

JEE Super Saver Course - Physics 12th
by Muqem Khan (MK) Sir

Class - 11th (Revision)			
S.No	Chapter Name	Lecture No.	Lecture Name
1	KINEMATIC+ PROJECTILE+ RELATIVE MOTION	1	MOTION IN 1D AND 2D
2		2	PROJECTILE MOTION
3		3	RELATIVE MOTION
4		4	DISCUSSION
5	NLM+FRICTION	1	NEWTONS'LAWS OF MOTION , FBD,FORCE ON A BODY
6		2	STATIC AND KINETIC FRICTION
7		3	CONSTRAIN MOTION
8		4	DISCUSSION
9	CIRCULAR KINEMATIC AND DYNAMICS	1	CIRCULAR KINEMATIC AND DYNAMICS
10		2	DISCUSSION
11	WORK ENERGY POWER	1	CALCULATION OF WORK, CONSERVATIVE FORCE AND POTENTIAL ENERGY
12		2	WORK-ENERGY THEORM, POWER
13		3	DISCUSSION
14	COM	1	CALCULATION OF COM, COM FOR 2 BODIES,CASES OF CAVITY
15		2	SYSTEM OF VARIABLE MASS
16		3	DISCUSSION
17	ROTATIONAL MOTION	1	MOMENT OF INERTIA, PARALLEL AND PERPENDICULAR AXIS THEORM
18		2	RADIUS OF GYRATION, TORQUE, NEWTON'S LAW OF ROTATION, ANGULAR MOMENTUM
19		3	COMBINATION OF ROTATIONAL + TRANLATION MOTION
20		4	SLIPPING, PURE ROLLING, MECHANIVAL ENERGY, IOAR
21		5	DISCUSSION
22	SHM	1	EQUATION OF SHM, TWO BLOCK SYSTEM & COMBINATION OF SPRINGS IN SHM
23		2	ANGULAR SHM, SIMPLE PENDULUM, COMPOUND PENDULUM, TORSIONAL PENDULUM
24		3	DISCUSSION
25	WAVE	1	EQUATION OF WAVE, SUPERPOSITION, INTERFERENCE, REFLECTION, TANSMISSION
26		2	SOUND WAVE, NEWTON'S AND LAPLACE FORMULA, INTERFERENCE, REFLECTION, REFRACTION,RASONACE
27		3	BEATS, DOPPLER'S EFFECT, DISCUSSION
28	KTG & THERMODYNAMICS	1	KTG, DEGREE OF FREEDOM,AVOGADRO' LAW, MAXWELL'S LAW,RMS VELOCITY, MEAN FREE PATH
29		2	WORK DONE, FIRST LAW OF THERMODYNAMICS, CYCLIC PROCESS,CARNOT THEORM,SECOND LAW OF THERMODYNAMICS
30		3	DISCUSSION

31	FLUID	1	FLUID STATIC
32		2	FLUID DYNAMICS , SURFACE TENSION, VISCOSITY
33		3	DISCUSSION
34	ELASTICITY, THERMAL EXPANSION, CALORIMETRY	1	ELASTICITY, THERMAL EXPANSION
35		2	CALORIMETRY, DISCUSSION

Class - 12th			
S.No.	Chapter Name	Lecture No.	Lecture Name
1	ELECTROSTATICS	16	Charge - Definition and its properties , Charging Method , gold Leaf electroscope
2			Coulombs law , Effect of Medium , Electric Field .
3			Electric field Lines , and Electric field , Properties of electric field
4			Electric Field Due to point charge , arc , ring , line charge, disc , sheet, E-x Graph
5			Motion of Charge particle in Electric field , Definition of Flux , Gauss Law , Flux by Gauss law
6			Electric Field Due to spherical shell , sphere , cylindrical shell , cylinder , thick sheet
7			Electric Field Within Cavity , Electric field for Variable Charge density
8			Cond. , charge and Electric Field within Conductor , charge distribution on concentric metallic Shells and Parallel metallic plate .
9			Potential Energy for two and multiple charge system , energy of system and its conservation
10			Electric Potential and Potential Difference , Relation between Electric Field and potential difference
11			Electric Potential of Point Charge , ring , line charge , spherical shell , solid sphere , Relation between potential difference and Work Done .
12			Equipotential Surface , charge sharing and earthing of conductor , , electric dipole , dipole moment
13			electric potential and electric field due to electric dipole
14			dipole in electric field , torque, energy force , force on dipole .
15			Properties of Conductor , electrostatic pressure , Free Bound Charges , Conductor as equipotential surface , VANDE- GRAFF generator
16			Shielding in conductor , Di-electric and electric Polarization
17	GRAVITATION	4	Gravitational Force Field , Potential , Potential energy and comparison with electrostatic .
18			Definition of ' g ' and its variation with height , depth , rotation and shape
19			Binding energy , escape velocity , Bound System , Circular Orbits , Keplers law , Geo- Stationary
20			Discussion
21			Definition and equation of capacitor , capacitance , type of capacitor

22	CAPACITORS	6	capacitance of spherical , cylinder , parallel plate and other capacitor
23			Energy of capacitor , force between plates , combination of capacitor and charge sharing / Distribution in capacitor .
24			dielectric partial and complete , polarization , induced charges , Equivalent Capacitance , Heat loss and force of dielectric
25			Charging and discharging of capacitor , their equivalent and Equivalent time and battery efficiency
26			Discussion
27			CURRENT ELECTRICITY
28	Current density , Ohm's law , Conductivity conductance , ohmic /non ohmic resistance		
29	Resistance in different cases , Definition of Equivalent Resistance , Variation of Resistivity and Conductance with temperature , Semiconductor and thermistors .		
30	Ideal battery , EMF , Equivalent of Circuit elements , Kirchoff's law		
31	Series and parallel combination of resistance and batteries .		
32	Wheat stone bridge , infinite series , symmetry , PT. Potential , Nodal analysis		
33	More examples on finding equivalent resistance and Resistance for Cubical frame .		
34	Unbalanced wheatstone bridge , symmetric and non symmetric combinations		
35	Power of resistance , battery , parallel connection in home		
36	Max. Power Transfer theorem (MPTT) and examples of Power		
37	Fuse wire , Galvanometer , ammeter , Meterbridge, Voltmeter and their Conversion		
38	Potentiometer and Application & PO Box		
39	MAGNETIC EFFECT OF CURRENT & MAGNETISM	14	Production of Magnetic Field , Biot Savart law , magnetic Field Lines
40			Magnetic Field Due to St. Wire , Loop , Arc , sheet
41			Magnetic field due to Cylinder trough , solenoid
42			More on Magnetic Field Lines , Magnetic Field Due to Moving Charge , E/B Value .
43			Ampere's law , Finding Line Integration of magnetic field .
44			Magnetic Field inside and Outside wires , Magnetic Field Within Cavity
45			Magnetic field between sheets , solenoid , Toroid .
46			Magnetic Force , Motion in Uniform magnetic field
47			Circular and Helical Motion , Lorentz Force , Motion under Electric field and Magnetic field
48			Effective length in uniform Magnetic field , Force Between parallel wires , Magnetic dipoles , field Lines
49			Dipole moment , M of moving charge , field on dipole Torque , energy and force on dipole due to Magnetic field , Dipole - Dipole

50			Earth magnetism , Meridian , Dip angle , dip circle , app. Dip
51			Vibrational Magnetometer , Mag. Shielding ,Meissener effect
52			Magnetic material and Microscopic explanation,Magnetization variable , Curie law,Hysterises , retentivity , Losses
53	EMI	14	Translational and Rotational of conducting rod in uniform Magnetic field
54			Accelarating and rotating conducting rod in absense of Magentic field , Magnetic Flux and Faraday Law and Lenz law
55			Induced Current , Understanding E , Circuit diagram
56			Energy Loss , In-out of Magnetic field by a closed body ,Horizontal - Vertical Rails
57			Cases including C , terminal velocity , rotating disc
58			Cases having Induced EMF and Battery ,Disc Rotation about diameter , AC generator
59			time variation of Mangetic field , Induced EMF inside outside
60			Finding Potential difference and Induced EMF b/w points , charges flow , impluse
61			Mutual Induction Law , Conentric Coils , Co-axial Solenoid .
62			More example on Mutual , Self induction Law , Inductor
63			Inductance , equivalent Inductance of solenoid , toroid , Inductor Combination
64			Ex. Of inductor , Magnetic Energy Density , Growth /fall of current in LR Circuit
65			L-C Oscillations , Equivalent time calculation ,comparision with spring - block
66			Discussion
67	ALTERNATING CURRENT	5	AC Current , Frequency , avg, ,RMS ,peak .AC Circuit , Phase angle , Power and power factor
68			Phasor diagram , resistance , X ,Z , rms value of V and Instantaneous value of V across elements .
69			Fundamental AC Circuit , R only, L only , C only . Series Circuit : R-L ,L-C , R-C , L-C-R Circuit ,
70			resonance and Circuit analysis,Quality factor ,half power frequency,Susceptance and admittance ,Choke Coil , Transformer
71			Natural Damped oscillation ,underdamping , critical damping & over damping,Under- damping, Q Value , Power Loss , Log decrement ,Forced damped oscillation , resonance,Discussion
72	EM WAVES	3	Maxwell's Displacement current and Ampere's law failure,Maxwell Equation ,EM waves and hertz Experimen
73			wave Eqn , Poynting vecor , EM Energy Density,momentum transfer , Specturm of EM Waves
74			Discussion
75			Introduction to ray optics , rectilinear propogation and bending ,reflection & Refraction
76			Reflection ,Laws of reflection vector Law , Plane mirror , Object and image

77	GEOMETRICAL OPTICS + OPTICAL INSTRUMENTS	17	Plane mirror deviation , Field of View ,object - image velocity, no. of images		
78			Spherical Mirror - Concave /convex , focal length , mirror formula , newtons formula		
79			object - image speed , u-v Graph , focus (experimentally) Parallax .		
80			Refraction ,Law of Rrefraction , Vector Law , Refractive index , Refraction in multiple parallel mediums , equations of Ray .		
81			Rectangular Slab , lateral shift , normal location in different medium , velocity in different medium .		
82			shifting by slab , TIR and critical angle , Graph b/w deviation and angle of incidence .		
83			Circle of illuminance, optical fibre , Mirage , Looming Prism , graph b/w deviation and angle of incidence		
84			No emergence prism , $i'=0$, small angled prism		
85			Dispersion , Dispersive Power , Prism Combination , achromatism .		
86			Discussion , Spherical refraction		
87			Spherical Refraction examples , Lens Formula , Magnification		
88			Cases for Lenses , obj-image Velocity , cutting -splitting		
89			Lens Combination , power ,silvering of lens.		
90			Displacement Method , lens Defect , Achromatic combination		
91			Simple Microscope , Compound Microscope & telescope		
92			WAVE OPTICS	11	Huygens hypothesis , wave front , secondary wavelets , laws of reflection /refraction , failure .
93					Coherent sources and YDSE , Intensity
94	Variation on screen , no. of maxima & minima on screen .				
95	Optical path , slabs on slits				
96	bi and multi chromatic , white light .				
97	Medium change , screen movement , Multi slits				
98	shape of fringes , lloyd's Mirror				
99	Thin Film interference , Newtons Ring				
100	Polarization , polaroid , malus and Brewster Law , Scattering				
101	Diffraction , fresnel/Fraunhofer diffraction , slit/Circular Hole , resolution				
102	Discussion				
103			Photon , Power ,intensity , force on beam .		
104			De-broglie wavelength , matter waves , quantization , particle in a box , bohr Model		
105			Quantization examples , discussion		
106			Photo - electric effect , hertz , hallwachs , einstein explanation		
107			Isolated sphere and PEE Experiment ,stopping potential		
108			I-V Graph and effect of intensity and frequency		
109			different models of Atom , Bohr Model and equations		
110			V, r ,E dependancy on n and Z . Modified Bohr Model , Excitation - De- excitation energy levels , seriuess , rydberg equation		
111			Recoil and Series Energy , atomic Collision , Atomic Collision Example		

112	MODERN PHYSICS AND NUCLEAR PHYSICS	20	Motion of nucleus ,failure of Bohr model , discussion
113			X Rays
114			Nucleons , Representation of nucleus , Nuclear Radius , amu , rest mass energy
115			Isotope , isotone , isobar , binding energy and mass defect
116			Nuclear Forces , BE/A , Stability , Fission ,Fusion , Behaviour , of BE/A Graph ,volume , surface and potential energy
117			Nuclear reaction , Q value , Nuclear Decays , alpha, beta, gamma comparison
118			Alpha decay , beta decay , K capture , Gamma Decay
119			Fission Reactors , Fast Breeders , Fusion ,Pair production and annihilation
120			Alpha ,beta, gamma decay , activity , law of radioactivity , units
121			Half Time ,Avg. Time , decay constant , soddy and Fajan's Rule Series
122			Parallel disintegration , Equivalent decay constant , Disintegration with product
123			SEMICONDUCTOR AND COMMUNICATION
124	Intrinsic ,extrinsic ,doping , N type ,P type , Mass action law .		
125	P-N Junction ,diffusion , drift current , potential barrier , depletion layer , Diode- Forward & Reversed Biased		
126	Zener and avalanche breakdown , application of diode LED ,photodiode ,solarcell ,Zener diode ,rectifier - Full wave , half wave ,Bridge rectifier		
127	Transistor , E,B,C, npn ,pnp . Region of Working		
128	Transistor circuits , Common base , Common emitter Common collector , input output characteristics		
129	Current Gain ,Voltage Gain and other relation . Questions , transistor as amplifier		
130	Logic gates : OR ,AND, NOT , NOR,NAND , XOR, XNOR Gate . Boolean algebra ,truth table , Elec. Analogue and Circuit diagram		
131	Communication and Element of Communication System , types , basic definitions transducer , noise , signal ,attenuation		
132	Prop. Of EM waves , Ground ,Sky ,space Communication . Modulation : AM ,FM ,PM		
133	Modulation Index , Band Width Sq.law Device ,Band Pass Filter , Demodulation ,IP Stage , Envelope Detector , Cmax.		

Phycs Problem Solving Course Plan

S.No.	Chapter Name	No. of Lectures
1	ELECTROSTATICS	3
2	Gravitation	1
3	CAPACITANCE	2
4	CURRENT ELECTRICITY	2

5	MAGNETIC EFFECT OF CURRENT & MAGNETISM	3
6	EMI	2
7	ALTERNATING CURRENT	2
8	EMW	1
9	GEOMETRICAL OPTICS + OPTICAL INSTRUMENTS	3
10	WAVE OPTICS	2
11	MODERN PHYSICS AND NUCLEAR PHYSICS	2
12	SEMICONDUCTOR AND COMMUNICATION	2

JEE Super Saver Course - Chemistry 12th
by JH Sir (Phy. Che.), PS Sir (Inorg. Chem.), NJ Sir (Org. Chem.)

Class - 11th (Revision)			
S.No.	Chapter Name	Lecture No.	Lecture Name
1	Mole concept (Physical Chemistry)	1	Basic moles , average molar mass , % of element , empirical & Molecular Formula, Laws Of chemical Combination, Stoichiometry , Limiting Reagent, % Yield , POAC, Series Reactions
2		2	Concentration Terms and their interconversion, Dilution and mixing of solutions, Volume strength of H ₂ O ₂ , Eudiometry & Methods of atomic mass determination
3	Fundamental of IOC (Inorganic Chemistry)	1	Quantum numbers, Shape of orbitals, Writing Electronic configurations
4	Classification and Nomenclature of Organic Compounds (Organic Chemistry)	1	Classification of Organic Compounds, Functional groups, Hybridisation Of Carbon and Bond Line Notation
5		2	Classification of Carbon and Hydrogen, Classification and Identification of Compounds on the basis of Functional Group, Degree of Unsaturation (DU or IHD) , Nomenclature of Alkanes
6		3	Nomenclature Of Cyclo, Bicyclo, Spiro, alkenes and alkynes, Nomenclature Of compounds containing Functional Groups (carboxylic acid, cyanide, aldehyde, amide, acid halide, esters anhydrides etc.)
7		4	Nomenclature of Compounds Containing multiple functional Groups, Nomenclature of Epoxides, Aromatic Compounds
8	Redox reaction (Physical Chemistry)	1	Introduction, Oxidation number, Balancing of redox reactions
9		2	n-factor calculation & Law of chemical equivalence, Acid base , redox, iodometric titrations
10	Periodic Table (Inorganic Chemistry)	1	Electronic configurations, valence electrons & Covalency, Naming of elements with Z > 100,
11		2	Effective Nuclear Charge & screening effect , Idea of I.E., Electron Affinity & Electronegativity , Hydration & Hydration energy , acidic basic & Amphoteric oxides
12		1	Inductive effect & its applications

13	Electronic Displacement Effect (Organic Chemistry)	2	Resonance, Condition for resonance and writing R.S.,
14		3	Aromaticity, Mesomeric effect,
15		4	Comparison of resonance energy, Bond length bond energy & rotation energy barrier.
16		5	Stability of intermediate, Hyperconjugation, Applications of hyperconjugation, HOH, HOC
17		6	acid and base strength, Base strength, S.I.P., S.I.R. effect, ortho effect
18	Atomic Structure (Physical Chemistry)	1	planck's quantum theory, photo electric effect, rutherford's model
19		2	Bohr's model & Hydrogen spectrum, Quantum mechanical model & Schrodinger's wave equation
20	Chemical Bonding (Inorganic Chemistry)	1	Introduction of chemical bonding, Formal Charge, Lewis octet rule, Lewis acids & Bases, VBT & Overlapping
21		2	Involvement of d-orbitals in Overlapping, Hybridization and VSEPR, Calculation of σ - π Bonds, Bond Order, Bond Length and Bent Rule, Bond Order and Drago's Rule, Hybridisation in Solid State
22		3	Structures by Bent Rule, Dipole Moment and Applications, Back Bonding and its Application
23		4	Bridge Bond, MOT and its Application, Intermolecular Forces and their Types, Hydrogen Bonding and its Types, Ionic Bond, Polarisation and Fajan's Rule, Applications of Polarisation, Solubility and Solubility Order
24	Structural isomerism (Organic Chemistry)	1	Structural isomerism (including tautomerism).
25		2	Structural isomerism (including tautomerism).
26	Geometrical isomerism (Organic Chemistry)	1	Geometrical isomerism
27		2	Geometrical isomerism
28	Conformational isomerism (Organic Chemistry)	1	Conformation of Ethane, propane, butane (about $C_1 - C_2$, $C_2 - C_3$)
29		2	Conformation of Cyclohexane including G.I.
30	Optical isomerism (Organic Chemistry)	1	Symmetry elements (POS, COS, AOS, AAOS), chiral centre, stereo centre (i) Optical activity, PPL, angle of rotation (ii) d & l, numerical on specific angle of rotation
31		2	chirality, optically active compounds, single chiral and multiple chiral atom molecules, Enantiomer & their properties, Racemization, Resolution optical purity, % composition, Fischer projection, R.S. configuration (not more than 2 chiral carbon containing acyclic compounds)
32		3	D & L - Configuration, Diastereomers & their properties including separation. Examples of 1-chiral, 2-chiral, 3-chiral carbon only. Calculating number of stereoisomers. Interconversion of all projection
33	Gaseous State (Physical Chemistry)	1	Gas laws and ideal gas equation, types of containers, manometer & barometer, Dalton's law of Partial pressure, Effusion and diffusion, Kinetic Theory of gases, types of molecular speeds,
34		2	kinetic energy and maxwell's speed distribution curve, Real gases and deviation from ideal behaviour, compressibility factor & calculation, Liquefaction of gases and critical constants

35	Chemical Equilibrium (Physical Chemistry)	1	Introduction characteristics of equilibrium, Law of mass action and equilibrium constant , Characteristics of equilibrium constant, writing equilibrium constant for various reactions, Calculation of Equilibrium constant and numerical application
36		2	Significance of value of equilibrium constant, calculation of degree of dissociation by V.D. Measurement , Simultaneous equilibrium, Reaction Quotient & Le chatlier's principle, Le chatlier's principle & Physical equilibrium

Class - 12th			
S.No.	Chapter Name	Lecture No.	Lecture Name
1	Alkyl halides (Organic Chemistry)	1	Leaving group E^+ , Nu^- . solvents, Idea of EAS (benzene)
2		2	G.M.P. of carbocation, Rearrangement
3		3	Acid catalysed & other dehydration of $R-OH$, pinacolone formation
4		4	Pinacole, Pinacolane rearrangement
5		5	$E+$ Addition (HX , HOX , NOX , interhalogen X_2 , $X_2 + water$) $M-$ rule, Nonclassical Carbo cation, HBO, OMDM, Kucherov Reaction
6		6	S_N^1 , S_N^2 kinetics, mechanism; stereochemistry, substrate effect Application of S_N
7		7	(a) G.M.P. alkyl halide, by HCl , $HCl + ZnCl_2 + ; NaCl + H_2SO_4$ $PCL SOCl_2$, PCl_3 on alcohol,
8		8	Finkelstein, swarts
9		9	(b)G.M.P. of alcohol (c) G.M.P. of ether (williamson)
10		10	Introduction of elimination reaction E_1 , E_2 , E_{1cb} Application of elimination
11		11	(b) Elimination of esters (c) Hoffman's exhaustive elemenation
12		12	photohalogenation of alkanes number of monohalogen derivatives Wurtz family reaction & Kolbe electrolysis Pinacoal formation
13		13	Antimarkownikoff addition, NBS Sheet Discussion & NCERT Exercise Discussion
14	Alcohols & Ethers (Organic Chemistry)	1	GMP of $RCHO$ & R_2CO by dry distillation,soda lime, decarboxylation
15		2	Complete heating effect
16		3	G.M.P. by $RMgX$
17		4	G.M.P. by reduction by H^- , LAH,SBH, DIBAL-H, BH_3 , MPV hydrogenation (lindlars catalyst & others)
18		1	Introduction, Classification of Ligands ,
19		2	Oxidation number, Effective atomic number
20		3	Nomenclature of Coordination Compounds , Werner's
21		4	coordination theory
22		5	Crystal Field Theory ,Valence Bond Theory

23	Co-ordination Compounds (Inorganic Chemistry)	6	CFT
24		7	Calculation of CFSE, Factors affecting splitting energy , Applications Of CFSE
25		8	Synergic bonding and
26		9	stability of complexes
27		10	Structural isomerism
28		11	Stereoisomerism
29		Chemical Kinetics (Physical Chemistry)	1
30	2		order and molecularity, significance of order of reaction
31	3		Zero order, 1st order, 2nd order, nth order
32	4		Calculation of 1st order rate constant in terms of different Parameters
33	5		Kinetics of parallel reaction
34	6		Collision Theory and Arrhenius Equation
35	7		Maxwell's distribution,
36	8		factors affecting rate of reaction
37	Radioactivity (Physical Chemistry)	1	Introduction, Phenomenon of radioactivity, calculation of alpha, beta particles
38		2	carbon dating, determination of age of rocks and minerals
39		3	Stability of Nucleus, n/p ratio emission of radioactive particles
40		4	magic number even odd rule, binding energy
41	Carbonyl Compounds (Organic Chemistry)	1	GMP of RCHO & R ₂ CO by RCN , Acid & derivatives by reduction, Nucleophilic addition HCN, NaHSO ₃ , NH ₂ -Z, 2, 4 DNP, H ₂ O, Wolf kishner & Clemenson reduction.
42		2	Nucleophilic addition of ROH (Protection of carbonyl), GMP of RCHO & R ₂ CO from alkene using ozonolysis
43		3	Complete oxidation of alkene (hydroxylaton, prileschev, followed by diol cleavage
44		4	GMP of RCHO & R ₂ CO by oxidation of alcohol. (by KMnO ₄ , K ₂ Cr ₂ O ₇ , Cu /300°C , PCC , PDC, NBS, MnO ₂
45		5	Oxidation of carbonyl compound Haloform reaction, Bayer v. oxidation, tollens, fehling , benedict, schiff, HgCl ₂ , SeO ₂ .
46		6	Name reaction - Aldol, claisen,
47		7	Perkin, acid. Reformatsky, knoevngal reactions
48		8	Cannizaro's reaction , benzil -benzilic acid rearrangement.
49	Metallurgy (Inorganic Chemistry)	1	Introduction, ore, mineral Steps involved in Metallurgy
50		2	Gravity separation, Magnetic separation
51		3	froth floatation, Leaching
52		4	Conversion of ore into oxide, Reduction of oxide into metal (smelting), Self reduction
53		5	Refining of metal
54		6	Thermodynamics of metallurgy - Ellingham Diagram
55		7	Extraction of Fe & Cu
56		8	Extraction of Al, Ag & Au
57		1	Introduction, Basic definition, Types of system, State function / path function, Extensive & intensive properties,
58		2	Work, Heat & Internal Energy, heat capacities, First law of thermodynamics

59	Metallurgy (Inorganic Chemistry)	3	Enthalpy , Relation between Enthalpy and Internal Energy, Calorimetry	
60		4	Thermodynamic Processes , Reversible & Irreversible process and their comparison	
61		5	Isochoric process,Isobaric process , Isothermal process, Adiabatic process	
62		6	Comparison between isothermal & adiabatic process,Polytropic process	
63		7	Second law of Thermodynamics , Entropy &spontaniety , Calculation of DS total DS _{sys} & DS _{surr} .	
64		8	Calculation of entropy in different cases ,, third law of thermodyanmics	
65		9	Gibbs free energy , calculation of Change in G, condition for spontaniety,	
66		10	Variation of gibbs free energy with P & T, concept of equilibrium	
67		Thermodynamics (Physical Chemistry)	1	Introduction, Basic definition, Types of system, State function / path function, Extensive & intensive properties,
68			2	Work, Heat & Internal Energy, heat capacities, First law of thermodynamics
69	3		Enthalpy , Relation between Enthalpy and Internal Energy, Calorimetry	
70	4		Thermodynamic Processes , Reversible & Irreversible process and their comparison	
71	5		Isochoric process,Isobaric process , Isothermal process, Adiabatic process	
72	6		Comparison between isothermal & adiabatic process,Polytropic process	
73	7		Second law of Thermodynamics , Entropy &spontaniety , Calculation of DS total DS _{sys} & DS _{surr} .	
74	8		Calculation of entropy in different cases ,, third law of thermodyanmics	
75	9		Gibbs free energy , calculation of Change in G, condition for spontaniety,	
76	10		Variation of gibbs free energy with P & T, concept of equilibrium	
77	Thermochemistry (Physical Chemistry)	1	Enthalpy of reaction, Enthalpy of formation,	
78		2	Enthalpy of combustion , Hess's law, Enthalpy of neutrilisation	
79		3	lattice enthalpy, Enthalpy of hydration, Enthalpy of solution	
80		4	Enthalpy for phase transformation, Enthalpy of atomisation	
81		5	Bond energy, Calculation of Enthalpy of reaction by bond energy data	
82	p-block (Inorganic Chemistry)	1	Boron Family	
83		2	Boron Family	
84		3	Carbon family	
85		4	Silcates & Silicones	
86		5	Nitrogen family	
87		6	Nitrogen Family	
88		7	Oxygen Family	
89		8	Oxygen Family	
90		9	Halogen Family	
91		10	Halogen Family	

92		11	Noble gases
93	Hydrocarbons (Organic Chemistry)	1	Alkanes (GMP and Properties)
94		2	Alkenes (GMP and Properties)
95		3	Alkynes (GMP and Properties)
96		1	Introduction, Vapour pressure, Phase diagram, Raoult's law & Application
97	Liquid solution (Physical Chemistry)	2	Mole fractions in liquid and vapor phase, Ideal & Non-Ideal solutions
98		3	Colligative properties, RLVP
99		4	Ebullioscopy, Cryoscopy, Osmotic pressure
100		5	Abnormal colligative properties and Van't Hoff factor, Henry's law
101		D-Block & F-Block (Inorganic Chemistry)	1
102	2		Properties of $K_2Cr_2O_7$
103	3		Properties of $KMnO_4$
104	4		Important compounds of D-block elements
105	5		F-block
106	Carboxylic Acids and Amines (Organic Chemistry)	1	Carboxylic acids methods of preparation and properties
107		2	GMP of amines, Schimidt, Lossen, Curtius reaction Hoffmann bromamide degradation, Gabriel phthalimide reaction
108		3	Beckmann rearrangement, Carbylamine test, Hinsbergs test Musturd oil reaction, Diazotisation Sheet Discussion carboxylic acids & Amines
109	Solid State (Physical Chemistry)	1	Introduction, Basic definition, Unit cell / Bravais lattices
110		2	Analysis of unit cells and packing in crystals
111		3	Radius ratio
112		4	structure of ionic crystals
113		5	defects in solids and magnetic properties
114	S-Block (Inorganic Chemistry)	1	Properties & compounds of Alkali metals
115		2	Properties & compounds of Alkaline earth metals
116		3	Important compounds, biological function of Na, K, Mg, Ca
117	Aromatic Compounds (Organic Chemistry)	1	Electrophilic aromatic substitution reaction, Nitration, sulphonation halogenation
118		2	F.C. alkylation, acylation, formylation,
119		3	Gattermann Koch, Gattermann Aldehyde reaction, Directive Influence and Activating Deactivation
120		4	Diazo Coupling (C-N, N-N), other reaction of PhN_2Cl
121		5	Preparation of phenol (ArSn, Cumen hydroperoxide, Dows etc)
122		6	Reaction of phenol (Reimer-Tieman reaction, Kolbe reaction) Preparation of DDT, Phenolphthalein, TNT, Picric acid, Oxidation & reduction of aromatic compound
123	Ionic Equilibrium (Physical Chemistry)	1	Acid-Base theories, Amphiprotic species, Levelling effect Arrhenius theory of dissociation
124		2	common ion effect, properties of water, pH scale, Calculation of pH for strong acids/bases
125		3	Calculation of pH of solution containing weak acid or base
126		4	Calculation of pH of mixtures, Calculation of pH of solution containing polyprotic acid/base
127		5	Salt hydrolysis

128		6	Buffer solutions and Acid Base Titrations
129		7	Indicators and selection of Indicators
130		8	Solubility and solubility product, Solubility in presence of common ion Condition for precipitation , selective precipitation
131		9	Solubility in buffer and complex formation
132	Hydrogen And Its Compounds (Inorganic Chemistry)	1	Complete properties
133		2	compounds of Hydrogen
134		3	Hardness of water
135		1	Introduction of amino acid, Types of amino acid (Classification) Preparation of amino acid Electrophoreses, Isoelectric point & calculation of isoelectric point.
136	Biomolecules (Organic Chemistry)	2	Structure of amino acid at different pH, Separation of mixture of amino acid Reaction of amino acid Peptide , hydrolysis of peptide, Proteins & all structure , Test for protein
137		3	Introduction , definition & classification , Naming of monosaccharide Epimer & anomer Hawarth projection & chair conformation representation of monosaccharide (glucose, fructose, mannose, galactose,)
138		4	Study of Disaccharide and polysaccharide & their hydrolysis, Test for carbohydrate DNA & RN
139		1	Introduction, Construction of galvenic cell, cell reaction and cell representation Electrode potential,
140	Electrochemistry (Physical Chemistry)	2	EMF of cell, Significance of electrode potential, Nernst Equation
141		3	EMF and equilibrium constant , Application of nernst equation, Concentration cells
142		4	different type of half cells, Metal SSS half cell
143		5	Thermodynamics of galvenic cells
144		6	Electrolysis and products of electrolysis,
145		7	Faradays laws of electrolysis
146		8	Conductance and conductivity cell, variation of molar conductivity with dilution
147		9	Kohlrausch's law and its applications, Application of Kohlrausch's law , Type of batteries
148		Environmental Chemistry (Inorganic Chemistry)	1
149	2		Stratospheric pollution, Water Pollution, Soil pollution
150	Polymers & POC-1 (Organic Chemistry)	1	Introduction , classification , Based on source / shape / reaction they are formed Classification based on molecular forces (Elastomer, fibre, thermoplastic, thermosetting), Types of polymerisation reaction, Zeigler natta catalyst. Details study of natural rubber, Gutta purcha , nylon-6, nylon-66 , phenol-formaldehyde resin, malamine formaldehyde resin, neoprin, buna-s, buna-n etc., Commercial use of polymer
151		2	Test of alcohols, phenolic OH, terminal alkyne, aldehydes , Ketone, unsaturation, amines, carboxylic acid, aromatic compounds. Lassign test (elemental analysis) , binary mixture separation , solubility test

152	Surface Chemistry (Physical Chemistry)	1	Adsorption & Absorption, catalysis & their types
153		2	colloids and their classification , preparation of colloids
154		3	properties of colloids, Coagulation and protection of colloids, purification and Emulsions
155	Chemistry in everyday life (Organic Chemistry)	1	Drugs and Medicines & its classification , Drug target interaction; Therapeutic action of drug (tranquilizers, analgesics, antibiotics, antiseptic, disinfectants, antifertility drugs,) Chemical & foods (artificial sweetening agent, Food preservatives) Soaps, Saponification, detergents

Chemistry Problem Solving Schedule		
S. No.	Topic	No. of Lectures
1	Chemical Kinetics	2
2	Co-ordination Compounds	2
3	GOC-2	2
4	Radioactivity	1
5	Metallurgy	2
6	Hydrocarbons	2
7	Thermodynamics	2
8	p-Block Elements	2
9	Halogen Derivatives	2
10	Thermochemistry	2
11	d & f- Block Elements	2
12	Liquid Solution	2
13	Solid State	2
14	Alcohol Phenol & Ether	2
15	Carbonyl Compounds	2
16	Ionic Equilibrium	3
17	Electrochemistry	2
18	Carboxylic Acid & Amines	2
19	Surface Chemistry	2
20	Biomolecules	2
21	Polymers	1
22	Practical Organic Chemistry	1

**JEE Super Saver Course - Mathematics 12th
by Manoj Sharma (MS) Sir**

Class - 11th (Revision)			
S.No.	Chapter Name	Lecture No.	Lecture Name
1	Basic Maths	1	Number System, Prime numbers, Divisibility Rule, Polynomial, Exponential Function and Logarithmic Functions

2		2	Modulus Function, Basic of Mod Inequality, Basic of Mod Inequality,
3	Quadratic Equation	1	Trigonometric Identities and Introduction of Quadratic Equation and Identity, Factor Theorem and Remainder Theorem, Symmetric Functions of Roots and Nature of Roots with Illustration
4		2	Graph of Quadratic and Range of Quadratic with Illustration
5		3	Illustration Based upon Graph and Theory of Common roots Theory of Equations
6	Sequence & Series	1	Arithmetic Progression, Arithmetic Mean And Illustration based upon AP
7		2	Geometric Progression, G.M and H.P
8		3	AGP and Relation between AM, GM and HM
9		4	Illustrations Based upon AM, GM and HM and Theory of Special Sequences
10	Trigonometry Phase - 1 & 2	1	Complete Theory and Some Illustrations
11		2	Series, Conditional Identity and Range
12		3	Theory of Trigonometry-II and basic illustration
13	Trigonometry Phase - 3	1	Sine and Cosine Rules and Some Illustrations on Sine Rule, Illustrations Based upon Sine and Cosine Rule, Illustrations Based upon Sine, Cosine Rule and Projection Formula
14		2	Derivation of Formula, Area of triangle, Tangent Rule and Half Angle Formula, Formula of R, r ₁ , r ₂ and r ₃ with Proof, Illustration Based On Area of Triangle Napier Analogy and Half Angle Formula
15	Straight Line	1	Theory Of Points and Practice Session-3 of Determinants
16		2	Various forms of equation of line
17		3	Position of a Point W.R.T. Line, Parametric form of Line, Distance Between Parallel Lines and Area of Parallelogram
18		4	Image of a Point and Line About a Line Mirror and Concept of Family of Lines
19		5	Family of Lines and Angle Bisectors and Practices Session
20	Circle	1	Basic Theory of Circle
21		2	Tangents from an External point, Chord of Contact, Pair of Tangents
22		3	Length of Tangent and Angle Between Tangents
23		4	Family of Circles and Relative Position of Circles Practice Session 03
24		5	Radical Axis of Two Circles and Radical centre and Radical Circle and Practice Session-4
25	Determinant	1	Theory of Determinant
26		2	Practice Session-1
27		3	Practice Session-2 and Theory of Solution of System of Equations
28	Matrix	1	Theory of Matrices Till Special Matrices
29		2	Theory and Properties of Transpose and Adjoint and Inverse of a Matrix and Practice Session-1
30		1	Basic Concepts of Binomial Theorem General Term, Middle Term etc. with Practice Session

31	Binomial Theorem	2	Sum of Coefficient and Numerically Greatest Term and Practice Session
32		3	Application of Binomial Theorem and Practice Session, Summation of Series with Practice Sessions
33	Permutation & Combination	1	Fundamental Principle of Counting and Permutation with Practice Session
34		2	Cyclic Permutation and Practice Session, Combination and Practice Session
35		3	Arrangement and Selection of Identical Objects and Practice Session

Class - 12th

S.No.	Chapter Name	Lecture No.	Lecture Name
1	Function	1	Greatest Integer Function, GIF and FPF, FPF, Signum Function
2		2	Basic, Types of Function
3		3	Types of Function, Definition of Function
4		4	Domain
5		5	Range
6		6	Graphical Transformation
7		7	Equation and Slope of a Straight Line
8		8	Graphical Transformation
9		9	Even and Odd Function, Odd-Even and Periodic
10		10	Periodic Function
11		11	Periodic & Composite
12		12	Composite and Classification Function
13		13	Classification of Function
14		14	Classification and Inverse
15		15	Inverse, Implicit/Explicit, Max, Min Graph
16	ITF	1	Definition Domain
17		2	, Range and Graph of ITF With Illustrations
18		3	Properties of ITF
19		4	Illustration Based upon Properties of ITF
20		5	Discussion
21	Limits	1	Basics of Limits Concept of LHL and RHL, Illustration on Basics of Limits
22		2	Indeterminate Forms and Concepts of Evaluation of Limits, $0/0$ form and Illustration on this Form
23		3	Limits at Infinity, Illustration on Infinity, Infinity Form and Use of Binomial
24		4	Illustration Based on Findings of Parameters, Trigonometric Limits
25		5	Illustration on Trigonometric Limits and 0^* Infinity and change of Variable, Taylor's Series and Formula of Exponential and logarithmic Limits
26		6	Illustration Based on Exponential Logarithmic Limits, Illustration on Taylor Series and Introduction to one Power Infinity Form
27		7	Illustration Based Upon One Power Infinity Form
28		8	Illustration Based Upon One Built in Limits and Some Miscellaneous Questions

29		9	Some Special Cases And Geometrical Limits
30		10	Geometrical Limits and Existence of Limits
31		11	Existence of Limit
32		12	Existence of Limit, Sandwhich Theoram
33	Continuity	1	Condition for Continuity and Types of Discontinuty
34		2	Oscillatory Discontinuity, Rules for Continuity of Function Derived by Two Functions
35		3	Illustration of Continuity, Continuity of Composite Functions
36		4	Paperchase of Continuous Function and Intermediate Value Theorem, Illustration Based on Properties of Continuous Function And IMVT, Illustration on IMVT
37	Differentiability	1	Graphical Interpnattion of non Differentiability , Defination of Derivative, Basic Illustration
38		2	Illustration Based on Graphs, Illustration Based on Graphs, Illustrations Based on Finding Value of Parameters
39		3	Determnation of Function Using Functional Rule
40		4	Illustration Based on Determnation of Funtions
41	MOD	1	First Principle, Fundamental Rules of Differentiation, Illustration based on rules of differentiation
42		2	Illustration Based on Basic Rules of Diffrentiation, Diffrentiation of Implicit Functions, Diffrentiation of Implicit Functions
43		3	Logaritjmic Differentiation, Illustration Based om Log. Differentitio and Theory of Parametric Differentiation
44		4	Differentiation Using Substitution and Derivative of Inverse Function
45		5	Higher Order Derivatiuves
46		6	Illustration Based on Higher Order Dimension
47		7	L''hpital Rule and zero and Infinite Forms of Limit
48	Tangent and Normal	1	Theory of Tangent and Normal
49		2	Illustrations Based upon Tangent and Normal
50		3	Tangent Normal (Angle between Curves)
51		4	Lenth of Tangent, Normal, Subtangent and Subnormal
52		5	Illustrations Based Upon Geomtrical Problems of Tangent and Normal and Approximation
53	Monotonocity and Maxima -minima	1	Derivative as a Rate Measure, Theory of monotonicity and Local Extremum Points
54		2	Theory low to Find Local Extremum Points and Point of Inflexion and Concept of Global Maxima and Minima
55		3	Illustration Based upon Monotonicity and Local Extremum Points
56		4	Illustration Based upon Monotonicity and Local Extremum Points
57		5	Illustration Based on Monotonicity of Function
58		6	Establishing the in Equalities
59		7	Geometrical Problems of Maximum and Minimum, Nature of Roots of Cubic
60		8	Illustration Based upon Cubic and Minimum/Maximum Distance of a Point from a curve
61		9	Tensions Inequality and Statements of Mean Value Theorems (RMVT and LMVT)
62		10	Illustration Based Upon Mean Value Theorems

63	Indefinite Integration	1	Integration of Standard Function and Geometrical Interfication
64		2	Illustration Based on Basic Formulas, Integration Using Substitution
65		3	Illustration Based On Substitution and Derivation of Formula 1/Quadratic
66		4	1/quadratic, Linear/quadratic , f(x)/quadratic, 1/asin2x + bsinxcosx + cos2x + d , 1/asinx + bcosx + c and psinx + qcosx + r / asinx +bcosx + c Forms
67		5	Illustration Based upon Profile Containing Sin2x and Quadratic / Biquadratic
68		6	$\int ax+b/\sqrt{px^2+qx+r} dx$ Form and Integration by Parts
69		7	Illustration Based upon by Parts
70		8	Illustration Based upon $\int \sqrt{ax^2+bx+c} dx$, $\int (px+q)\sqrt{ax^2+bx+c} dx$ and $\int px^2+qx+r/ax^2+bx+c$
71		9	Reduction Formula
72		10	Illustration Based upon Classic Integers and Starting of Integration using Partial Fractions
73		11	Integration using Partial fractions and Starting of Integration of Irrational Functions
74		12	Illustration Based upon Irrational Integrals, Manipulating Integrals and Some Special Integrals
75	Definite integration	1	Introduction of Definite Integration and Its Geometrical Interpretation
76		2	Illustration Based on Indefinite Integration and Substitution
77		3	Walli's Formula and Properties For P-1 to P- 4
78		4	Illustration Based up on P-1 to P-5
79		5	Property of Odd-Even Function with Illustration and King and Queen Properties
80		6	Illustration Based Upon King and Queen Properties
81		7	Illustration Based upon P-1 to P-8
82		8	Derivative of Antiderivative (Newton-Leibniz Theorem)
83		9	Illustration on Leibnitz Theorem and Theory of Summation of Series using Integration
84		10	Illustrations Based Upon Sum of Series
85		11	Estimation of Integration
86	Differential Equation	1	Introduction of Differential Equation Order and Degree of Differential Equation and Formation of Differential Equation
87		2	Illustrations Based upon Formating Differential Equation and Variable Separable Form of Solution of Differential Equation
88		3	Illustration Based on Variable Separable and Reducible to Variable Separable, Homogeneous Differential Equations
89		4	Differention Equation to Homogenous form and use of Polar Co-ordinates
90		5	Linear Differential Equation, Bernoulli's D.E. and Equations Reducible to Linear D.E.
91		6	Theory of Exact Differential Equation and Some Basic Illustration
92		1	Basic Theory of Auc
93		2	Illustration of AUC

94	Area Under Curve	3	Some Standard Results of Area and Use of Shifting of Origin To Find Area
95		4	Use of Parametric Form in Area Bounded by Curves Given in Form of Inequality. Area Bounded by Inverse of a Function
96		5	Determination of Parameters and Function and Minimising or Maximising of Area
97	Parabola	1	Definition and Nature of Conic and Introduction of Standard Parabola
98		2	Standard Parabola and their Special Parabola, Illustration Based Upon Equation of Parabola
99		3	Shifted Parabola, Parabola Equation of Stranded Parabola, Position of Point w.r.t Parabola
100		4	Illustration Based On Parametric Form, Focal Chord and Some Geometrical Results
101		5	Illustration Based Upon Tangents
102		6	Illustration Based Upon Tangents From an External Point and Normal in t and m Form
103		7	Normals of Parabola and Optical Nature of Parabola
104	Ellipse	1	Basics of Ellipse
105		2	Illustration Based on Eccentricity and Equation of Ellipse, Auxiliary Circle and Parametric Equation of Ellipse
106		3	Chord Joining Q_1 and Q_2 Points and Equation of Tangents
107		4	Illustration Based Upon Tangents and Geometrical Property
108		5	Some Highlights and Normal of Ellipse
109	Hyperbola	1	Basic of Hyperbola , Equation And Parameters Auxiliary circle and Parametric form
110		2	Position of a Point And Line W.R.T. Hyperbola Equation of Tangents & Normal in all form
111		3	Illustrations Based Upon Tangent From External Point , Common Tangent of Two Conics and Theory of Asymptotes.
112		4	Asymptotes & Common Chord
113		5	Rectangular Hyperbola
114	Vector	1	Basic of Vectors, Position Vector, Section Formula, Special Points of Triangle and Equation of Line
115		2	Illustrations Based Upon Equation of Lines Equations of Lines and Section Formula
116		3	Illustration Based Upon Geometrical Problems and Theory of Dot Product
117		4	Illustration Based Upon Cross Product and Theory of Shortest Distance
118		5	Illustration Based upon Cross Product Shortest Distance and Theory of STP
119		6	Properties STP and Some Illustrations on STP
120		7	Illustration Based Upon STP and Theory of VTP
121		8	Scalar and Vector Product of Four or More Vector and Reciprocal System of Vectors
122		9	Linear Dependence of Four Vectors and Solving Vector Equations.
123		10	Illustration Based Upon Dot Product and Theory of Cross Product

124	3-D	1	Basics of 3D dc'''s and dr'''s Symmetric Form of Equation of line
125		2	illustrations Based upon Basics of 3D and Line
126		3	Theory of Plane in 3D
127		4	Illustration Based Upon Plane
128		5	Unsymmetrical form of Equation of Line and Line of Greatest Slope
129	Complex Number	1	Introduction of Complex Numbers and Iota, Geometrical Representation and Forms of , Complex Number, Algebra of Complex Number
130		2	Section Formula and Special Points of Triangle and Properties of Conjugate and Modules
131		3	Illustration Based upon Locus
132		4	Illustrations Based Upon of Properties Modulus Argument and Conjugate
133		5	Rotation Theorem
134		6	Locus of Point if Angle between Two Vectors Given and Equation of Line and Circle
135		7	nth Roots of Unity
136		8	Illustration Based Upon nth Roots of Unity
137	Probability	1	Definition of Useful Terms and Classical Definition of Probability and Illustrations Based Upon Classical Definition of Probability
138		2	Illustration Based Upon Classic Definition of Probability and Geometric Probability
139		3	Venn Diagram
140		4	Conditional Probability
141		5	Independent Events , Multiplication Game, Problems , and Total Probability Theorem
142		6	Bayes and External Bayes Theorem
143	JEE Mains Topics	1	Sets
144		2	Relation
145		3	Height and Distance
146		4	PMI
147		5	Statistics
148		6	Mathematical Reasoning

Math Problem Solving Schedule		
S. No.	Topic	No. of Lectures
1	Fuction & ITF	3
2	Limit, Continuity & Differentiability	4
3	Method of Differentiation	2
4	Application of Derivatives	5
5	Indefinite Integration	3
6	Definite Integration	3
7	Area under Curve & Differential Equation	3
8	Conic Section	5
9	Vector & 3 D	4

10	Complex Number	3
11	Probability	3
12	JEE Main Topics	2