

Department of Chemistry

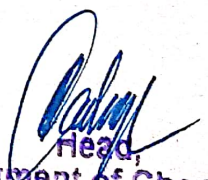
Yearly Teaching plan for the year- 2023-24

Class: B.Sc. - Part -II Subject: Physical Chemistry Paper No.: V

Name of Teacher: Dr. V.A.Kalantre

Month	Topic- Theory/ Practical	Test, Tutorials, Seminars, Group discussion, Viva-voce etc
August	<p>Introduction to the students about B.Sc. - II syllabus and about scope of chemistry in various fields. Discussion on the scheme of marking and examination pattern.</p> <p>Topic- I : Chemical Kinetics Introduction, Rate of reaction, rate constant, third order reaction, Methods to determine the order of reaction, effect of temperature on rate of reaction, theories of reaction rate, fast reactions & numerical problems</p>	-----
September	<p>Topic-II:: Electrochemistry(electrolytes in solution): Introduction, basic terms in conductance, types of conductors, Specific conductance, equivalent & molecular conductance,</p>	<p>Test on topic –Chemical kinetics</p> <p>Extra periods</p>
October	<p>effect of dilution on values of Sp. equi. and mol. conductance , Strong and weak electrolytes, Equivalent conductance at infinite dilution, Transport number of ions in electrolytic solution, Hittorf's rule. Moving boundary method for determination of transport number, Kohlrausch law & absolute ionic mobility, applications of Kohlrausch law. Measurement of conductance, types of cells, determination of cell</p>	<p>Home work on numerical problems of topic- Chemical kinetics</p> <p>Extra periods</p> <p>Test on topic- Electrochemistry</p>

	<p>constant, conductometric titrations, its advantages & numerical problems</p> <p>Topic-III :</p> <p>Thermodynamics</p> <p>Introduction, definition of entropy Mathematical expression of entropy & its unit. Physical significance of entropy. Entropy change in isothermal rev. and irreversible process, Entropy change in ideal gas, Entropy change in Phase transition, in mixing of gases, in chemical reaction. Third law of thermodynamics and absolute entropy. Numerical problems</p>	
November	SEMESTER-IV EXAMINATION	<p>Test on topic- Thermodynamics</p> <p>Home work on numerical problems</p> <p>Pre-semester examination</p>


 Head,
 Department of Chemistry,
 Salasaheb Desai College, Patan
 Tal. Patan, Dist. Satara

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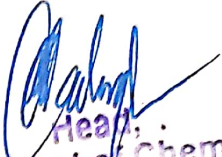
Class: B.Sc. - Part -III Subject: Physical chemistry Paper No: XI & XV

Name of Teacher: Dr. V.A.Kalantra

Month	Topic- Theory/ Practical	Test.Tutorials,Seminars,Group discussion, Viva-voce etc
August	Admission procedure	
September	SEMESTER : V (Paper- XI) Introduction to the students about B.Sc.III syllabus and about scope of Chemistry in various fields. Discussion on the scheme of marking and examination pattern. Topic-II Spectroscopy : Introduction, EM radiations, EM Spectrum, Rotational spectra	-----
October	Vibrational spectra, Raman spectra, Topic- II Photochemistry: Introduction, thermal and photochemical reactions, fundamental laws of photochemistry, Quantum yield, Reasons for low and high quantum yield, Photosensitized reactions Photodimerisation of anthracene, Decomposition reactions, Jablonski diagram and photo physical phenomena & Numerical problems.	Test on topic - Solution Extra periods
October	Topic-III - Electromotive force: Introduction, Concept of electrode potential Nernst equation for electrode and cell potentials, Detail study of types of electrodes, Reversible and irreversible cells (Chemical cells and concentration cells), Equilibrium constant from cell emf, Determination of	Home work on numerical problems of topic- Photochemistry, test on topic-II and III Extra periods. Internal evaluation exam (Home assignment) Pre-semester examination.

	thermodynamic parameters such as ΔS , ΔH & ΔG , Applications of emf measurements & numerical problems.	
November	University Examination	
December	SEMESTER- V EXAMINATION SEMESTER-VI (Paper- XV) Topic-I :Thermodynamics Introduction, Free energy- Gibbs function and Helmholtz function, criteria for thermodynamic equilibrium. Gibbs-Helmholtz equation. Clapeyron-Clausius equation,	Seminars and group discussion
January	Thermodynamic derivation of law of mass action, Van't Hoff isotherm and isochore, Fugacity and activity concepts ,Partial molar quantities, Partial molar volume, Gibbs-Duhemequation,numerical problems.	
February	Topic-II : Chemical kinetics Introduction, simultaneous Reactions,Factors affecting	
March	Topic-III:The solid State Introduction, Laws of crystlograpy, Weiss indices and Miller indices,Cubic lattice,Diffraction of X ray,NaCl and KCl Crystal structure, numerical problems	Test on Thermodynamics
April	Revision and preparation of M.Sc.Entrance Exam.	

May	Pre -semester examination Seminars, project work.	Test on Phase equilibria
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