepts of acids & bases, relative strength of acids & bases, **Week 3** Concept of Hard and Soft Acids &  Bases. Symbiosis, electronegativity and hardness and softness | Seminar | Test of HSAB |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:** March, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Sangeeta | Organic Chemistry BSc. Ist N.M. (A) | **Week 1 Dienes and Alkynes-**Nomenclature and classification of dienes: isolated, conjugated and cumulateddienes.  **Week 2** Structure of butadiene. Chemical reactions 1,2 and 1,4 additions (Electrophilic & free radical mechanism),Diels-Alder reaction,  **Week 3** Nomenclature, structure and bonding in alkynes. Methods of formation. Chemical reactions of alkynes, acidity of alkynes. Mechanism of electrophilic and nucleophilicaddition reactions, hydroboration-oxidation of alkynes. | Board test | Test of mechanisms |
|  |  | Organic Chemistry Bsc. IInd N.M. (A) | **Week 1 Diazonium Salts-**Mechanism of diazotisation, structure of benzene diazoniumchloride, Replacement of diazo group by H, OH, F, Cl, Br, I, NO2and CN groups,  **Week 2** reduction of diazonium salts to hyrazines, coupling reaction and its synthetic application.  **Nitro Compounds-**Preparation of nitro alkanes and nitro arenes and their chemical reactions.  **Week 3** Mechanism of electrophilic substitution reactions in nitro arenes and their reductions in acidic, neutral and alkaline medium. | Class discussion and board test | Test of diazo and nitro compounds |
|  |  | Inorganic Chemistry BSc. IIIrd N.M. (A) | **Week 1 Bioinorganic Chemistry-**Essential and trace elements in biological processes,  **Week 2** metalloporphyrins with special reference to haemoglobin and myoglobin.  **Week 3** Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation. | Seminar | Test |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:**April, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Sangeeta | Organic Chemistry BSc. Ist N.M. (A) | **Week 1 Alkyl and Aryl Halides-**Nomenclature and classes of alkyl halides, methods of formation, chemical reactions. Mechanisms and stereochemistry ofnucleophilic substitution reactions of alkyl halides, SN2 and SN1reactions with energy profile diagrams.  **Week 2** Methods of formation and reactions of aryl halides. The addition elimination and the elimination-addition mechanisms of nucleophilic aromatic substitution reactions.  Relative reactivities of alkyl halides vs allyl, vinyl and aryl halides. | Seminar | Test of aryl halide and assignment on alkyl halide |
|  |  | Organic Chemistry Bsc. IInd N.M. (A) | **Week 1 Amines-**Structure and nomenclature of amines, physical properties. Separation of a mixture of primary, secondary and tertiary amines.  Structural features affecting basicity of amines.  **Week 2** Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles, reductive amination of aldehydicand ketonic compounds. Gabriel-phthalimidereaction, Hofmann bromamide reaction. Electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid. | presentation regarding mechanism | Test of aldehyde and ketone. |
|  |  | Inorganic Chemistry BSc. IIIrd N.M. (A) | **Week 1 Silicones and Phosphazenes-**Silicones and phosphazenes,  **Week 2** their preparation, properties,structure and uses. | Class discussion | Test |

**Name of College:**  GVM Girls College, Sonipat **Academic Session:** 2017-18 **Semester:** Even **For 1st week of January, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-I** |  |  |
|  |  | BSc III, N.M. A Section | Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan,  thiophene and pyridine. |  | Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan,  thiophene and pyridine. |

**For 2nd week of January, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-I** |  |  |
|  |  | BSc III, N.M. A Section | Methods of synthesis and chemical reactions with particular  emphasis on the mechanism of electrophilic substitution. |  | Methods of synthesis and chemical reactions with particular  emphasis on the mechanism of electrophilic substitution. |

**For3rd week of January, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-I** |  |  |
|  |  | BSc III, N.M. A Section | Mechanism of nucleophilic  substitution reactions in pyridine derivatives. |  | Mechanism of nucleophilic  substitution reactions in pyridine derivatives. |

**For4th week of January, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-I** |  |  |
|  |  | BSc III, N.M. A Section | Comparison of basicity of pyridine,  piperidine and pyrrole. |  | Comparison of basicity of pyridine,  piperidine and pyrrole. |

**For 1st week of February, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-II** |  |  |
|  |  | BSc III, N.M. A Section | Introduction to condensed five and six- membered heterocycles. |  | Introduction to condensed five and six- membered heterocycles. |

**For 2nd week of February, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-II** |  |  |
|  |  | BSc III, N.M. A Section | Prepration and  reactions of indole, quinoline and isoquinoline with special reference to Fisher  indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis. |  | Prepration and  reactions of indole, quinoline and isoquinoline with special reference to Fisher  indole synthesis, Skraup synthesis and Bischler-Napieralski synthesis. |

**For 3rd week of February, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Heterocyclic Compounds-II** |  |  |
|  |  | BSc III, N.M. A Section | Mechanism  of electrophilic substitution reactions of, quinoline and isoquinoline. |  | Mechanism  of electrophilic substitution reactions of, quinoline and isoquinoline. |
|  |  |  | **Organosulphur Compounds** |  |  |
|  |  |  | Nomenclature, structural features, Methods of formation and chemical  reactions of thiols, thioethers, sulphonic acids, sulphonamides and  sulphaguanidine. |  |  |

**For 4th week of February, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Organosulphur Compounds** |  |  |
|  |  | BSc III, N.M. A Section | Synthetic detergents alkyl and aryl sulphonates. |  | Synthetic detergents alkyl and aryl sulphonates. |

**For 1st week of March, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Organic Synthesis *via* Enolates** |  |  |
|  |  | BSc III, N.M. A Section | Acidity of -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. |  | Acidity of -hydrogens, alkylation of diethyl malonate and ethyl acetoacetate. |

**For 2nd week of March, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Organic Synthesis *via* Enolates** |  |  |
|  |  | BSc III, N.M. A Section | Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of  ethyl acetoacetate. |  | Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of  ethyl acetoacetate. |

**For 3rd week of March, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Synthetic Polymers** |  |  |
|  |  | BSc III, N.M. A Section | Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic  vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers.  Condensation or step growth polymerization. |  | Addition or chain-growth polymerization. Free radical vinyl polymerization, ionic  vinyl polymerization, Ziegler-Natta polymerization and vinyl polymers.  Condensation or step growth polymerization. |

**For 4th week of March, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Synthetic Polymers** |  |  |
|  |  | BSc III, N.M. A Section | Polyesters, polyamides, phenol  formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes.  Natural and synthetic rubbers. |  | Polyesters, polyamides, phenol  formaldehyde resins, urea formaldehyde resins, epoxy resins and polyurethanes.  Natural and synthetic rubbers. |

**For 1st week of April, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Amino Acids, Peptides& Proteins** |  |  |
|  |  | BSc III, N.M. A Section | Classification, of amino acids. Acid-base behavior, isoelectric point and  electrophoresis. Preparation of -amino acids. Structure and nomenclature of  peptides and proteins. Classification of proteins. |  | Classification, of amino acids. Acid-base behavior, isoelectric point and  electrophoresis. Preparation of -amino acids. Structure and nomenclature of  peptides and proteins. Classification of proteins. |

**For 2nd week of April, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ chapters to be covered** | **Academic activity to be organized** | **Topics of Assignments/ Tests to be given to the students** |
| **1.** | Deepika | BSc III, Medical Organic Chemistry | **Amino Acids, Peptides& Proteins** |  |  |
|  |  | BSc III, N.M. A Section | Peptide structure determination, end  group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid–  phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary  structure. |  | Peptide structure determination, end  group analysis, selective hydrolysis of peptides. Classical peptide synthesis, solid–  phase peptide synthesis. Structures of peptides and proteins: Primary & Secondary  structure. |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r:Even **For the month of** January 2018.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms.Bhawna |  | **UNIT 1: Chemical Kinetics-1week-1** Introduction, rate of reaction, average and instantaneous rate, measurement of rate of reaction, **week-2** factors affecting rate of reaction, law of mass action, rate law expression, order of a reaction, **week-3** molecularity of a reaction, molecularity versus order of reaction  **week-4**  pseudo order reaction, reaction of zero order and first order | Class Discussions on order and molecularity of a reaction | Board test of zero order and first order reactions |
|  |  | B.Sc. III YEAR-B INORGANIC CHEMISTRY | **OrganometallicChemistry-week-1** Definition, nomenclature and classification of organometallic compounds.  **Week-2** Preparation, properties, and bonding of alkyls of Li,  Al, Hg, and Sn  **week-3** a brief account of metal ethylenic complexes,  **week-4** mononuclear carbonyls and the nature of bonding in metal carbonyls. | Seminar | Assignment and test of unit 1 |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r: Even **For the month of**  Feburary, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms. Bhawna | B.Sc. I YEAR  PHYSICAL  CHEMISTRY | **UNIT1: Chemical kinectics-1**  **Week-1** Reactions of second and third order, reactions of higher order, methods of determination of order of reaction  **UNIT2: Chemical kinetics-2**  **Week-2**  Temperature dependence of reaction rates and Arrhenius equation, theories of reaction rates, modification of collision theory,  **Week-3**  collision theory for unimolecular reactions, transition state theory, comparison of transition state theory and Arrhenius equation, comparison of transition state theory and collision theory, effect of pressure on reaction rate.  **Unit-3 Electrochemistry-1**  **Week-4** Electrolytic and metallic conduction, electrical resistance and conduction, specific, equivalent and molar conduction, measurements of electrolytic, specific and equivalent conductions, | Class discussion on modifications of collision theory | Assignment of Arrhenius theory, transition state theory, collision theory and their comparisons. |
|  |  | B.Sc. III YEAR-B INORGANIC CHEMISTRY | **Week-1**  **Acids and Bases, HSAB Concept-**Arrhenius, Bronsted – Lowry, the Lux – Flood, Solvent system and Lewis concepts of acids & bases,  **Week-2** relative strength of acids & bases, Concept of Hard and Soft Acids &  Bases.  **Week-3** Symbiosis, electronegativity and hardness and softness  **Week-4 Bioinorganic Chemistry-**Essential and trace elements in biological processes | Presentation | Assignment and test of unit 2 |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r: Even **For the month of** March 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1 | Ms. Bhawna | B.Sc. I YEAR  PHYSICAL  CHEMISTRY | **UNIT3: Electrochemistry-1**  **Week-1** variation of conductance with dilution, Arrehenius theory of ionisation, factors on which degree of dissociation depends, evidences and lomitations of Arrehenius theory  **Week-2** ostwald’s Dilition law, debye huckel theory, Debye huckel equation for strong electrolyte, migration of ions and Transport number,  **Week-3** Hittorf’s theoretical device, transport number and methods to determine transport number  **Unit-4 Electrochemistry-2**  Kohlrausch’s law, application of kohlrausch law in calculation of conductance of weak electrolytes at infinite dilution | Class discussion on ostwald’s dilition law and Debye huckel theory | Test of complete unit 3. |
|  |  | B.Sc. III YEAR-B INORGANIC CHEMISTRY | **Week-1**  **Bioinorganic Chemistry-**Essential and trace elements in biological processes,  **Week-2** metalloporphyrins with special reference to haemoglobin and myoglobin.  **Week-3**  Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation | Seminar | Assignment and test of unit 3 |

**Name of College**: G.V.M. Girls College **Academic Session**: 2017-18 **Semeste**r: Even **For the month of** April 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S.No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignments/ test to be given to students** |
| 1. | Ms. Bhawna | B.Sc. I YEAR  PHYSICAL  CHEMISTRY | **UNIT4: Electrochemistry-2**  **Week-1**  application of conductivity measurements: degree of dissociation, detemination of ka of acids, determination of solubility products of sparingly soluble salts  **Week-2** conductometric titration, defination of ph and pka, buffer solution, buffer action, henderson hazelbalch equation, mechanism of buffer action. | Practical practice of conductometric titration. | Assignment of kohlrausch’s law ph, buffer solutions and its mechanism.  Test of unit 4. |
|  |  | B.Sc. III YEAR-B INORGANIC CHEMISTRY | **Week-1 Silicones and Phosphazenes-**Silicones and phosphazenes, their preparation, properties  **Week-2** structure and uses. |  | Assignment and test of unit 4 |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even **For the month of:** January, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 1 | Ms.Manju Gautam | Inorganic Chemistry BSc. Ist N.M. (A) | **Week 1**.**Hydrogen Bonding & Vander Waals Forces**  Hydrogen Bonding –Definition, Types, effects of hydrogen bonding on properties of substances, applicat ion Brief discussion of various types of Vander Waals Forces .  **Week 2Metallic Bond and Semiconductors** Metallic Bond- Brie f introduction to meta llic bond, band theory of meta llic bond Semiconductors- Introduction, types and applications  **Week 3s-Block Eleme nts**  Comparative study of the elements including , diagonal relationships, salient features of hydrides (methods of preparation excluded), solvation and complexation tendencies including their function in biosystems.  **Week 4Chemistry of Noble Gases Chemical** properties of the noble gases with emphasis on their low chemical reactivity, chemistry of xenon, structure and bonding of fluorides, ox ides & oxyfluorides of xenon. | Board test | Assignment and test. |
|  |  | Organic Chemistry Bsc. III home science | **Week 1** Lipids –Definition, classification of lipids,  **Week 2**properties of fatty acids,(Acid value, Iodine value and saponification value) (in brief)  **Week 3**Lipids –Beta oxidation and biosynthesis of fatty acids (To be done with structures and reactions) (ketone body formation, ketosis, fatty livers ) (Just notes)  **Week 4**biosynthesis of fatty acids (To be done with structures and reactions) (ketone body formation, ketosis, fatty livers ) (Just notes) | Class discussion | Assignment and test. |
|  |  | Inorganic Chemistry BSc. IIIrd Medical | **Week 1OrganometallicChemistry-**Definition, nomenclature and classification of organometallic compounds.  **Week 2**Preparation, properties, and bonding of alkyls of Li,  Al, Hg, and Sn  **Week 3**a brief account of metal ethylenic complexes, mononuclear carbonyls  **Week 4**the nature of bonding in metal carbonyls. | Seminar  Board test | Assignment |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:**Even**For the month of:**Feburary, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Manju Gautam | Organic Chemistry BSc. Ist N.M. (A) | **Week 1**p-Block Elements  Emphasis on comparative study of properties of p-block elements (including diagonal relationship and excluding methods of preparation).  **Week 2**Boron family (13th gp):- Diborane –properties and structure (as an example of electron –deficient compound and multicentre bonding), Borazene –chemical properties and structure Trihalides of Boron –Trends in lewis acid character structure of aluminium (III) chloride  **Week 3**Carbon Family (14th group) Catenation, p π–d πbonding (an idea), carbides, fluorocarbons, silicates structural aspects), silicons –general methods of preparations, properties and uses.  **Week 4**Nitrogen Family (15th group) Oxides –structures of oxides of N,P. oxyacids –structure and relative acid strengths of oxyacids of Nitrogen and phosphorus. | Seminar | Assignment and test of s block |
|  |  | Organic Chemistry Bsc. III Homescience | **Week 1**E.T.C. Oxidative phosphorylation theories.  **Week 2**E.T.C. Oxidative phosphorylation theories.  **Week 3**Elementary knowledge of biosynthesis of proteins.  **Week 4**Elementary knowledge of biosynthesis of proteins. | Board test | Assignment and test |
|  |  | Inorganic Chemistry BSc. IIIrd Medical | **Week 1Acids and Bases, HSAB Concept-**Arrhenius, Bronsted – Lowry, the Lux – Flood,  **Week 2**Solvent system and Lewis concepts of acids & bases, relative strength of acids & bases, **Week 3**Concept of Hard and Soft Acids &  Bases. Symbiosis, electronegativity and hardness and softness | Seminar | Test of HSAB |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:** March, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Manju Gautam | Organic Chemistry BSc. Ist N.M. (A) | **Week 1**. Oxygen Family (16th group) Oxyacids of sulphur –structures and acidic strength  **Week 2**H2O2 –structure, properties and uses  **Week 3**Halogen Family (17th group) Basic properties of ha logen, interhalogens types properties | Board test | Test of nitrogen family |
|  |  | Organic Chemistry Bsc.IIIHomescience | **Week 1**Nucleic acids, types , composition,  **Week 2** replication  **Week 3** . transcription, genetic –code. | Class discussion and board test | Test of protein synthesis |
|  |  | Inorganic Chemistry BSc. IIIrd Medical | **Week 1Bioinorganic Chemistry-**Essential and trace elements in biological processes,  **Week 2**metalloporphyrins with special reference to haemoglobin and myoglobin.  **Week 3** Biological role of alkali and alkaline earth metal ions with special reference to Ca2+. Nitrogen fixation. | Seminar | Test |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even**For the month of:**April, 2017

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Name of Assistant/ Associate Professor** | **Subject** | **Topics/ Chapters to be covered** | **Academic activity to be organized** | **Topic of Assignment/ Tests to be given to the students** |
| 2 | Ms.Manju Gautam | Organic Chemistry BSc. Ist N.M. (A) | **Week 1**hydro and oxyacids of chlorine –structure  **Week 2**and comparison of acid strength | Seminar | Test of carbon family |
|  |  | Organic Chemistry Bsc. III Homescience | **Week 1**Structure of DNA & RNA. | presentation | Test of Nucleic acid |
|  |  | Inorganic Chemistry BSc. IIIrd Medical | **Week 1Silicones and Phosphazenes-**Silicones and phosphazenes,  **Week 2**their preparation, properties,structure and uses. | Class discussion | Test |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18  **Semester:** Even

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S. No. | **Name of Assistant / Associate Professor** | Subject | Topics/Chapters to be discovered | Academic activity to be organized | Topic of assignments/Tests to be given to students |
| 1. | Ms. POOJA JAIN | Inorganic chemistry  (B.Sc. Biotech 1st year)  B.Sc 1st Year Non Med.  CH-101 | **JANUARY:-**  **Week 1**  **Hydrogen Bonding & Vander Waals Forces**  Hydrogen Bonding – Definition, Types, effects of hydrogen  bonding on properties of substances,  **Week2**  application  Brief discussion of various types of Vander Waals Forces  **Week 3**  **Metallic Bond and Semiconductors**  Metallic Bond- Brie f introduction to meta llic bond, band theory of  meta llic bond  **Week4**  Semiconductors- Introduction, types and applications. |  | JANUARY :-  Assignment on **Hydrogen Bonding & Vander Waals Forces in week 3**  (Question Answer discussion) |
|  |  |  | **FEBRUARY:-**  **Week1**  . **s-Block Eleme nts**  Comparative study of the elements including , diagonal  relationships, salient features of hydrides (methods of preparation  excluded),  **Week2**  solvation and complexation tendencies including their  function in biosystems.  **Week 3**  **Chemis try of Noble Gases** Chemical properties of the noble  gases with emphasis on their low chemical reactivity, chemistry of  xenon,  **Week4**  structure and bonding of fluorides, ox ides & oxyfluorides  of xenon |  | FEBRUARY:-  Assignment on **s-Block Eleme nts in week2 and test in week3** |
|  |  |  | **MARCH:-**  **Week1**  **p-Block Elements**  Emphasis on comparative study of properties of p-block elements  (including diagonal relationship and excluding methods of  Preparation).  **Week2**  **Boron family (13th gp**):-  Diborane – properties and structure (as an example of electron –  deficient compound and multicentre bonding), Borazene – chemical  properties and structure Trihalides of Boron –  **Week3**  Trends in fewis acid  character structure of aluminium (III) chloride.  **Carbon Family (14th group)**  Catenation, p􀀃􀋑– d􀀃􀋑 bonding (an idea), carbides, fluorocarbons,  silicates (structural aspects),  silicons – general methods of  preparations, properties and uses.  **Week4**  **Nitrogen Family (15th group)**  Oxides – structures of oxides of N,P. oxyacids – structure and  relative acid strengths of oxyacids of Nitrogen and phosphorus.  Structure of white, yellow and red phosphorus. |  | MARCH:-  Assignment on **p-Block Elements week 3** |
|  |  |  | **APRIL:-**  **Week1**  **Oxygen Family (16th group)**  Oxyacids of sulphur – structures and acidic strength H2O2 –  structure, properties and uses.  **Week2**  **Halogen Fami l y (17th group)**  Basic prope r ties of ha logen, interha logens types propert ies ,  hydro and oxyacids of chlorine – structure and compari son of  acid s trength . |  | April:-  Test on **Nitrogen Family (15th group) in week1** |
| 2. | Ms. POOJA JAIN | Physical Chemistry  (B.Sc. 3rd N.M)  CH-302 | **JANUARY**  **Week1**  **Dilute Solutions and Colligative Properties**  Ideal and non-ideal solutions, methods of expressing concentrations of solutions,  activity and activity coefficient.  **Week2**  Dilute solution,Colligative properties, Raolut’s  law, relative lowering of vapour pressure, molelcular weight determination,  **Week3**  Osmosis law of osmotic pressure and its measurement,  **Week4**  determination of molecular  weight from osmotic pressure. |  |  |
|  |  |  | **FEBRUARY :-**  **Week1**  **SOLUTION**  Elevation of boiling point and depression of  freezing point, Thermodynamic derivation of relation between molecular weight  and  **Week2**  elevation in boiling point and depression in freezing point. Experimental  methods for determining various colligative properties.  **Week3**  Abnormal molar mass,  degree of dissociation and association of solutes.  **Week4**  **Phase Equillibrium**  Statement and meaning of the terms – phase component and degree of freedom,  thermodynamic derivation of Gibbs phase rule, |  | February:-  Assignment and test on **SOLUTION in week 2 and week 3** |
|  |  |  | **MARCH:-**  **Week1**  **PHASE EQUILIBRIUM**  phase equilibria of one component  system –Example – water and  **Week2**  Sulpher systems.  Phase equilibria of two component systems solid-liquid equilibria, simple eutectic  Example Pb-Ag system, desilerisation of lead  **Week3**  **Spectroscopy-III**  **Electronic Spectrum**  Concept of potential energy curves for bonding and antibonding molecular  orbitals, qualitative description of selection rules and  **Week 4**  Franck- Condon principle.  Qualitative description of sigma and pie and n molecular orbital (MO) their energy  level and respective transitions. |  | March :-  Test on **PHASE EQUILIBRIUM in week 3 and week 4** |
|  |  |  | **APRIL :-**  **Week1**  **Photochemistry**  Interaction of radiation with matter, difference between thermal and  photochemical processes. Laws of photochemistry: Grotthus-Drapper law, Stark-  Einstein law (law of photochemical equivalence) Jablonski diagram depiciting  various processes occurring in the excited state,  **Week2**  qualitative description of  fluorescence, phosphorescence, non-radiative processes (internal conversion,  intersystem crossing), quantum yield, photosensitized reactions-energy transfer  processes (simple examples). |  | April :-  Assignment on SPECTROSCOPY week 1 |

**Name of Assistant/Associate Professor:** Ms.Nidhi

**Class & Section:-**B.SC-2ND SEM SECTION :A **Subject:-**physical chemistry

**Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)**

|  |
| --- |
| **Week 1**  **Chapter\_\_\_:kinetics -1 Prerequisites** |
| **Week 1**  Kinetics-I  Rate of reaction, rate equation, factors influencing the rate of a reaction – concentration, temperature, pressure, solvent, light,catalyst. |
| **Week 2**  **Chapter: kinetics -1**  Order of a reaction, integrated rate expression for zeroorder, first order, second and third order reaction |
| **Week 3**  **Chapter:kinetics-1**  **Assignment no.1**  Half life period of a reaction. |
| **Week 4**  **Chapter: kinetics -1**  **Test on kinetics-1**  Methods of determination of order of reaction |
| **Week 5**  **Chapter: kinetics -2**  Assignment no.-2  Effect of temperature on the rate of reaction – Arrhenius equation. |
| **Week6**  **Chapter: kinetics -2**  Theories of reaction rate – Simple collision theory forunimolecular collision |
| **Week 7**  **Chapter: kinetics -2**  **Assignment no.:3**  Theories of reaction rate – Simple collision theory for bimolecular collision |
| **Week 8**  **Chapter: kinetics -2**  Transition state theory of Bimolecular reactions. |
| **Week 9**  Test on kinetics-2  Practice of numericals |
| **Week 10**  Chapter:electrochemistry -1  Electrolytic conduction, factors affecting electrolytic conduction,specific, conductance |
| **Week 11**  Chapter:electrochemistry -1  molar conductance,equivalent conductance and relation among them |
| **Week 12**  Chapter:electrochemistry -1  **Class discussion**  their vartion with concentration.Arrhenius theory of ionization, Ostwald’s Dilution Law. |
| **Week 13**  Chapter:electrochemistry -1  Debye-Huckel – Onsager’s equation for strong electrolytes (elementary treatment only) |
| **Week 14**  Chapter:electrochemistry -1  **Test on electrochemistry**  Transport number, definition and determination by Hittorfs methods, (numerical included) |
| **Week 15**  Chapter:electrochemistry -2  Kohlarausch’s Law, calculation of molar ionic conductance andeffect of viscosity temperature & pressure on it |
| **Assignment no.:4** |
| **Week 16**  Chapter:electrochemistry -2  Application ofKohlarausch’s Law in calculation of conductance of weak electrolytes at infinite diloution. |
| **Week 17**  Chapter:electrochemistry -2  Applications of conductivitymeasurements: determination of degree of dissociation,determination of Ka of acids determination of solubility product ofsparingly soluble salts, conductometric titrations. |
| **Week 18**  Chapter:electrochemistry -2  **Test on electrochemistry**  Definition of Ph and pKa, Buffer solution, Buffer action, Henderson – Hazelequation, Buffer mechanism of buffer action. |

**Name of Assistant/Associate Professor:** Ms. Nidhi

**Class & Section:-**B.SC-biotech 4th SEM **Subject:** organic chemistry

**Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)**

|  |
| --- |
| **Week 1**  **Chapter\_\_\_:infrared absorption spectroscopy** |
| **Week 1**  Molecular vibrations, Hooke's law, selection rules, intensity andposition of IR bands, measurement of IR spectrum, fingerprint region |
| **Week 2**  **Chapter: infrared absorption spectroscopy**  **Test on IR Spectroscopy**  characteristic absorptions of various functional groups andinterpretation of IR spectra of simple organic compounds.Applications of IR spectroscopy in structure elucidation of simpleorganic compounds. |
| **Week 3**  **Chapter:AMINES**  **Assignment no.1**  Structure and nomenclature of amines, physical properties.Separation of a mixture of primary, secondary and tertiary amines |
| **Week 4**  **Chapter: AMINES**  Structural features affecting basicity of amines. Preparation of alkyl and aryl amines (reduction of nitro compounds, nitriles,reductive amination of aldehydic and ketonic compounds |
| **Week 5**  **Chapter: AMINES**  **TEST ON AMINES**  Gabriel-phthalimide reaction, Hofmann bromamide reaction.electrophilic aromatic substitution in aryl amines, reactions of amines with nitrous acid. |
| **Week6**  **Chapter: DIAZONIUM SALTS**  Mechanism of diazotisation, structure of benzene diazoniumchloride |
| **Week 7**  **Chapter: DIAZONIUM SALTS**  **Assignment no.:2**  Replacement of diazo group by H, OH, F, Cl, Br, I, NO2 and CN groups, reduction of diazonium salts to hyrazines, coupling reaction and its synthetic application. |
| **Week 8**  **Chapter: NITRO COMPOUNDS**  Preparation of nitro alkanes and nitro arenes and their chemical reactions. |
| **Week 9**  **CHAPTER: NITRO COMPOUNDS**  **CLASS DISCUSSION**  Mechanism of electrophilic substitution reactions innitro arenes and their reductions in acidic, neutral and alkaline medium. |
| **Week 10**  Chapter: Aldehydes and Ketones  Nomenclature and structure of the carbonyl group. |
| **Week 11**  Chapter: Aldehydes and Ketones  Synthesis of aldehydes and ketones with particular reference to the synthesis of aldehydes from acid chlorides |
| **Week 12**  Chapter: Aldehydes and Ketones  **Class discussion**  advantage of oxidation of alcohols with chromium trioxide (Sarett reagent) pyridinium chlorochromate (PCC) and pyridinium dichromate. |
| **Week 13**  Chapter: Aldehydes and Ketones  Physical properties. Comparison of reactivities of aldehydes and ketones. |
| **Week 14**  Chapter: Aldehydes and Ketones  **Test on** Aldehydes and Ketones  Mechanism of nucleophilic additions to carbonyl group with particular emphasis on benzoin |
| **Week 15**  Chapter: Aldehydes and Ketones  aldol, Perkin and Knoevenagel condensations. |
| **Assignment no.:4** |
| **Week 16**  Chapter: Aldehydes and Ketones  Condensation with ammonia and its derivatives. Wittig reaction. |
| **Week 17**  Chapter: Aldehydes and Ketones  Mannich reaction.Oxidation of aldehydes, Baeyer–Villiger oxidation of ketones,Cannizzaro reaction. |
| **Week 18**  Chapter: Aldehydes and Ketones  **Test on** Aldehydes and Ketones  MPV, Clemmensen, Wolff-Kishner, LiAlH4 And NaBH 4 reductions. |

**Name of Assistant/Associate Professor:** Ms. Nidhi

**Class & Section:-**B.SC- biotech 6th SEM  **Subject:** organic chemistry

**Subject Lesson Plan: 18 weeks (from January 2018 to April 2018)**

|  |
| --- |
| **Week 1**  **Chapter\_\_\_:** Heterocyclic Compounds-I |
| **Week 1**  Introduction: Molecular orbital picture and aromatic characteristics of pyrrole, furan, thiophene and pyridine. |
| **Week 2**  **Chapter:** Heterocyclic Compounds-1  Test on Heterocyclic Compounds-1  Methods of synthesis and chemical reactions with particular emphasis on the mechanism of electrophilic substitution. |
| **Week 3**  **Chapter:** Heterocyclic Compounds-I  **Assignment no.1**  Mechanism of nucleophilic substitution reactions in pyridine derivatives. Comparison of basicity of pyridine, piperidine and pyrrole |
| **Week 4**  **Chapter:** Heterocyclic Compounds-2  **Test on :** Heterocyclic Compounds-2  Introduction to condensed five and six- membered heterocycles. Prepration and reactions of indole, quinoline and isoquinoline with special reference to Fisher indole synthesis |
| **Week 5**  **Chapter:** Heterocyclic Compounds-2  Assignment no.-2  Skraup synthesis and Bischler-Napieralski synthesis. Mechanismof electrophilic substitution reactions of, quinoline and isoquinoline |
| **Week6**  **Chapter:** Organosulphur Compounds  Class discussion  Nomenclature, structural features, Methods of formation andchemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. Synthetic detergents alkyl and aryl sulphonates. |
| **Week 7**  **Chapter:** Organic SynthesisVia Enolates  Acidity of D-hydrogens, alkylation of diethyl malonate and ethylacetoacetate. |
| **Week 8**  **Chapter:** Organic SynthesisVia Enolates  **Class discussion**  Synthesis of ethyl acetoacetate: the Claisen condensation. Keto-enol tautomerism of ethyl acetoacetate. |
| **Week 9**  **Chapter:** Synthetic Polymers  Addition or chain-growth polymerization. |
| **Week 10**  **Chapter:** Synthetic Polymers  Free radical vinyl polymerization, ionic vinyl polymerization, Ziegler-Natta polymerization and vinyl polymer |
| **Week 11**  Chapter: Synthetic Polymers  Condensation or step growth polymerization. |
| **Week 12**  Chapter: Synthetic Polymers  Assignment no.:3  Polyesters,polyamides, phenol formaldehyde resins, urea formaldehyde resins,epoxy resins and polyurethanes |
| **Week 13**  Chapter: Synthetic Polymers  Natural and synthetic rubbers |
| **Week 14**  Chapter: Amino Acids, Peptides& Proteins  **Class discussion**  classification, of amino acids. Acid-base behavior, isoelectric point and electrophoresis. Preparation of D-amino acids. |
| **Week 15**  Chapter: Amino Acids, Peptides& Proteins  Structure and nomenclature of peptides and proteins. Classification of proteins. |
| **Assignment no.:4** |
| **Week 16**  Chapter: Amino Acids, Peptides& Proteins  Peptide structure determination, end group analysis, selective hydrolysis of peptides. |
| **Week 17**  Chapter: Amino Acids, Peptides& Proteins  Classical peptide synthesis, solid– phase peptide synthesis. |
| **Week 18**  Chapter: Amino Acids, Peptides& Proteins  **Test on** Amino Acids, Peptides& Proteins  Structures of peptides and proteins: Primary & Secondary structure. |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even **For the month of** January, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S. No.*** | ***Name of Assistant/Associate Professor*** | ***Subject*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/Tests to be given to the students*** |
|  | Ms. Ankita Garg | Inorganic Chemistry (Paper CH-204)  (Bsc.II- Medical) | **Chemistry of f-block elements**  **Week-1**Lanthanides Electronic structure, oxidation states  **Week-2** Ionic radii and lanthanide contraction  **Week-3** Complex formation, occurrence and isolation  **Week-4** Lanthanide compounds. | Class discussion | Board test |
|  |  | Physical Chemistry (Paper CH-305)  BSc. Biotech(III),  BSc. N.M.(A)- III , BSc. Medical(III) | **Electronic Spectrum**  **Week-1**Concept of potential energy curves for bonding and antibonding molecular orbitals  **Week-2** Qualitative description of selection rules and Franck- Condon principle.  **Week-3** Qualitative description of sigma and pie and n molecular orbital (MO)  **Week-4** Description of MO and their energy level and respective transitions. | Test on Electronic spectum |  |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even **For the month of** February, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S. No.*** | ***Name of Assistant/Associate Professor*** | ***Subject*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/Tests to be given to the students*** |
|  | Ms. Ankita Garg | Inorganic Chemistry (Paper CH-204)  (Bsc.II- Medical) | **Chemistry of f-block elements** **Week-1** Actinides General features  **Week-2** Chemistry of actinides  **Week-3** Chemistry of separation of Np, Pu and Am from U  **Week-4** Comparison of properties of Lanthanides and Actinides and with transition elements. |  | Assignment on F block elements |
|  |  | Physical Chemistry (Paper CH-305)  BSc. Biotech(III) ,  BSc. –NM(A) (III), BSc. Medical(III) | **Photochemistry**  **Week-1**Interaction of radiation with matter, difference between thermal and photochemical processes.  **Week-2** Laws of photochemistry: Grotthus-Drapper law, Stark Einstein law (law of photochemical equivalence)  **Week-3** Jablonski diagram depicting various processes occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing)  **Week-4** Quantum yield, photosensitized reactions-energy transfer processes (simple examples). | Assignment on photochemistry | Class Discussion |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even **For the month of** March, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S. No.*** | ***Name of Assistant/Associate Professor*** | ***Subject*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/Tests to be given to the students*** |
|  | Ms. Ankita Garg | Inorganic Chemistry (Paper CH-204)  (Bsc.II- Medical) | **Theory of Qualitative and Quantitative Inorganic Analysis-I**  **Week-1** Chemistry of analysis of various acidic radicals  **Week-2**Chemistry of identification of acid radicals in typical combinations  **Week-3** Chemistry of interference of acid radicals including their removal in the analysis of basic radicals. | Board test |  |
|  |  | Physical Chemistry (Paper CH-305)  BSc. Biotech(III),  BSc. N.M(A)-(III) , BSc. Medical(III) | **Dilute Solutions and Colligative Properties**  **Week-1** Ideal and non-ideal solutions, methods of expressing concentrations of solutions, activity and activity coefficient. Dilute solution  **Week-2** Colligative properties, Raoult’s law, relative lowering of vapour pressure, molecular weight determination, Osmosis law of osmotic pressure and its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point  **Week-3** Thermodynamic derivation of relation between molecular weight and elevation in boiling point and depression in freezing point Experimental methods for determining various colligative properties. Abnormal molar mass, degree of dissociation and association of solutes. |  | Assignment based on colligative properties |

**Name of College:** G.V.M. Girls College **Academic Session:** 2017-18 **Semester:** Even **For the month of** April, 2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S. No.*** | ***Name of Assistant/Associate Professor*** | ***Subject*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/Tests to be given to the students*** |
|  | Ms. Ankita Garg | Inorganic Chemistry (Paper CH-204) (Bsc.II- Medical) | **Theory of Qualitative and Quantitative Inorganic Analysis-II**  **Week-1** Chemistry of analysis of various groups of basic radicals  **Week-2** Theory of precipitation, co-precipitation, Post- precipitation, purification of precipitates. |  | Written test |
|  |  | Physical Chemistry (Paper CH-305)  BSc. Biotech(III) ,  BSc. N.M(A)-(III), BSc. Medical(III) | **Phase Equilibrium**  **Week-1** Statement and meaning of the terms – phase component and degree of freedom, thermodynamic derivation of Gibbs phase rule  **Week-2** Phase equilibria of one component system –Example – water and Sulphur systems. Phase equilibria of two component systems solid-liquid equilibria, simple eutectic Example Pb-Ag system, desilerisation of lead | Full length test of Unit-3,4 |  |

**Name of College:**G.V.M GIRLS COLLEGE **Academic session:** 2017-2018 **Semester:**Even **For the month of :**JAN-APRIL,2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S.NO.*** | ***Name of assistant professor*** | ***Subject&Month*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/tests to be given to the students*** |
| **1** | PREETI | INORGANIC CHEMISTRY  (M.Sc FINAL)  **JANUARY**  **(INORGANIC SPECIAL-IV)** | **WEEK-1:**  **Compounds of Transition Metal-Carbon Multiple Bonds:** Transition metal- carbenecomplexes: Fischer type and Schrock type carbene complexes, their synthesis, reactions andstructures & bonding. **WEEK-2:**  Transition metal-carbyne complexes: their synthesis, reactions andstructural features.  **WEEK-3:**  **Fluxional Organometallic Compounds:** Fluxionality & dynamic equilibria in compounds such as acyclic alkenes,σ-bonded and π–bonded cyclic alkenes, rotation of ligands on metals, ligand  scrambling on metals*.*  **WEEK-4:**  **Applications of Transition metal Organometallics as Catalysts:** Zeigler-Natta polymerization;homogeneous catalytic hydrogenation; alkene hydrogenation-Wilkinson Catalyst; Oxidation of olefins-Wacker’s process; hydroformylation of olefins – the oxo process. | PRESENTATION ON SCHROCK AND FISHER CARBENE &CARBYNES | TEST OF FLUXIONAL OMCs&CATALYSIS |
| **2** |  | **FEBRAURY**  **(INORGANIC SPECIAL-V)** | **WEEK-1:**  Electrons at and across interfaces, Electro-chemical and chemical reactions**,**Basic principles, residual current, migration current, diffusion current and limiting current.  **WEEK-2:**  saturated calomel electrode(SCE) and dropping mercury electrode(DME). Ilkovic equation,  Koutecky equation for diffusion current.  **WEEK-3:**  Polarographic waves(anodic and cathodic), Half  wave potentials. Oxygen interference, maxima, function of supporting electrolyte*.*  **WEEK-4:**  Determination of stability constants of complexes (reversible systems only) by D.C.Polarography, Catalytic hydrogen wave*.* Principles of Amperometric titrations, types of  titration curves, apparatus and techniques. | CLASS SEMINAR  AND POWERPOINT PRESENTATION OF AMPEROMETRIC TITRATIONS | TEST OF SCE, DME&  POLAROGRAPHIC WAVES |
| **3** |  | **MARCH**  **(INORGANIC SPECIAL-VI)** | **WEEK-1:**  Hanging mercury drop electrode, rotating droping mercury electrode, platinum electrodes(RPE), Gold electrode, carbon paste electrode, glassy carbon electrode and graphite electrode*.*  **WEEK-2:**  **Metals in Medicine:** Biochemical bases of essential metal deficient diseases; Iron, copper and  zinc deficiencies and their therapies, carcinogens and carcinostatic agents, zinc in tumour growth  and inhibition.  **WEEK-3:**  Anticancer activity and mechanism of platinum complexes, anticancer activity of Rhodium, copper and Gold complexes, anti cancer activity of Selenium, antibacterial and antiviral properties of metal complexes, polyamino carboxylic acids and polyethylene amines as chelating drugs.  **WEEK-4:**  **Miscellaneous applications of Inorganic compounds as medicines:** Drugs in hypo and hyper activity of thyroids, Inorganic drugs in dental carries, clinical disorders of alkali and alkaline  earth metals and their remedies, lithium drugs in psychiatry. | GROUP DISCUSSION ON APPLICATIONS OF INORGANIC COMPOUNDS AS MEDICINES | TEST OF SECTION B  ASSIGNMENT ON ANTICANCER ACTIVITY OF METAL IONS |
| **4** |  | **APRIL** | **WEEK-1**  **Heavy metals in Biological systems**: Toxicity of heavy metals – and their detoxification, role of  Selenium in Biological systems with reference to its essentiality and toxicity,  **WEEK-2**  mechanism of metal ion induced toxicity, interaction between orally administered drugs and metal ions in gut. |  | TEST OF METAL ION INDUCED TOXICITY |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1** |  | **INORGANIC CHEMISTRY**  **(M.Sc previous)**  **JANUARY** | **WEEK-1**  **Electronic Spectra of Transition Metal Complexes**  Spectroscopic ground states, correlation and spin-orbit coupling in free ions for Ist series of  transition metals.  **WEEK-2**  Orgel and Tanabe-Sugano diagrams for transition metal complexes (d1 – d9  states)  **WEEK-3**  calculation of Dq, B and β parameters,  **WEEK-4**  Effect of distortion on the d-orbital energy  levels. | CLASS SEMINAR ON ORGEL AND T-S DIAGRAMS | ASSIGNMENT ON CALCULATION OF Dq, B and β PARAMETERS |
| **2** |  | **FEBRUARY** | **WEEK-1**  Structural evidence from electronic spectrum.  **WEEK-2:**John-Tellar effect.  **WEEK-3**  Spectrochemical and nephalauxetic series.  **WEEK-4**  charge transfer spectra, electronic spectra of molecular addition compounds. |  | TEST OF JOHN TELLER EFFECT AND CHARGE TRANSFER SPECTRA |
| **3** |  | **MARCH** | **WEEK-1**  **Magantic Properties of transition metal complexes:**Elementary theory of magneto - chemistry, Guoy’s method for determination of magneticSusceptibility.  **WEEK-2**  calculation of magnetic moments, magnetic properties of free ions, orbital contribution.  **WEEK-3**  effect of ligand-field, application of magneto-chemistry in structure determination. magnetic exchange coupling and spin state cross over.  **WEEK-4**  **Metal Clusters**  Structure and bonding in higher boranes, Wade’s rules, Carboranes. Metal Carbonyl clusters- Low Nuclearity Carbonyl clusters, total electron count (TEC). | PRESENTATION ONMAGNETIC PROPERTIES OF TRANSITION METAL COMPLEXES | TEST OF MAGNETIC PROPERTIES OF TRANSITION METAL COMPLEXES |
| **4** |  | **APRIL** | **WEEK-1 Nuclear Magnetic Resonance:** Applications of spin-spin coupling to structure alignment of inorganic compounds, evaluation of reaction rates of fast exchange reactions. The double resonance technique.  **WEEK-2**  Application of infra-red spectroscopy to the determination of inorganic compounds. |  | TEST OF METAL CLUSTERS& NMR SPECTROSCOPY |
| **5** |  | **MAY** | UNIVERSITY EXAMS |  |  |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College:**G.V.M GIRLS COLLEGE **Academic session:** 2017-2018 **Semester:**Even **For the month of** :JAN-APRIL,2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S.NO.*** | ***Name of assistant professor*** | ***Subject&Month*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/tests to be given to the students*** |
| 1 | POOJA | ORGANIC CHEMISTRY  (M.Sc FINAL)  JANUARY  (ORGANIC SPECIAL-IV) | **WEEK-1:**  STEREOCHEMISTRY  Conformational analysis of medium and large sized rings,trans annular reactions  **WEEK-2:**  Conformational analysis of cyclohexanone,effect of conformation on reactivity of acylic and cyclic compounds  **WEEK-3:**  Stereochemistry of nitrogen containing compounds,,strain and their consequences in small ring heterocycles.  **WEEK-4:**  Barrier to ring inversion,pyramidal inversion and 1,3-diaxial interaction | PRESENTATION ON STEREOCHEMISTRY | TEST OF STEREOCHEMISTRY |
| 2 |  | FEBRAURY  (ORGANIC SPECIAL-V) | **WEEK-1:**  ALKALOIDS  Classification,occurrence,method of isolation of papaverine,quinine,nicotine.  **WEEK-2**  Structure elucidation of morphine,lysergic acid and reserpine.  **WEEK-3:**  ANTIBIOTICS AND PROSTAGLANDINS  Structure elucidation of penicillin,chloramphenicol,streptomycin and tetracyclins.  **WEEK-4:**  Classification and physiological effects and synthesis of prostaglandinE2 and F2alpha | CLASS SEMINAR  AND POWERPOINT PRESENTATION OF VARIOUS ALKALOIDS | TEST OF CLASSIFICATION OF ALKALOIDS |
| 3 |  | MARCH  (ORGANIC SPECIAL-VI) | **WEEK-1:**  ORGANOMETALLIC REAGENTS  n-butyllithium,Grignard reagent,organochromium compound,pentacarbonyl iron,tetracarbonyl nickel.  **WEEK-2:**  Octacarbonyl dicobalt,alkene palladium complex,wilkinsons catalyst.  **WEEK-3**:  Methyl triisopropoxy titanium,tri-n-butyltinhydride,trimethyl silyl iodide&diborane.  **WEEK-4:**  OXIDISING REAGENTS  Leadtetraacetate,osmium tetraoxide,selenium dioxide,potassium permagnate. | GROUP DISCUSSION ON VARIOUS ORGANOMETALLIC REAGENTS | TEST OF SECTION C  ASSIGNMENT ON ANY FIVE ORGANOMETALLIC REAGENTS |
| 4 |  | APRIL | **WEEK-1**  Fentons reagent,ozone,perbenzoic acid,periodic acid,chromium trioxide,thallium nitrare.    **WEEK-2**  REDUCING AGENTS  Catalytic hydrogenation,lithium aluminium hydride,sodium borohydride,sodamide,zinc dust,sodium in liquid ammonia. |  | TEST OF OXIDISING REAGENTS |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 |  | ORGANIC CHEMISTRY  (M.Sc previous)  JANUARY | **WEEK-1**  ELIMINATION REACTIONS  E1,E2&E1CB mechanisms,orientation of double bonds,factors affecting elimination reactions.  **WEEK2**  factors affecting elimination reactions.  **WEEK-3**  ADDITION REACTIONS  Mechanism and stereochemical aspect of addition reactions,regioselectivity.  **WEEK-4**  Chemoselectivity of addition reactions,orientation and reactivity. | CLASS SEMINAR ON ELIMINATION BIMOLECULAR AND UNIMOLECULAR REACTIONS | ASSIGNMENT ON FACTORS AFFECTING ELIMINATION REACTIONS |
| 2 |  | FEBRUARY | **WEEK-1**  Addition to cyclopropane rings,hydrogenation of double and triple bonds.  **WEEK-2**  Hydroboration oxidation,hydrogenation of aromatic ring,Michael reaction&sharpless asymmetric epoxidation.  **WEEK-3**  ADDITION TO CARBON HETERO MULTIPLE BOND  Metal hydride reduction of carbonyl compounds.  **WEEK-4**  Reduction of esters,amides,nitriles,addition of Grignard reagent,organozinc comound. |  | TEST OF ADDITION REACTIONS |
| 3 |  | MARCH | **WEEK-1**  Addition of organolithium reagent to carbonyl and unsaturated carbonyl compounds.  **WEEK-2**  Wittig reaction,aldol condensation.  **WEEK-3**  Knoevenagel reaction,claisen.  **WEEK-4**  Mannich reaction,benzoin,perkin condensation. | PRESENTATION ON VARIOUS NAME REACTIONS | TEST OF CONDENSATION REACTIONS |
| 4 |  | APRIL | **WEEK-1**  Stobbe reaction,&hydrolysis of esters.  **WEEK-2**  Hydrolysis of amides and ammonolysis of esters. |  | TEST OF SECTION C AND SECTION D |
| 5 |  | MAY | UNIVERSITY EXAMS |  |  |

**SUMMARY OF LESSON PLANS OF COLLEGE FACULTY**

**Name of College:**G.V.M GIRLS COLLEGE **Academic session:** 2017-2018 **Semester:**Even **For the month of :**JAN-APRIL,2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S.NO.*** | ***Name of assistant professor*** | ***Subject&Month*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/tests to be given to the students*** |
| **1** | PAYAL  BHAGAT | PHYSICAL  CHEMISTRY  (M.Sc FINAL)  **JANUARY**  **(PHYSICAL CHEMISTRY SPECIAL-IV)** | **WEEK-1:** Applications of Electrochemistry: The maximum intrinsic efficiency, actual efficiency and current - potential relation in an electrochemical energy converter  **WEEK-2:** factors influencing the electrochemical energy conversion, the power output of an electrochemical energy converter. Electrochemical electricity generators (fuel cells), brief idea about H2- O2  **WEEK-3**: hydrocarbon - air, and natural gas & CO -air fuel cells. Electricity storage: some important quantities in electricity storage (electricity storage density, energy density, power), desirable conditions for an ideal strorer  **WEEK-4:** storage of electricity using the lead-Acid battery, dry cell, silver-zinc cell and Sodium- Sulfur cell, Amperometric titrations determination of activation energy for an irreversible electrode process. | PRESENTATION ON FUEL CELLS | TEST OF ELECTROCTRO CHEMISTRY |
| **2** |  | **FEBRAURY**  **(PHYSICAL SPECIAL)** | **WEEK-1:**Polarography: General principles of polarography, the limiting current, diffusion current, derivation of Ilkovic equation, consequences of the Ilkovic equation, Koutecky’s equation for diffusion current  **WEEK-2:** half -wave potential, equations for reversible cathodic, anodic, and cathodicanodic waves, analysis of reversible polarographic wave, factors affecting the half- wave potential, reversible processes controlled by diffusion of complex ions  **WEEK-3:** (Men+ + pXm— MeXp]](mp-n)- , reversible reduction of organic substances (quinone - quinol system). Irreversible electrode processes : An approximate treatment of a slow electrode process and regorous treatment of a slow electrode process.  **WEEK-4:** irreversible reduction of complexes, polarography of organic substances, polarographic coulometry at constant potential, determination of number of electrons by analysis of the decrease in the limiting current. | CLASS SEMINAR  AND POWERPOINT PRESENTATION OF POLAROGRAPHY | TEST OF  POLAROGRAPHIC WAVES |
| **3** |  | **MARCH**  (PHYSICAL SPECIAL) | **WEEK-1:** Angular Momentum : Angular momentum, angular momentum operators in cartesian coordinates, eigen function & eigen values, commutation relation between angular momentum operators ( Lx,Ly , Lz , L2 )  **WEEK-2:** total orbital angular momentum and spin angular momentum, commutation relation between components of total orbital angular momentum and spin angular momentum, ladder operators, commutators of [L2 , L+ ] and [L2 ,L- ] , application of ladder operators to an eigen function of Lz.  **WEEK-3:** Molecular Orbital Theory: Huckel molecular orbital (HMO) theory of llinear and cyclic conjugated systems, Applications of HMO theory to (i) set up and solve Huckel determent equation  **WEEK-4:** calculate resonance energy; (iii) wave functions for molecular orbitals and molecular diagrams for the following : (a) Ethylene molecule (b) Allyl system (Allyl radical and the related cation and anion) (c) Butadiene; (d) Cyclobutadiene (e) Cyclopropenyl system (cyclopropenyl radical and the related cation and anion | GROUP DISCUSSION ON APPLICATIONS OF **eigen function & eigen values** | TEST OF SECTION B  ASSIGNMENT ON **Molecular Orbital Theory** |
| **4** |  | **APRIL** | **WEEK-1** Forms of Corrosion: Uniform corrosion, galvanic corrosion, pitting corrosion, crevice corrosion, intergranular corrosion, stress corrosion cracking, corrosion Dfatigue, fretting corrosion, dealloying, hydrogen embrittlement, erosion corrosion, microbial induced corrosion, filliform corrosion and exfoliation  **WEEK-2** Electronic Spectroscopy of Polyatomic Molecules :Free electron model, spectra of carbonyl group, spectra of ethene, n-II and II-II transitions, spectra of benzene , spectra of transition metals, charge-transfer transition, fluorescence phosphorescence. Raman Spectroscopy : Quantum theory of Raman effect, Classical theory of Raman effect, Pure rotational Raman spectra, Raman activity of vibrations, vibrational Raman spectra, polarization of light and Raman effect, applications. |  | TEST OF **Electronic Spectroscopy of Polyatomic Molecules** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1** |  | **PHYSICAL**  **CHEMISTRY**  **(M.Sc previous)**  **JANUARY** | **WEEK-1**  CHAIN REACTIONS  Hydrogen bromine reaction,pyrolysis of acetaldehyde,decomposition of ethane,photochemical reactions.  **WEEK-2**  General treatment of chain reactions,apparent activation energy of chain reactions.  **WEEK-3**  Chain length,rice herzfeldmechanism of organic molecules decomposition.  **WEEK-4**  Branching chain reactions and explosions,kinetics of enzymatic reactions. | CLASS SEMINAR ON PHOTOCHEMICAL REACTIONS | ASSIGNMENT ON CHAIN REACTIONS |
| **2** |  | **FEBRUARY** | **WEEK-1**  Michaelis menton treatment,evaluation of michaelis constant,lineweaver-burk plot.  **WEEK-2**  Eadie hofstae methods,competitive and non competitive inhibition.  **WEEK-3** Thermodynamics: Classius – Clayperon equation; law of mass action and its thermodynamic derivation.  **WEEK4**  Third law of thermodynamics (Nernest heat theorem, determination of absolute entropy, unattainability of absolute zero) and its limitation |  | TEST OF VARIOUS TYPES OF REACTIONS |
| **3** |  | **MARCH** | **WEEK-1** Phase diagram for two completely miscible components systems.  **WEEK2** Eutectic systems, Calculation of eutectic point  **WEEK-3** systems forming solid compounds Ax By with congruent and incongruent melting points  **WEEK-4** phase diagram and thermodynamic treatment of solid solutions. | PRESENTATION OF PHASE DIAGRAM | TEST OF VARIOUS RELATIONS |
| **4** |  | **APRIL** | **WEEK-1** Branching chain reactions and explosions ( H2 - O2 reaction). Kinetics of (one intermediate) enzymatic reaction :  **WEEK-2** **:** Michaelis - Menton treatment, evaluation of Michaelis 's constant for enzyme - substrate binding by Lineweaver - Burk plot and Eadie- Hofstae methods. |  | TEST OF section C and section B |
| **5** |  | **MAY** | UNIVERSITY EXAMS |  |  |

**Name of College:** G.V.M GIRLS COLLEGE **Academic session:** 2017-2018 **Semester:** Even **For the month of :**JAN-APRIL,2018

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***S.NO.*** | ***Name of assistant professor*** | ***Subject&Month*** | ***Topics/Chapters to be covered*** | ***Academic activity to be organized*** | ***Topic of Assignments/tests to be given to the students*** |
| **1** | JYOTI | INORGANIC CHEMISTRY  (M.Sc FINAL)  **JANUARY**  **(INORGANIC SPECIAL-IV)** | **WEEK-1:**  Introduction and Classification of organometallic compounds by bond types viz. covalent, ionic,  electron deficient and cluster compounds.  **WEEK-2:**  **Alkyls and Aryls of Transition Metals:** Types, routes of synthesis, stability and decomposition  pathways, organocopper in organic synthesis.  **WEEK-3:**  **Transition Metal π–Complexes:** Transition metal π–complexes with unsaturated moleculesalkenes,  alkynes, allyl, & dienyl(metallocene) complexes, preparation, properties and nature of bonding and structural features  **WEEK-4:**  Important reactions related to nucleophilic and electrophilic attack on ligands and to organic synthesis. | PRESENTATION ON FERROCNE | TEST OF TRANSITION METAL PI COMPLEXES |
| **2** |  | **FEBRAURY**  **(INORGANIC SPECIAL-V)** | **WEEK-1:** Super imposed a.c. Polarography, voltametry in quiet and stirred solution with electrode other than mercury,  **WEEK-2:**  square-wave polarography, normal and differential pulse polarography, chronopotentiometry, chronoamperometry and coulometry.  **WEEK-3:**  Theory of anodic stripping voltametry, concentration process, rest period, stripping process,  Cathodic stripping voltametry, Anodic deposition, Cathodic redissolution,  **WEEK-4:**  Experimental and applications of above system to Inorganic systems. | CLASS SEMINAR  AND POWERPOINT PRESENTATION OF VOLTAMETRY | TEST OF SECTION-C |
| **3** |  | **MARCH**  **(INORGANIC SPECIAL-VI)** | **WEEK-1:**  Theory of ion selective electrodes,  Experimental and applications of ISE to Inorganic systems*..*  **WEEK-2: Ligand Therapy**: Ligand induced toxicity, interference with haemoglobin in oxygen transport  system, intefererence with metallo-enzymes.  **WEEK-3:**  beneficial effects of ligand chelation; carcinogenic  ligands, carcinostatic ligands, alkylating agents as anticancer drugs, Thiosemicarbazones as  anticancer drugs, macrocyclic antibiotic ligands and prodable mechanism of the drug.  **WEEK-4:**  Antiviral activity of chelating agents, aspirin chelation, drugs where chelation and therapeutic activity are unrelated. | GROUP DISCUSSION ON BENEFICIAL EFFECTS OF LIGAND CHELATION | TEST OF LIGAND THERAPY  ASSIGNMENT ON ANTICANCER ACTIVITY OF ALKYLATING AGENTS |
| **4** |  | **APRIL** | **WEEK-1**  Vitamins and their functions in general, recommended dietary allowances , deficiencies and  supplementations, dietary miners, calcium and vitamin D, antioxidants and their health effects,  **WEEK-2**  Radiopharmacology, nuclear medicines,  radioiodine -1 31, technetium – 99m, gallium and indium scan. |  | TEST OF VITAMINS |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **1** |  | **INORGANIC CHEMISTRY**  **(M.Sc previous)**  **JANUARY** | **WEEK-1**  **Ligand Bonding**  Limitation of crystal field theory, molecular orbital theory  **WEEK-2**  π-bonding and molecular orbital theory of octahedral complexes  **WEEK-3**  π-bonding and molecular orbital theory of tetrahedral complexes  **WEEK-4**  π-bonding and molecular orbital theory of square planar complexes | CLASS SEMINAR ON MOLECULAR ORBITAL THEORY | ASSIGNMENT ON π-bonding and molecular orbital theory square planar complexes |
| **2** |  | **FEBRUARY** | **WEEK-1 Metal -**Π **Complexes**  Metal carbonyls, structure and bonding.  **WEEK-2** vibrational spectra of metal carbonyls for bonding and structure elucidation.  **WEEK-3**  Important reactions of metal carbonyls  **WEEK-4**  Important properties of transition metal carbonyls |  | TEST OF VIBRATIONAL SPECTRA OF CARBONYL COMPOUNDS |
| **3** |  | **MARCH** | **WEEK-1** structure and important reactions of transition metal nitrosyl complexes.  **WEEK-2**  structure and important reactions of transition metal dinitrogen complexes.  **WEEK-3** structure and important reactions of transition metal dioxygen complexes.  **WEEK-4**  structure and important reactions of tertiary phosphine as ligand. | PRESENTATION ON REACTIONS OF TRANSITION METAL COMPLEXES | TEST OF METAL CARBONYL COMPLEXES |
| **4** |  | **APRIL** | **WEEK-1**  **Electronic Absorption Spectroscopy:** Energy levels in diatomic molecules, introduction toelectronic transition,  **WEEK-2**  Assignment of transitions, Spectra of transition metal complexes, Orgel  Diagrams. |  | TEST OF METAL LIGAND BONDING |
| **5** |  | **MAY** | **UNIVERSITY EXAMS** |  |  |