

KIITPOLYTECHNIC, BHUBANESWAR

LESSONPLAN Session(2022-2023)

Discipline: Civil/Mechanical/Metallurgy	Semester: 2 nd , Summer-2023	Name of the Faculty: Dr. Ranjita P. Biswal (Asst. Professor) Email ID: ranjita@kp.kiit.ac.in
Subject: Engineering Chemistry, Theory-2(b)	No.ofDays/week: 04	StartDate: 20/03/2023 EndDate: 27/06/2023

Week	ClassDay	TheoryTopics
1st	1st	Discussionofsyllabusandsplittingoftotal mark
	2nd	Massandchargeofelectron,proton&neutron, Definitionofatomicmass andmass number,Findoutthee, p, nno.inanatomand ionDefinitionofisotopes, isobarsandisotoneswithexample
	3rd	PostulatesofRutherford'satomic modelandit'sdrawbacks
	4th	Bohr'satomicModel(postulatesonly)
2nd	1st	Doubt Clearing&PracticeClass
	2nd	Bohr-Buryscheme,Explainquantumno,Aufbau'sprinciple,Findout The(n+1) valueofsub-shell
	3rd	Hund'srule,Electronicconfiguration(uptoatomicno.30)andions
	4th	Whybondingoccur, definechemicalbond,typesofbonding Defineionicbond,explainit withtheformationofNaCl&MgCl ₂ .
3rd	1st	DefinecovalentbondwiththeformationofH ₂ ,Cl ₂ ,O ₂ ,N ₂ ,H ₂ O,CH ₄
	2nd	Doubt Clearing&PracticeClass
	3rd	DiscusstheformationofNH ₃ ,definedativebondwiththeformationof NH ₄ ⁺ ,SO ₂ ,Arrhenius(Postulate&limitation),
	4th	PostulateofBronstedLowry&limitation
4th	1st	Conjugateacid-basepairwithexample,AmphotericnatureofH ₂ O. PostulatesofLewisconceptanddrawbacks

	2nd	Neutralization of acid & base and its type with example
	3rd	Definition of salt, types of salt (definition with 2 examples) concept of acid-base.
	4th	Expression of the concentrations (Molarity, Normality & Molality) with simple problems.
5th	1st	Describe pH of a solution with simple numerical
	2nd	Doubt Clearing & Practice Class
	3rd	Industrial application of p H in sugar, textile, paper industries
	4th	Sources of water, soft water, Hard water, types of hardness (temporary & permanent)
6th	1st	Removal of hardness by lime soda method (hot & cold lime-principle, process & advantages), advantages of Hot lime over cold lime process.
	2nd	Doubt Clearing & Practice Class
	3rd	Removal of permanent hardness by ion exchange resin method
	4th	Describe lubricant and its type with examples & specific uses of lubricants (graphite, oils, grease)
7th	1st	Purpose of lubrication, Describe fuel & its type, Choice of good fuel, composition & uses of Diesel, petrol
	2nd	Composition & uses of Kerosene, producer gas, water gas, coal gas
	3rd	Describe Monomer, Polymer, Homo-polymer, Co-polymer, Degree of polymerization with examination
	4th	Doubt Clearing & Practice Class
8th	1st	Difference between Thermosetting & thermoplastic, composition and uses of polyethene, poly-vinyl chloride
	2nd	Composition & uses of Bakelite, Definition of Elastomer (Rubber), Natural Rubber (its drawbacks)
	3rd	Vulcanisation of Rubber, advantages of Vulcanised rubber over raw rubber
	4th	Doubt Clearing & Practice Class
9th	1st	Pesticides, Insecticides, herbicides, Fungicides (Examples & uses), Bio fertilizers (Definition, examples & uses)
	2nd	Doubt Clearing & Practice Class
	3rd	Describe electrolytes and its type with example
	4th	Electrolysis (Principle & process with example of fused NaCl and aq.

		NaCl
10th	1st	State and explain Faraday's 1st & 2nd law of electrolysis & mathematical expression.
	2nd	Industrial application of Electrolysis-Electroplating (Zinc only) Definition of Corrosion and its types Atmospheric Corrosion.
	3rd	Doubt Clearing & Practice Class
	4th	Mechanism of rusting of Iron. Waterline corrosion, protection from Corrosion by Alloying of metal and
11th	1st	Galvanization Process
	2nd	Definition of Mineral, ores, gangue with example. Explain the difference between ores and minerals.
	3rd	General methods of extraction of metals, i) Ore Dressing ii) Concentration (Gravity separation, magnetic separation, Froth floatation & leaching) iii) Oxidation (calcinations, Roasting)
	4th	Doubt Clearing & Practice Class
12th	1st	iv) Reduction (smelting, Definition & examples of flux, slag)
	2nd	v) Electrorefining of the metal
	3rd	Describe alloy and its type (ferro, nonferro & amalgam) with example
	4th	Composition & uses of Brass, Bronze, Alnico, Duralumin
13th	1st	Doubt Clearing & Practice Class
	2nd	Hydrocarbons (saturated and unsaturated), Aliphatic & Aromatic hydrocarbons. (Huckel's rule).
	3rd	Difference between Aliphatic and Aromatic hydrocarbons, IUPAC system of nomenclature of Alkane, Alkene, alkyne.
	4th	Alkyl halide and alcohol (upto 6 carbons)
14th	1st	Difference between saturated and unsaturated hydrocarbon, IUPAC system of nomenclature of alkanol, alkenol and alkynol
	2nd	Doubt Clearing & Practice Class
	3rd	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene & Benzoic acid) in daily life.
	4th	Doubt Clearing & Practice Class
15th	1st	Expected Questions Discussion & Practice Test 1
	2nd	Expected Questions Discussion & Practice Test 2
	3rd	Expected Questions Discussion & Practice Test 3

	4th	ExpectedQuestionsDiscussion&PracticeTest4
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