


Koyana Education Society's
Balasaheb Desai College, Patan
Department of Chemistry
Monthly Teaching Plan Year-2023-2024
December- 2023 Semester II, IV & VI

Name of the Teacher- Prof.Dr.V.A.Kalantre

Dates	Unit	Sub unit	Teaching Method Aids
B.Sc.-I			
05/12/2023	Topic-III: Chemical Kinetics	3.1 Introduction, rate of reaction, definition, and units of rate constant.	Lecture
09/12/2023		3.2 Factors affecting rate of reaction.	Lecture
12/12/2023		3.3 Order and Molecularity of reaction.	Lecture
16/12/2023		3.4 First order reaction: Derivation of rate constant. Characteristics of the first order reaction	Lecture
19/12/2023		3.5 Pseudo- first order reactions -i) Hydrolysis of methyl acetate in presence of acid, ii) Inversion of cane sugar.	Lecture
19/12/2023		3.6 Second order reaction: Derivation of rate constant for equal and unequal concentration of the reactants	Lecture
26/12/2023		3.7 Examples of Second order reaction: i) Reaction between K ₂ S ₂ O ₈ and KI and ii) Saponification of ethyl acetate.	Lecture
30/12/2023		3.8 Characteristics of Second order reactions.	Lecture
B.Sc.-III			
01/12/2023	Unit 2. Thermodynamics	2.1 Introduction.	Lecture
07/12/2023		2.2 Free energy: Gibbs function (G) and Helmholtz function (A), Criteria for thermodynamic equilibrium and spontaneity.	Lecture using ICT
08/12/2023		2.3 Relation between ΔG and ΔH : Gibbs-Helmholtz equation.	Lecture using ICT
14/12/2023		2.4 Phase equilibria : Clapeyron – Clausius equation and its	Lecture using ICT

		applications.	
15/12/2023		2.5 Thermodynamic derivation of law of mass action, Van't – Hoff isotherm and isochore.	Lecture
21/12/2023		2.6 Fugacity and activity concepts	Lecture
22/12/2023		2.7 Partial molar quantities, Partial molar volume, Concept of chemical potential, Gibbs-Duhem equation	
28/12/2023		2.8 Numerical problems.	
29/12/2023	Unit 4. Chemical Kinetics	4.1 Introduction.	Lecture
M.Sc.-I			
06/12/2023	UNIT-IV: CHEMICAL KINETICS	Introduction to basic concepts	Lecture
13/12/2023		Experimental methods of following kinetics of a reaction,	Lecture using ICT
20/12/2023		chemical and physical (measurement of pressure, volume, EMF, conductance, diffusion current and absorbance) methods and examples.	
27/12/2023		Steady state approximation and study of reaction between NO ₂ and F ₂ , decomposition of ozone, and nitrogen pentoxide.	Lecture
M.Sc.-II	X-ray Spectroscopy	Introduction	Seminar using ICT
07/12/2023		X-Ray Generation	Seminar using ICT
14/12/2023		Properties of X-Ray	Seminar using ICT
21/12/2023		Instrumentation Of X-Ray	Seminar using ICT
28/12/2023		X-Ray Absorption	Seminar using ICT


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