

DISCIPLINE: BIOTECHNOLOGY	SEMESTER:3 RD	NAME OF THE TEACHING FACULTY: SWETANGINI NAIK
SUBJECT: PHYSICAL CHEMISTRY	NO. OF DAYS/PER WEEK CLASS ALLOTTED: 4	SEMESTER FROM DATE: 1/10/2021 TO DATE: 08/01/2022 NO OF WEEK: 15
WEEK:	CLASS DAY:	THEORY/PRACTICAL TOPICS:
1 st	1 st	1.1 Intermolecular forces in liquid.
	2 nd	Vapour pressure and its effect on temperature and boiling point.
	3 rd	Surface tension.
	4 th	Viscosity and measurement of viscosity by Ostwald method.
2 nd	1 st	Refractive index, specific refraction, determination of refractive index
	2 nd	Optical activity and measurement of optical activity.
	3 rd	Solve simple problems based on physical properties of liquid.
	4 th	2.1 Solution and Types of solutions
3 rd	1 st	Ways of expressing concentration.
	2 nd	Sol Solution and Types of solutions ve numerical related to concentration.
	3 rd	The solution of gases in gases.
	4 th	Henry's law and solve numerical related to it.
4 th	1 st	Solutions of liquid in liquids.
	2 nd	Solubility of partially miscible liquids
	3 rd	Solubility of solid in liquid and equilibrium concept, solubility curve.
	4 th	Raoult's Law, ideal solution and explain the lowering of vapour pressure and its measurement.
5 th	1 st	Concept of elevation of boiling point and depression of freezing point.
	2 nd	3.1 Osmosis and osmotic pressure with example.
	3 rd	Function of semi permeable membrane.
	4 th	Osmotic pressure and isotonic solutions.
6 th	1 st	The theories of Osmosis.
	2 nd	Reverse osmosis.
	3 rd	The laws of osmotic pressure.
	4 th	Solve the Simple Problems.

7 th	1 st	Relation between Vapour Pressure & Osmotic Pressure.
	2 nd	4.1 Nernst's distribution law.
	3 rd	Equilibrium constant from distribution coefficient.
	4 th	Extraction with a solvent, multiple extraction.
8 th	1 st	Concept of liquid-liquid chromatography.
	2 nd	Applications of distribution law.
	3 rd	Numerical based on distribution law.
	4 th	5.1 Colloids & types of colloidal systems.
9 th	1 st	Characteristics of sols.
	2 nd	The application of colloids.
	3 rd	Methods of preparation of sols
	4 th	purification of sols.
10 th	1 st	The optical, kinetic properties of sols.
	2 nd	electrical properties of sols.
	3 rd	Emulsion and types of emulsion
	4 th	The role of Emulsifier & their properties.
	1 st	The preparation of Emulsions
11 th	1 st	Gel, type of gel, properties and application
	2 nd	6.1 Adsorption
	3 rd	Compare absorption and adsorption
	4 th	Compare absorption and adsorption
12 th	1 st	Types of adsorption.
	2 nd	Types of adsorption.
	3 rd	Physical adsorption
	4 th	Physical adsorption
13 th	1 st	Chemisorption
	2 nd	Chemisorption
	3 rd	The application of adsorption
	4 th	The application of adsorption
14 th	1 st	The Ion- exchange adsorption
	2 nd	The Ion- exchange adsorption
	3 rd	Application of ion –exchange adsorption
	4 th	Application of ion –exchange adsorption
15 th	1 st	Doubt clearing session
	2 nd	revision
	3 rd	Class test
	4 th	Class test