

Commecs College
Macro Plan 2024 – 25

Subject: Chemistry
Class : XI (Pre-Engineering & Pre- Medical)

TERM –I						
Week No.	Start Date	End Date	No. Of Units	Topic/Chapter	Contents	Objectives By the end of the unit S.W.A.T.:
1	Thu, July 25	Wed, July 25	05	Foundation course	Basic Concepts	To refresh essential prior knowledge
2	Thu, Aug 01	Fri, Aug 02	02	CHAPTER 01 Stoichiometry	CHAPTER 01 1. Moles and Avogadro's number.	CHAPTER 01 1. Define Moles and Avogadro's number.
3	Mon, Aug 05	Sat, Aug 10	04	CHAPTER 01 Stoichiometry	CHAPTER 01 2. Rules for rounding off data. 3. Use of Exponents 4. Stoichiometry (Mass-Mass) (Mass-Volume) (Volume Volume)	CHAPTER 01 2. Define Moles and Avogadro's number. 3. Define and apply rules of Rounding off data 4. Use of exponents 5. Define and solve Numerical related to relationship of Mass-Mass
4	Mon, Aug 12	Fri, Aug 16	03	CHAPTER 01 Stoichiometry	CHAPTER 01 5. Stoichiometry (Mass-Volume) (Volume-Volume) Limiting Reactant	CHAPTER 01 6. Define and solve Numerical related to relationship of Mass-Volume and Volume- Volume relationship 7. To recognize the Limiting reactant and solve the problems of Limiting reactant.
5	Mon, Aug 19	Fri, Aug 23	03 01	CHAPTER 01 Stoichiometry CHAPTER 02 Atomic Structure	CHAPTER 01 7.Limiting Reactant 8. Theoretical , practical and percent yield CHAPTER 02 1. Introduction of atom 2. Subatomic particles and their characteristics	CHAPTER 01 8. To recognize the Limiting reactant and solve the problems of Limiting reactant. 9. Theoretical, practical and percent yield CHAPTER 02 1. Introduction to history of atom 2. Differentiate between Subatomic particles and their characteristics

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6	Mon, Aug 26	Sat, Aug 31	04	CHAPTER 02 Atomic Structure	3. Applications of Bohr's Atomic Theory 4. Derivation of radius, energy, Frequency and wave number 5. Defects of Bohr's Theory 6. Spectrum and Types of Spectrum 7. Hydrogen Spectrum	5. Applications of Bohr's Atomic theory 6. Derivation of radius, energy, Frequency and wave number and solve related Numerical 7. Write Defects of Bohr's Theory 8. Define Spectrum and Differentiate between types of spectrums Write series of spectral lines in hydrogen Spectrum and calculate the wave no. of each series
7	Mon, Sep 02	Fri, Sep 06	04	CHAPTER 02 Atomic Structure	CHAPTER 02 8. Plank's quantum Theory 9. X-Rays (Types, production, properties and uses) 10. Radioactivity 11. Quantum numbers and orbitals 12. Shapes of Orbitals 13. Electronic Configuration (Aufbau)	CHAPTER 02 8. Write postulates of Plank's quantum Theory 9. Define X-rays ,describe production ,properties and uses of x-rays. 10. Define the phenomenon of radioactivity and differentiate between the types of radioactive rays. 11. Define and differentiate between types of Quantum numbers 12. Differentiate between Shapes of Orbitals 13. Write Electronic Configuration and State rules of electronic configuration

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8	Mon, Sep 09	Sat, Sep 14	01	CHAPTER 02 Atomic Structure	CHAPTER 02 14. Electronic Configuration (Pauli, n+l and Hund's Rule)	CHAPTER 02 14. Write Electronic Configuration and State rules of electronic configuration
			03	CHAPTER 03 Theories of Covalent bonding & shapes of molecules	CHAPTER 03 1. Introduction to Bonding 2. Theories of Covalent bond VBT (Sigma, Pi bond ,Strength of bond in term of VBT and Limitation of VBT)	CHAPTER 03 1. Introduction to Bonding 2. Describe different Theories of Covalent bond. VBT (Sigma, Pi bond ,Strength of bond in term of VBT and Limitation of VBT)

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9	Mon, Sep 16	Fri, Sep 20	04	CHAPTER 03 Theories of Covalent Bonding & shapes of molecules	CHAPTER 03 3. MOT (Characteristic of bonding and Anti bonding) 4. Shapes of Molecules VSEPR (postulates and prediction of shape) 5. Hybridization	CHAPTER 03 3. Draw MOT diagram (Characteristic of bonding and Anti bonding) 4. Predict the Shapes of Molecules VSEPR (postulates and prediction of shape) 5. Define Hybridization and its types
10	Mon, Sep 23	Sat, Sep 28	04	CHAPTER 03 Theories of Covalent bonding & shapes of molecules	CHAPTER 03 5. Hybridization 6. Bond characteristics (Bond energy, Bond length, Ionic character of Covalent bond, Dipole moment)	CHAPTER 03 3. Draw Hybrid orbital diagram of Methane ethene and ethyne 6. Define Bond characteristics (Bond energy, Bond length, Ionic character of Covalent bond, Dipole moment)
11	Mon, Sep 30	Fri, Oct 04	02 02	CHAPTER 03 Theories of Covalent bonding & shapes of molecules CHAPTER 08 Acids, Bases and salts	CHAPTER 03 7. Effect of bonding on physical and chemical properties CHAPTER 08 1. Acidic, basic and Amphoteric 2. Lowry-bronsted Theory of Acids and Bases 3. Conjugate acid base pair 4. Strengths of Acids & bases (% dissociation, K_w , P_H , P_{OH} & P_{kw}) 5. Leveling effect 6. Lewis Definition of Acids and Bases 7. Buffers solutions and their applications	CHAPTER 03 7. Effect of bonding on physical and chemical properties CHAPTER 08 1. Define Acidic, basic and Amphoteric 2. Identify strength of acids and bases according to Lowry-bronsted Theory of Acids & Bases 3. Identify Conjugate acid base pair 4. Identify Strengths of Acids & bases through different parameters 5. Define Leveling effect 6. Write Lewis Definition of Acids and Bases 7. Define Buffers solutions and write their applications

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12	Mon, Oct 07	Sat, Oct 12	01	CHAPTER 08 Acids, Bases and salts	CHAPTER 08 8. Salts their types and Applications	CHAPTER 08 8. Define Salts and their types and Applications
			03	Revision		
13	Mon, Oct 14	Fri, Oct 18	First Term Exams (12th Oct – 21st Oct)			
Term – I Working Days –68 Teaching Days – 51 (41 Classes) Classes Conducted = 37.27%						

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TERM –II						
Week No.	Start Date	End Date	No. Of Units	Topic/Chapter	Contents	Objectives By the end of the unit S.W.A.T.:
14	Mon, Oct 21	Sat, Oct 26	01	PAPER DISCUSSION	PAPER DISCUSSION	Understand how to attempt paper properly and discuss answer key of first term
			02	CHAPTER 11 Thermochemistry	CHAPTER 11 1. Introduction to thermodynamics (Thermodynamics terms) 2. Thermo chemical reactions 3. First law of Thermodynamics 4. Pressure volume work and Applications of Thermodynamics	
15	Mon, Oct 28	Fri, Nov 01	04	CHAPTER 11 Thermochemistry	CHAPTER 11 5. Hess's Law (Standard enthalpy of formation , enthalpy of reaction ,Uses of Hess's law in determination of heat of reaction & formation) 6. Born Haber's Cycle	CHAPTER 11 5. State and explain Hess's Law (Standard enthalpy of formation , enthalpy of reaction , Uses of Hess's law in determination of heat of reaction & formation) 6. Draw Born Haber's Cycle and determine lattice energy

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16	Mon, Nov 04	Sat, Nov 09	04	CHAPTER 04 State of Matter: Gases	CHAPTER 04 1. Introduction of states of matter 2. Kinetic molecular Theory of Gases 3. Pressure and its units and Atmospheric pressure and its effect on weather 4. Absolute temperature on basis of Charle's Law 5. Boyle's Law, Charles's law Avogadro's law	CHAPTER 04 1. Differentiate between state of matter 2. Write postulates of Kinetic molecular Theory of Gases 3. Convert Pressure units and write effects of atmospheric pressure on weather 4. Define Absolute temperature 5. State and explain Boyle's Law and Charles's law, Avogadro's law
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17	Mon, Nov 11	Fri, Nov 15	04	CHAPTER 04 State of Matter: Gases	CHAPTER 04 6. Ideal gas equation 7. Gas constant units 8. Deviation from Ideal gas Behavior 10. Van der waal's Equation	CHAPTER 04 6. Derive Ideal gas equation solve related Numericals 7. Calculate Gas constant in different units 8. Write causes of deviation of real gases from Ideal gas behavior
18	Mon, Nov 18	Sat, Nov 23	04	CHAPTER 04 State of Matter: Gases	CHAPTER 04 11. Dalton's law of Partial Pressure 12. Graham's law of Diffusion and effusion	CHAPTER 04 9. State and derive Dalton's law of Partial Pressure and solve related numerical 10. State and derive Graham's law of Diffusion and effusion and solve related numericals

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19	Mon, Nov 25	Sat, Nov 30	02	CHAPTER 04 State of Matter: Gases	<p>CHAPTER 04</p> <p>13. Liquefaction of Gases (Joule-Thomson Effect) 14. Linde’s Method of Liquefaction of gases 15. Plasma (4th state of matter)</p>	<p>CHAPTER 04</p> <p>11. Define Liquefaction of Gases and define (Joule-Thomson Effect) and uses of liquid air 12. Explain Linde’s Method of Liquefaction of gases 13. Define Plasma (4th state of matter)</p>
			02	Chapter 05 State of matter II: Liquids	<p>CHAPTER 05</p> <p>1. Kinetic Molecular theory (KMT) of Liquids 2. Properties of liquids 3. Intermolecular forces in Liquids</p>	<p>CHAPTER 05</p> <p>1.W postulates of KMT of Liquids 2. Compare different Properties of liquids 3. Differentiate between Intermolecular forces in Liquids(Dipole-dipole, Hydrogen bonding, London dispersion forces)</p>
20	Mon, Dec 02	Sat, Dec 06	01	Chapter 05 State of matter II: Liquids	<p>CHAPTER 05</p> <p>4. Physical properties of liquids 5. Energetic phase change 6. Liquid Crystals</p>	<p>CHAPTER 05</p> <p>5. Define different Physical properties of liquids 5. Define Energetic phase change (molar heat of fusion and vaporization) 6. Define Liquid Crystals and write uses of it.</p>
			03	CHAPTER 06 State of matter II: Solids	<p>CHAPTER 06</p> <p>1. Kinetic Molecular theory of Solids 2. Properties of crystalline solids 3. Types of crystalline solids</p>	<p>CHAPTER 06</p> <p>1. Write postulates of KMT of Solids 2. Differentiate between Properties of crystalline solids 3. Write different types of crystalline solids</p>

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21	Mon, Dec 09	Sat, Dec 14	02	CHAPTER 06 State of matter II: Solids	CHAPTER 06 4. Crystal lattice 5. lattice Energy	CHAPTER 06 4. Define Crystal lattice, unit cell, differentiate between types of close packing in metals 5. Define lattice Energy
				02	Revision	
22	Mon, Dec 16	Sat, Dec 20	02	Revision		
				SPORTS GALA (19th to 21st Dec)		
23	Mon Dec 23	Sat, Dec 28	00	Winter vacations		
24	Mon, Dec 30	Fri, Jan 03		Second Term Exams		
25	Mon, Jan 06	Sat, Jan11		Second Term Exams (1st Jan –15st Oct)		

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<p style="text-align: center;">Term – II</p> <p style="text-align: center;">Total Working Days – 68 + 58 = 126</p> <p style="text-align: center;">Total Teaching Days – 55 + 40 = 95 (41+33=74 classes)</p> <p style="text-align: center;">Classes Conducted = 67.27%</p>						
TERM –III						
Week No.	Start Date	End Date	No. Of Units	Topic/Chapter	Contents	Objectives By the end of the unit S.W.A.T.:
26	Mon, Jan, 13	Fri, Jan, 17	01	Paper Discussion	Paper Discussion	Discuss Common mistakes and answer key of Second term paper.
27	Mon, Jan, 20	Sat, Jan, 25	04	CHAPTER 07 Chemical Equilibrium	CHAPTER 07 1. Reversible reaction and Dynamic Equilibrium 2. Concept of Equilibrium 3. Law of Mass Action 4. Determination of Equilibrium Constant 5. Equilibrium Constant Numerical	CHAPTER 07 1. Define Reversible reaction and Dynamic Equilibrium 2. Define concept of Equilibrium 3. State and derive Law of Mass Action 4. Determine the Equilibrium Constant 5. Solve Numericals of Kc
28	Mon, Jan, 27	Fri, Jan, 31	03	CHAPTER 07 Chemical Equilibrium	CHAPTER 07 6. Relation between Kc and Kp 7. Importance of Kc and reaction Quotient 8. Le-Chatelier Principle	CHAPTER 07 6. Relate between Kc and Kp 7. Write Importance of Kc and predict direction of equilibrium reaction and the extent of reaction 8. State Le-Chatelier Principle and write factors that affects chemical equilibrium

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29	Mon, Feb, 03	Sat Feb,08	03	CHAPTER 07 Chemical Equilibrium	CHAPTER 07 9. Industrial Applications of Le- Chateleir's Principle 10. Solubility Product Numerical 11. Applications of Ksp 12. Common-Ion Effect	CHAPTER 07 9. Write favorable conditions in Industrial applications of Le- Chateleir's Principle 10. Define Solubility Product solve Numerical 11. Write Applications of Ksp 12. Define Common-Ion Effect
30	Mon, Feb,10	Fri, Feb, 14	03	CHAPTER 12 Electrochemistry	CHAPTER 12 1. Oxidation and Reduction 2. Oxidation number and Rules 3. Balancing Redox Equation	CHAPTER 12 1. Define Oxidation and Reduction 2. Define Oxidation number and write its Rules 3. Balance Redox Equation
31	Mon, Feb, 17	Sat, Feb, 22	04	CHAPTER 12 Electrochemistry	CHAPTER 12 4. Electrodes, electrolytic cell & Electrochemical cell 5. Electrode potential of Zn and Cu	CHAPTER 12 4. Define Electrodes, electrolytic cell & Electrochemical cell. 5. Determine Electrode potential of Zn and Cu
32	Mon, Feb, 24	Fri, Feb, 28	04	CHAPTER 12 Electrochemistry	CHAPTER 12 6. Electrochemical series 7. Batteries 8. Corrosion and its prevention	CHAPTER 12 6. Write features of Electrochemical series 7. Define Batteries its types 8. Define Corrosion and methods of its prevention
33	Mon, Mar,03	Sat, Mar 08	04	CHAPTER 09 Chemical Kinetics	CHAPTER 09 1. Rate and Velocity of Reaction. 2. Rate law & Rate Expression. 3. Order of Reaction and its determination 4. Elementary and overall rate constant	CHAPTER 09 1. Define Rate and Velocity of Reaction 2. Define Rate law and write Rate Expression 3. Define order of reaction and its types and determine order of reaction.

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34	Mon, Mar, 10	Fri, Mar 14	02 02	<p>CHAPTER 09 Chemical Kinetics</p> <p>CHAPTER 10 Solutions and Colloids</p>	<p>CHAPTER 09</p> <p>5. Factors Affecting Rate of Reaction 6. Collision theory Transition state and Activation Energy Catalysis</p> <p>CHAPTER 10</p> <p>1. General properties of solution 2. Solutions suspension & colloids 3. Concentration units</p>	<p>CHAPTER 09</p> <p>4. Write reasons related to Factors affecting Rate of Reaction. 5. Collision theory Transition state and Activation Energy Catalysis</p> <p>CHAPTER 10</p> <p>1. Write general properties of solution 2. Differentiate between solutions, suspension and colloids 3. Write different Concentration units and solve related Numericals</p>
35	Mon, Mar, 17	Sat, Mar, 22	03	<p>CHAPTER 10 Solutions and Colloids</p>	<p>CHAPTER 10</p> <p>4. Raoult's Law 5. Colligative properties of solution 6. Colloids</p>	<p>CHAPTER 10</p> <p>4. State and derive Raoult's Law (Numericals) 7. Define Colligative properties of solution 6. Define Colloids and write its types and properties</p>
36	Mon, Mar 24	Sat, Mar 29	00			
37	Mon, Mar 31	Sat, Apr, 04	01	Revision		

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35	Mon, Apr, 07	Sat, Apr, 12	Preliminary Exams
36	Mon, Apr, 14	Fri, Apr, 18	Preliminary Exams
Term – III Working Days – 126 + 57 = 183 Teaching Days – 95 + 42 = 137(41+33+36 = 110) Classes Conducted = 100%			