Discipline: Math & Science	Semester : 1st Sem(2020-21) Branch-Electrical Engg.	Name of the Teaching Faculty: Sushreeta Behera, Lect. In Chemistry
Subject: Engineering Chemistry	**No. of Days/week Class Allotted: 60**	**Semester from date: 09/11/2020 to date: 31/03/2021 No of weeks: 18**
week	**Class Day**	**Theory Topics**
1st	1st	Basic concepts of Chemistry :(elements, atom ,molecule ,radicals) Chemical formulae
	2nd	Definitions of atomic weight, molecular weight, Equivalent weight. Determination of equivalent weight of Acid, Base and Salt.
	3rd	Fundamental particles (electron, proton & neutron Definition, mass and charge).Rutherford's Atomic model
	4th	Failures of Rutherford atomic Model. Atomic mass and mass number. Definition, examples and properties of Isotopes ,Isobars and Isotones.
2nd	1st	Bohr's Atomic model, Bohr-Bury scheme
	2nd	Aufbau's principle, Hund's rule, Electronic configuration (up to atomic no 30).
	3rd	Definition, types of chemical bond. Electrovalent bond with examples (formation of NaCl, $MgCl_2$)
	4th	Covalent Bond with examples (H_2,Cl_2, O_2, N_2, H_2O, CH_4 NH_3)
3rd	1st	Coordinate bond with examples (formation of NH_4^+ , SO_2)
	2nd	Concepts of Arrhenius theory and its limitation
	3rd	Bronsted-Lowry theory of acid and base
	4th	Limitations of Bronsted-Lowry theory and previous year question discussion
4th	1st	Lewis theory and its limitations.
	2nd	Molarity and normality with Simple problems.
	3rd	Molality and simple problems
	4th	pH of solution (definition with simple numericals)
5th	1st	Importance of pH in industry (sugar, textile, paper industries)
	2nd	Definition of Salt, Types of salts (Normal, acidic, basic, double, complex and mixed salts)
	3rd	Definition and types (Strong & weak) of Electrolytes with example. Electrolysis (Principle & process)
	4th	Electrolysis of NaCl (fused and aqueous solution). Faraday's 1st of Electrolysis (Statement, mathematical expression and Simple numerical)
6th	1st	Faraday's 2nd law of Electrolysis (Statement, mathematical expression and Simple numerical). Industrial application of Electrolysis- Electroplating (Zinc plating)
	2nd	Definition of Corrosion, Types of Corrosion- Atmospheric Corrosion, Waterline corrosion.
	3rd	Mechanism of rusting of Iron. Protection from Corrosion by (i) Alloying and (ii) Galvanization.
	4th	Definition of Mineral, ores, gangue with example. Distinction between Ores and Minerals. Ore Dressing
7th	1st	Concentration (Gravity separation, magnetic separation, Froth floatation & leaching)
	2nd	Oxidation (Calcinations, Roasting)

	3rd	Reduction (Smelting, Definition & examples of flux, slag)
	4th	Refining of the metal (Electro refining, & Distillation only)
8th	1st	Definition of alloy. Types of alloys (Ferro, Non Ferro & Amalgam) with example. Composition and uses of Brass, Bronze, Alnico, Duralumin
	2nd	Saturated and Unsaturated Hydrocarbons (Definition with example)
	3rd	Aliphatic and Aromatic Hydrocarbons (Huckle's rule). Difference between Aliphatic and aromatic hydrocarbons
	4th	IUPAC system of nomenclature of Alkanes
9th	1st	IUPAC system of nomenclature of Alkenes and Alkynes
	2nd	IUPAC name of Bond line notations.
	3rd	IUPAC system of nomenclature of alkyl halide and alcohol
	4th	Uses of some common aromatic compounds (Benzene, Toluene, BHC, Phenol, Naphthalene, Anthracene and Benzoic acid) in daily life
10th	1st	Previous year question discussion
	2nd	Sources of water, Soft water, Hard water
	3rd	Types of Hardness (temporary or carbonate and permanent or non-carbonate)
	4th	Removal of temporary hardness of water
11th	1st	Hot lime & cold lime—Principle, process & advantages, Advantages of Hot lime over cold lime process
	2nd	Organic ion-exchange process- Principle, process and regeneration of exhausted Resin.
	3rd	Lubricants; Definition and Types (solid, Liquid and semisolid) and examples
	4th	Specific uses or lubricants (graphite, oils and Grease), Purpose of lubrication.
12th	1st	Fuel: Definition and classification of fuels. Calorific value of fuel, Choice of good fuel.
	2nd	Liquid: Diesel, Petrol, and Kerosene --- Composition and uses
	3rd	Gaseous: Producer gas and Water gas-Composition and uses. Elementary idea about LPG, CNG and coal gas (Composition and uses).
	4th	Definition of Monomer, Polymer, Homo-polymer, Co-polymer and Degree of polymerization
13th	1st	Difference between Thermosetting and Thermoplastic. Composition and uses of Polythene
	2nd	Composition and uses of Poly-Vinyl Chloride and Bakelite.
	3rd	Definition of Elastomer (Rubber). Natural Rubber (it's drawbacks).
	4th	Vulcanisation of Rubber. Advantages of Vulcanised rubber over raw rubber.
14th	1st	Pesticides: Insecticides, herbicides, fungicides (Examples and uses). Bio Fertilizers: Definition, examples and uses.
	2nd	Previous year question discussion
	3rd	Doubt clearing session
	4th	Revision of Chapter – 01
15th	1st	Revision of Chapter – 02
	2nd	Revision of Chapter – 03
	3rd	Revision of Chapter – 04
	4th	Revision of Chapter – 05 and 06
16th	1st	Revision of Chapter – 07 and 08

	2nd	Revision of Chapter – 09
	3rd	Revision of Chapter –10
	4th	Revision of Chapter – 11
17th	1st	Revision of Chapter – 12
	2nd	Revision of Chapter – 13 and 14
	3rd	Doubt clearing session
	4th	Discussion of Probable Questions
18th	1st	Discussion of Probable Questions
	2nd	Discussion of Probable Questions
	3rd	Discussion of Probable Questions
	4th	Doubt clearing session