



## Yakeen 2.0 — Chemistry (XI & XII)

S No.	Unit Name	Topic	No. of Lectures	Date of completion	Date of lecture	Holidays	
						Date	Occasion
1	<b>Chemical Bonding</b>	Kossel - Lewis & Octet Rule ,Covalent bond Formal charge	<b>11</b>	<b>07/10/2021</b>	24/09/2021		
2		Ionic Bond			25/09/2021	02-Oct-21	Gandhi Jayanti
3		Resonance			27/09/2021	15-Oct-21	Dussehra
4		Dipole moment			28/09/2021	19-Oct-21	Eid-e-Milad
5		VSEPR Theory			29/09/2021	04-Nov-21	Diwali
6		Valance Bond theory			30/09/2021	5-Nov-21	Diwali
7		Hybridisation			01/10/2021	10-Nov-21	Chhat Pooja
8		Back Bonding and Bridge Bonding			04/10/2021	25-Dec-21	Christmas Day
9		Fajan's Rule			05/10/2021	19-Mar-22	Holi
10		Molecular orbital theory			06/10/2021		
11		Hydrogen Bonding, Weak-Forces			07/10/2021		
12	<b>IUPAC Naming</b>	Nomenclature-1	<b>4</b>	<b>12/10/2021</b>	08/10/2021		
13		Nomenclature-2			09/10/2021		
14		Nomenclature-3			11/10/2021		
15		Nomenclature-4			12/10/2021		
16	<b>Isomerism</b>	Structural isomerism	<b>7</b>	<b>22/10/2021</b>	13/10/2021		
17		Tautomerism			14/10/2021		
18		Geometrical isomerism-1			16/10/2021		
19		Geometrical isomerism-2			18/10/2021		
20		Optical isomerism-1			20/10/2021		
21		Optical isomerism-2			21/10/2021		
22		Conformational isomerism			22/10/2021		
23	<b>GOC</b>	Inductive effect and applications	<b>4</b>	<b>01/11/2021</b>	23/10/2021		
24		Resonance and Resonance effect and applications-1			25/10/2021		
25		Resonance and Resonance effect and applications-2			26/10/2021		
26		Hyperconjugation and applications			27/10/2021		

27	<b>G.O.C</b>	Aromaticity	<b>8</b>	<b>01/11/2021</b>	28/10/2021
28		Reaction Intermediates & Reaction Mechanism-1			29/10/2021
29		Reaction Intermediates & Reaction Mechanism-2			30/10/2021
30		Reaction Intermediates & Reaction Mechanism-3			01/11/2021
31	<b>Hydrocarbons</b>	Preparation of alkanes, Physical properties of alkanes, Halogenation of alkanes, Miscellaneous reactions of alkanes	<b>7</b>	<b>12/11/2021</b>	02/11/2021
32		Preparation of alkenes, Physical properties of alkenes, Electrophilic addition reactions of alkenes-1			03/11/2021
33		Preparation of alkenes, Physical properties of alkenes, Electrophilic addition reactions of alkenes-2			06/11/2021
34		Preparation of alkenes, Physical properties of alkenes, Electrophilic addition reactions of alkenes-3			08/11/2021
35		Peroxide effect, Oxidation of alkenes, Substitution of allylic hydrogen (NBS), Miscellaneous reactions of alkenes			09/11/2021
36		Preparation of alkynes, Physical properties of alkynes, Electrophilic addition reactions of alkynes			11/11/2021
37		Oxidation of alkynes, Miscellaneous reactions of alkynes			12/11/2021
38	<b>Haloalkanes and Haloarenes</b>	Introduction to nomenclature of Alkyl Halide and Aryl Halide, Physical Properties of Alkyl Halide and Aryl Halide	<b>6</b>	<b>19/11/2021</b>	13/11/2021
39		Preparation of Alkyl Halide and Aryl Halide, Nucleophilic Substitution Reaction of halides			15/11/2021
40		Elimination Reaction in halides			16/11/2021
41		Reactions of Haloarenes, Benzyne Mechanism			17/11/2021
42		Polyhalogen compounds			18/11/2021
43		Practice Session			19/11/2021
44	<b>Grignard Reagent</b>	Grignard Reagent	<b>1</b>	<b>20/11/2021</b>	20/11/2021
45	<b>Alcohols, Ethers and Phenols</b>	Introduction and nomenclature of Alcohols, phenols and ethers, Preparations of alcohols	<b>5</b>	<b>26/11/2021</b>	22/11/2021
46		Physical properties of alcohol, phenol and ethers, Chemical Properties of alcohol, Test of alcohol			23/11/2021
47		Preparation of phenol, Acidic strength of phenol and substituted phenol, Chemical Properties of phenol			24/11/2021
48		Preparation of phenol, Acidic strength of phenol and substituted phenol, Chemical Properties of phenol			25/11/2021

49		Preparation of ethers and cyclic ethers, Chemical properties of ethers, Chemical reaction of cyclic ether			26/11/2021
50	<b>Carbonyl Compounds and Carboxylic Acid</b>	Introduction to Aldehyde & Ketones, Preparation of Aldehyde & Ketones	<b>8</b>	<b>06/12/2021</b>	27/11/2021
51		Physical Properties of Aldehyde & Ketones, Chemical Property of Aldehyde & Ketones (NAR)			29/11/2021
52		Chemical Property of Aldehyde & Ketones (NAER)			30/11/2021
53		Aldol and Cannizaro reaction			01/12/2021
54		Oxidation reactions, Other important reactions			02/12/2021
55		Test for Aldehyde & Ketones			03/12/2021
56		Introduction & Nomenclature of Carboxylic Acids, Preparation of Carboxylic Acid			04/12/2021
57		Physical & Chemical Properties of Carboxylic Acid, Acidity of carboxylic acid, Derivative of Carboxylic Acid & their physical & Chemical Properties			06/12/2021
58	<b>Amines and Diazonium Salt</b>	Introduction of Amines and their Nomenclature, Methods of Preparation	<b>3</b>	<b>09/12/2021</b>	07/12/2021
59		Basicity of amines, Physical Properties and Chemical Properties			08/12/2021
60		Other compounds of nitrogen			09/12/2021
61	<b>Biomolecules</b>	Carbohydrates	<b>3</b>	<b>13/12/2021</b>	10/12/2021
62		Amino Acids			11/12/2021
63		Vitamins, Nucleic Acids			13/12/2021
64	<b>Polymers</b>	Polymers-1	<b>2</b>	<b>15/12/2021</b>	14/12/2021
65		Polymers-2			15/12/2021
66	<b>Name Reactions (Remaining)</b>	Name Reactions (Remaining)	<b>1</b>	<b>16/12/2021</b>	16/12/2021
67	<b>Reagents (Remaining)</b>	Reagents remaining	<b>1</b>	<b>17/12/2021</b>	17/12/2021
68	<b>Environmental Chemistry in Everyday Life</b>	Atmospheric pollution	<b>2</b>	<b>20/12/2021</b>	18/12/2021
69		Water pollution, Soil pollution			20/12/2021
70		Chemicals in medicine	<b>2</b>	<b>22/12/2021</b>	21/12/2021
71		Chemicals in food & cleansing agents			22/12/2021

72	<b>Mole Concept, Redox Reactions and Volumetric analysis</b>	Matter and its measurements, Significant Figure, Laws of Chemical Combination, Atomic and molecular mass, Mole Concept	<b>9</b>	<b>03/01/2022</b>	23/12/2021
73		Matter and its measurements, Significant Figure, Laws of Chemical Combination, Atomic and molecular mass, Mole Concept			24/12/2021
74		Percentage Composition of Elements in a Molecule, Empirical and Chemical Formula, Stoichiometry			27/12/2021
75		Limiting Reagent, Percentage Yield, Mole fraction, w/w%, w/v%, v/v%, molarity, Gas Analysis, Molality			28/12/2021
76		Limiting Reagent, Percentage Yield, Mole fraction, w/w%, w/v%, v/v%, molarity, Gas Analysis, Molality			29/12/2021
77		Oxidation and Reduction Reaction, Oxidising agent and Reducing Agent, Oxidation States			30/12/2021
78		Balancing Redox Reaction, Type of Redox Reaction and n-factor			31/12/2021
79		Equivalent Concept, Normality, Simple Titration, Redox-Titration			01/01/2022
80		% composition of free SO <sub>3</sub> in oleum, Volume strength of H <sub>2</sub> O <sub>2</sub>			03/01/2022
81	<b>Solutions</b>	Types of solutions & Concentration terms, Henry's law	<b>6</b>	<b>10/01/2022</b>	04/01/2022
82		Vapour Pressure, Raoult's Law			05/01/2022
83		Ideal and Non-ideal Solutions, Azeotropes			06/01/2022
84		Relative Lowering of Vapour Pressure			07/01/2022
85		Elevation In Boiling Point, Depression In Freezing Point			08/01/2022
86		Osmosis and Osmotic Pressure, & Van't Hoff factor, Abnormal colligative Properties			10/01/2022
87	<b>Gaseous State</b>	Gas Laws, Ideal Gas Equation, Dalton's law of Partial Pressures	<b>5</b>	<b>15/01/2022</b>	11/01/2022
88		Graham's law, Kinetic Theory of Gases, Velocities			12/01/2022
89		Deviation from Ideality graph discussion			13/01/2022
90		Vander Waal's Equation			14/01/2022
91		Critical constants Joule Thomson effect & Liquefaction of gases, Eudiometry, Surface tension and viscosity			15/01/2022
92		Rate of chemical reaction, Factors affecting ROR, Order of Reaction, Molecularity of reaction, Zero order reaction			17/01/2022

93	<b>Chemical Kinetics</b>	First order reactions and Psuedo first order reaction	<b>6</b>	<b>22/01/2022</b>	18/01/2022
94		Second order reactions, third order reactions, nth Order Reaction			19/01/2022
95		Temperature Coefficient, Temperature Dependence of Rate of reaction(Arrhenius equation)			20/01/2022
96		Effect of catalyst, Collision theory of chemical reactions			21/01/2022
97		Nuclear chemistry			22/01/2022
98	<b>Solid State</b>	Amorphous and Crystalline solids & Classification of Solids	<b>6</b>	<b>29/01/2022</b>	24/01/2022
99		Crystal lattice & unit cells , Number of atoms in unit cells, symmetry elements			25/01/2022
100		Closed Packing , voids			26/01/2022
101		Packing efficiency, density			27/01/2022
102		Ionic Crystals			28/01/2022
103		Defects in Solids, Magnetic properties, Theory of conduction			29/01/2022
104	<b>Thermodynamics and Thermochemistry</b>	Extensive and intensive properties, state variables, path function, types of process	<b>7</b>	<b>07/02/2022</b>	31/01/2022
105		First Law of Thermodynamics, Pressure Volume Work			01/02/2022
106		Enthalpy , Calorimetry			02/02/2022
107		Reaction enthalpy (Thermochemistry)			03/02/2022
108		Second Law of Thermodynamics			04/02/2022
109		Concept of Entropy , Free Energy			05/02/2022
110		Third law of thermodynamics, Gibbs energy change & equilibrium			07/02/2022
111	<b>Chemical Equilibrium</b>	Types of reactions & Equilibrium, Law of equilibrium and Equilibrium Constant	<b>3</b>	<b>10/02/2022</b>	08/02/2022
112		Degree of Dissociation, Types of Equilibrium Constant and their Relationship, Reaction Quotient, Thermodynamics of chemical equilibrium			09/02/2022
113		Lechatlier's Principle, Relationship between Degree of Dissociation ( $\alpha$ ) and Vapour Density			10/02/2022
114	<b>Ionic Equilibrium</b>	Concepts of Acids, Bases and Salts, Water ( ionization constant and ionic product)	<b>6</b>	<b>17/02/2022</b>	11/02/2022
115		Ionization of weak acid and bases ,pH Calculation ,Poly protic acids and bases			12/02/2022
116		Hydrolysis of Salts and pH			14/02/2022

117		Buffer Solutions			15/02/2022
118		Theory of indicators			16/02/2022
119		Solubility Product			17/02/2022
120	<b>Atomic Structure</b>	Discovery of subatomic particles, e/m Concept, Thomson model of atom, Rutherford's Experiment, Isotopes, Isobars, Isodiaphers, Isotones, Isotopes, Isoelectronic	<b>6</b>	<b>24/02/2022</b>	18/02/2022
121		Wave nature of electromagnetic radiation, Planck's quantum theory, Black Body Radiation, Photo-Electric Effect			19/02/2022
122		Bohr's Theory, Hydrogen Spectrum			21/02/2022
123		Debroglie Duality, Heisenberg Uncertainty Principle			22/02/2022
124		Quantum mechanical model of atom including Schrodinger's equation, Quantum Numbers			23/02/2022
125		Shapes of atomic orbitals, Aufbau principle Pauli's exclusion principle Hund's rule, Electronic Configuration			24/02/2022
126	<b>Electrochemistry</b>	Electro Chemical Cells, Standard Electrode Potential	<b>8</b>	<b>05/03/2022</b>	25/02/2022
127		EMF of Galvanic Cells, Cell Reactions			26/02/2022
128		Nernst Equation, Spontaneity of cell			28/02/2022
129		Concentration Cells			01/03/2022
130		Electrolytic Conductance, Kohlrausch Law			02/03/2022
131		Electrolytic cell and Faraday's Laws of Electrolysis			03/03/2022
132		Products of electrolysis			04/03/2022
133		Thermodynamics of Electrochemical cell, Batteries, Corrosion			05/03/2022
134	<b>Surface Chemistry</b>	Concept of Adsorption, Adsorption isotherms, Catalysis	<b>3</b>	<b>09/03/2022</b>	07/03/2022
135		Colloids & Classification of colloids, Preparation & properties of colloids, Emulsions, Surfactants, Micelles			08/03/2022
136		Live Doubt Session			09/03/2022
137	<b>Periodic Table</b>	Genesis of periodic classification, Modern Periodic Table, IUPAC Nomenclature of Elements	<b>5</b>	<b>15/03/2022</b>	10/03/2022
138		Atomic Size, ionic radius			11/03/2022
139		Ionization energy			12/03/2022
140		Electronegativity (Electron gain enthalpy), Electronegativity			14/03/2022
141		Periodic trends & chemical reactivity, Anomalous properties of second period elements			15/03/2022
142		General Features, Oxidation States, Spin Only Magnetic Moment			16/03/2022

143	<b>D and F block</b>	Preparation and properties of $K_2Cr_2O_7$ , Preparation and properties of $KMnO_4$	<b>3</b>	<b>18/03/2022</b>	17/03/2022
144		The inner transition elements, Actinoids and Lanthanoids			18/03/2022
145	<b>Coordination Compounds</b>	Important definitions & Nomenclature	<b>6</b>	<b>26/03/2022</b>	21/03/2022
146		Werner's Theory			22/03/2022
147		Geometrical isomerism, Optical isomerism			23/03/2022
148		Structural isomerism			24/03/2022
149		Valence bond Theory Crystal field Theory			25/03/2022
150		Bonding in metal carbonyl complexes, Colour in Coordination compounds			26/03/2022
151		Stability of coordination compounds, Importance and Application of coordination compounds	<b>1</b>	<b>28/03/2022</b>	28/03/2022
152	<b>Hydrogen</b>	Position of hydrogen, Preparation, Isotopes of hydrogen, Properties of hydrogen, Hydrides	<b>2</b>	<b>30/03/2022</b>	29/03/2022
153		Water, ice and Heavy water, hardness of water, Hydrogen peroxide			30/03/2022
154	<b>Alkali Metals</b>	Physical properties, solubility and stability of salts, Reaction with air, Reaction with water, Non-metals, Solubility in liquid ammonia, flame coloration, Reducing nature, other chemical reactions, Anomalous properties of Li	<b>2</b>	<b>01/04/2022</b>	31/03/2022
155		Preparation and properties of NaOH, $Na_2CO_3$ , $NaHCO_3$			01/04/2022
156	<b>Alkaline Earth Metals</b>	Physical properties, reaction with water, reaction with air, Solubility and stability of salts, solubility in liquid ammonia, flame coloration, Reducing nature, other chemical reactions, Hydrides and Chlorides, Diagonal Relationship	<b>2</b>	<b>04/04/2022</b>	02/04/2022
157		Preparation and properties of CaO, $Ca(OH)_2$ and $CaCO_3$ , POP, Bleaching powder and cement			04/04/2022
158	<b>Boron Family</b>	Physical properties of group 13 elements, Abnormal behaviour of Boron, halides of Borons, other compounds of Boron	<b>2</b>	<b>06/04/2022</b>	05/04/2022
159		Chemical reactions of group 13 elements, Borax, Boric Acid, Boranes and Diboranes, $B_2O_3$ , BN and $B_3N_3H_6$ , Aluminium compounds and Alums			06/04/2022
160	<b>Carbon</b>	Physical and Chemical reactions of group 14 elements, Allotropes and catenation of carbon	<b>2</b>	<b>08/04/2022</b>	07/04/2022

161	<b>Family</b>	Oxides ,halides.hydrides of group 14,Silicones, Silicates, Glass,Compounds of Sn and Pb	4	08/04/2022	08/04/2022
162	<b>Nitrogen Family</b>	Physical properties of group 15 elements,General reactions of group 15 elements, abnormal behaviour of nitrogen	3	12/04/2022	09/04/2022
163		Dinitrogen,Ammonia,Oxides of nitrogen,Nitric acid and nitrous acid,Allotropes and catenation of Phosphorous			11/04/2022
164		Phosphine,oxide and halides of phosphorous,Oxoacids of phosphorous,Other compounds of nitrogen family, fertilizers			12/04/2022
166	<b>Oxygen Family</b>	Physical properties of group 16 elements,General reactions of group 16 , Abnormal behaviour of oxygen	2	14/04/2022	13/04/2022
167		Dioxide and other simple oxides,Ozone,Allotropes and catenation of sulphur,Oxides of sulphur,Oxoacids of sulphur, Sulphuric acid,Other compounds of oxygen family			14/04/2022
168	<b>Halogens</b>	Physical properties of group 17 elements,Chemical properties and Abnormal behaviour of fluorine, Preparation and properties of Cl <sub>2</sub> and HCl,Oxoacids of halogens,Oxides of halogens,Inter halogen compounds, pseudo halogens,Other compounds of halogen family	1	15/04/2022	15/04/2022
169	<b>Inert Gases</b>	Physical properties of group 18 elements,Chemical properties,Compounds of Xe	1	16/04/2022	16/04/2022
170	<b>Metallurgy</b>	Types of Ores, Concentration of Ores, Roasting, Calcination	3	20/04/2022	18/04/2022
171		Reduction of Metallic Ores, Ellingham diagram			19/04/2022
172		Refining of Metals, Extraction of some important ores, Alloys			20/04/2022
173	<b>Salt Analysis</b>	Acidic Radicals -01	6	27/04/2022	21/04/2022
174		Acidic Radicals -02			22/04/2022
175		Basic Radicals -01			23/04/2022
176		Basic Radicals -02			25/04/2022
177		Dry test of basic Radicals			26/04/2022
178		Heating effect			27/04/2022