

Course Planner for NURTURE Batch (Class 11th Student)

PHYSICS COURSE SCHEDULE

JEE Yearlong Physics for Class 11th of JEE Main and Advanced 2021 by MK Sir & MS Sir

CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
Physical World & Basic Maths	1	Physics : scope and excitement , Nature of Physics Law , Technology and Society
	2	Basic TrignoMetry ,Co-ordinate ,Algebra
	3	Idea About Graph of Fuction ,Basic Calculus and Differentiation
	4	Integration and Area under Curve
	5	Error Analysis - Systematic and Random Error , accuracy and Precision , Error in Measurement , Relative and Absolute Error , Significant Error
	6	Idea of rate Maxima and Minima
	7	Discussion of Sheet
Unit & Dimension	1	Unit of Measurements ,System of units : - SI Unit , CGS units , Defination of m , Kg , s .
	2	Dimension of Physical Quantity ,Fundamental and derived Quantities .
	3	Dimensional Analysis ,finding Formula and limitations
	4	Conversion of units , Finding Dimension in New System
	5	Dicussion
Vector	1	Scaler and Vector , Laws of Vector
	2	Vector Addition - Triangular Law , parallelogram law , polygon law
	3	Product and Division of Scaler with vector
	4	unit Vector , Component of Vectors in X-Y-Z Direction
	5	Product of Vectors - Double Product (Dot and Cross Product)
	6	Triple Product (STP & VTP)
	7	Discussion
Kinematics	1	Idea About position Vector , Velocity , Speed and Accelaration , Avg. and instantaneous Value
	2+3	Distance and Displacement , tangential & Centripetal accelaration .ST Line Motion & Curvilinear Motion
	4+5	Constant accelaration and Equation of Motion
	6+7	Variable Accelaration and Use of Calculus
	8+9	Graph s-t , v-t ,a-t , s-v etc . conversion , area and slope of Graph
	10+11	Motion under gravity
	12	Discussion

Projectile Motion	1	Component Along Horizontal - Vertical , Time of Flight and Range of Projectile
	2	Maximum Angle for Maximum Range , Hieght and Time ,Complementary angle of Same Range
	3	Radius of Curvature ,Ground to Ground ,Ground to Space , Space to Ground Projectiles , Equation of Trajectories
	4	Projectile on Inclined plane
	5	Discussion
Circular Kinematics	1	Defination of Angular Displacment , Angular Velocity and Angular Accelaration as axial Vectors
	2	Uniform and non uniform circular motion
	3+4	Equation of Motion under Uniform circular Motion
	5	Discussion
Relative Motion	1	Relative Motion in 1 D , Constraint Motion
	2	River Man Situation (Shortest time to cross , Drift , minimum time , and Least distance Cases)
	3	Rain- Man Situation
	4	Wind Aeroplane Situation
	5	General Example of Relative Motion between Projectiles
	6	Discussion
Newtons Law of Motion	1+2	Concept of Forces , Type of Forces , external and internal forces , Concept of Momentum
	3+4	Newtons Law , Free body diagram , equilbirum of forces
	5+6	conservation of momentum , Net Force and impulse
	7+8	Interial and Non- Interial Frame of reference + Pseduo Force
	9	Discussion
Friction	1	Static and Kinetic Friction , angle of Friction
	2	Friction on incline , angle of repose
	3	Multiple Friction , Rolling Friction and Lubricartion
	4	Spring balance , Weighing Machine , Spring contrination , Pulley and its constraint
	5	Virtual Work + Discussion
	6	Discussion
Circular Dynamics	1+2	Centripital Forces , Conical Pendulum , Rotating Particle in spherical shell , cylindrical shell
	3+4	Centrifugal Forces , bending of cyclist , banking of roads and Role of Friction
	5	Limiting friction in spherical Shell

	6	Discussion
Work , Energ and Power	1	Introduction , work of constant forces . Central and non central forces
	2	Conservative Forces and Potential energy
	3	Work -Energy Theorm
	4	Work Done on inclined plane
	5+6	Concept of Power , instaneous and Avg. Conservation of mechanical energy
	7	Vertical Circular Motion
	8	String & Rod Oscillation, Slacking
	9+10	Complete Circular Motion , Study of Accelaration Speed etc .
	11	Condition of Slacking Via tracjectory
	12	Discussion
Center of Mass	1+2	Defination & Calculation of Discrete and Continous System , COM of Semi-Circular Ring, Half Ring , Hemi- Spherical Shell , Conical Shell Solid Cone ,Triangular Lamina and other Bodies , COM for 2
	3+4	Momentum of System , Accelaration of COM ,Conservation of Momentum and Retainment of COM Cases
	5	System of Variable Mass + Discussion
	6	Discussion
Collision	1+2	Impluse and Impule relation with change of Momentum , Coefficient of Restitution
	3+4	Head on Collision and Oblique Collision
	5+6	Elastic and Non Elastic Collision
	7+8	Centric and ecentric collision
	9	Discussion
Rotational Dynamics	1+2	Introduction , Moment of interia , parallel and Perpendicular axis theorm
	3	MOI Calculation for complex cases including Cavity , Radius of Gyration
	4	Torque and its relation with angular accelaration , cases of zero torque by a force
	5+6	Rotational Equilibirum , Hinge reaction on rigid body on release
	7+8	Concept of Pure Rotation , angular Momentum and relation with impulse (Newtons Law of Rotation)
	9	Angular Momentum and Conservative Cases
	10+11	Rotational Kinetic energy , energy calculation and hinge reaction
	12	Combinatin of rotational + translation Motion
	13+14	Slipping , Pure Rolling ,Mechanical energy

	15+16	Conservation in Pure Rolling , Pure rolling in inclined Plane
	17+18	IAOR and its centre , Locating Centre using IAOR
	19+20	Discussion and Problems
Gravitation	1	Gravitational Force , Field , Potential energy , and Potential for different Cases , Comparison with electrostatics
	2	Defination of g ,Variation of g with height & depth ,rotation and slope of earth , escape velocity
	3	Orbital Motion of Bound System , Keplers Law of Motion and Avg. Momentum COnservation , Law of Area
	4	Geostationary Satellite , Double star sysytem , Time Period of satellite for 3 cases . Long Pendulum , Near Earth satellite , tunnel inside earth
	5	Discussion
Elasticity	1	Elastic Body , Restoring Forces Types of Stress and Strain
	2+3	Stress -strain Graph , Hookes Law , Measure of Elasticity (Young's Modulus , Bulk Modulus , Modulus of rigidity)
	4+5	Elastic PE , Expansion by Self Weight , Rotation , Temp. and Impurity effect on Elasticity
	6	Discussion
Viscosity & Surface Tension	1	SURFACE TENSION : Surface tension , and Cohensive Forces , Soluble impurity , partially soluble impurity ,Contamination ,
	2	Surface tension Force , Surface energy ,excess pressure , angle on contact , effect of impurity on T
	3	Capilliray tube , and Liquid rise in capillary tube , Liquid between two plates ,
	4	FORCE TO Seprate , Ferguson Formula , Critical temperature and application of Surface tension
	5	VISCOCITY : Viscous Force , its unit in SI and CGS , Viscous Flow in Steady state in cylinder
	6	Parabolic Distance of velocity , Poiseuille equation ,Flow resistance and questions of flow resistance
	7	Terminal Velocity of drop , Stoke's law ,Reynolds No. ,coefficient of viscosity for liquid , gases .
	8	Discussion
Thermal Expansion	1	Temperature and scales , PE and T graph ,Thermal Expansion /Contraction of a , b , g .
	2	Application of Bi-Metallic Strips , Cavity , Time loss /Gain by clock ,Error in scale reading
	3	Error in scale reading , apparent expansion of liquid ,anomalous expansion of water
	4	Discussion
Heat Transfer	1	Modes , Law of Conduction , temp. Gradient . Thermal Resistance and different cases of Series and parallel Combination
	2	Growth of ice , heat current for spherical and cylindrical flow , Questions on Wheatstone and Symmetry .
	3	Radiation , adsorpive power , emmisive Power and their spectral defination , emmisitivity ,Black body
	4	Pervost Theory of exchange , kirchhof's Law and application .
	5	stefan's law and Newtons law of Cooling

	6	Spectral energy , Distribution of black body and Wein's Law . Solar Constant and Sun Temp.
	7	Discussion .
Calorimetry	1	Heat Energy , Mechanical Equivalent of heat , Specific Heat Molar heat Capacity Heat / Thermal Capacity Latent heat
	2	Principal of Calorimetry , water equivalent of calorimeter ,sublimation , condensation + discussion .
	3	Discussion
Fluid Statistics	1	Ideal Fluid - Density , Relative density , specific gravity , density of mixture , no shearing stress and shape of free surface
	2	Concept of pressure at a point , Pressure in Uniformly accelarted (Horizontally and Vertically) , and Rotating systems . Equi - Pressure Lines
	3	Closed Acceleration container , spilling liquid in rotating cylindrical container and accelerating container .
	4	Only g Situations - U tube , Vertical ring , Other Examples Rotating and accelerated U tube .
	5	Force of Liquid on Container Base and Side walls .Force on surface , centre of force and other force example
	6	Pascals's Principal , Hydraulic lever ,
	7	Archimedes Princial , Buoyant Force , Centre of Buoyancy , Floating Stability in Floating .
	8	Discussion
Fluid Dynamics	1	Ideal Fluid , Steady and turbulent flow , Streamlime flow ,Equation of Contiunit .
	2	Bernoullie's Equations ,Energy of liquid , PE ,KE Pressure energy
	3	Application of Bernoullie's Principal : Magnus effect , helicopter ,aeroplane , atomiser , venturimeter
	4	Static and Dynamic pressure point , pitot tube , siphon ,
	5	velocity of efflux , Toricelli's theorm , Force on container
	6	Discussion
Thermodynamics	1	Thermodynamic system ,Surrounding , closed , open , isolated system . n , T, P as system variables ,state of system .
	2	Zeroth law , Thermal Equilibirum ,internal energy , Process - Isothermal , isobaric , Adiabatic ploytropic , equation and graph of process .
	3	Indicator Diagrams , sign Conventions ,work done by gas , work done in different process , heat loss in different process
	4	Internal Energy as state function , First law of thermodynamics ,significance and relations with specific heat Constants ,Slope relations ,
	5	Mixtrure of equivalent specific heat constants , cyclic Process , Work Done in Cyclic Process
	6	Heat Engine , Efficiency ,Carnot Cycle and its efficiency , carnot theorm
	7	Second Law of thermodynamics , , Kelvin-Planck statement , clausius Statement
	8	Refrigerator , Coefficient of performance (COP)= Heat extracted from cold body/ WD on Refrigerator ,(COP) For Carnot reversibe Refrigerator.
	9	Discussion
	10	Discussion

Kinetic Theory of Gases	1	Solid ,Liquid , Gas . NTP and STP . Concept of Ideal Gas ,postulates of ideal gas, Ideal gas Equation
	2	Boyle's Law , Charle's law , Gay - Lussac Law ,Avogadro Law .
	3	Degree of Freedom , Maxwell's Law of equipartition of energy .
	4	Internal energy , Molecular KE , Molar KE , Energy Distribution .
	5	Maxwell Law of Velocity distribution , Avg. Velocity , RMS Velocity , Mean Speed .mean Free Path
	6	Discussion
SHM	1+2	Equation of SHM , Velocity and Acceleration in SHM , Energy of SHM
	3	Time Period and Angular Frequency in SHM
	4	Two Block system & Combination of Springs in SHM
	5	Angular SHM
	6+7	Simple Pendulum , Compound pendulum , Torsional Pendulum
	8	Combination of two or More SHM + Discussion
	9	Discussion
String Wave	1	Equation of Wave , particle Velocity and acceleration
	2	Speed of transverse waves on string ,energy in waves
	3+4	Superposition , Principal interference of waves
	5	reflection and transmission between 2 strings
	6	Equation of Standing Waves (Stationary Wave)
	7	Stationary wave in String , vibration in string wave , Sonometer Wire
	8	Discussion
	Sound Wave	1+2+3
4+5		Interference of waves ,reflection and Refraction
6+7		Standing wave (Organ pipe), resonance Tube , Quinck's Tube , Kund's Tube
8+9		Beats , Doppler's Effect (Sound Wave)
10		Discussion

CHEMISTRY COURSE SCHEDULE

JEE Yearlong Physical & Inorganic Chemistry for Class 11th of JEE Main and Advanced 2021 by PS Sir

CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
Mole Concept (5 weeks)	1	Introduction to mole concept, atomic mass & relative atomic mass, mole concept & calculation, calculation of no. of particles
	2	Calculation of moles from volume of gas at STP, calculation of electrons, protons & neutrons, calculation of charge
	3	Average atomic mass of isotopic mixture, average molar mass of gaseous mixture, vapour density of gaseous mixture,
	4	Percentage composition, Laws of chemical combination
	5	Molecular and empirical formula, calculation of empirical formula for combustion of organic compounds
	6	Stoichiometry and stoichiometric calculation, concept of limiting reagent
	7	Percentage yield, percentage purity and calculation
	8	Mixture Analysis, POAC (Principle of Atom conservation)
	9	Series and Sequential Reaction, Parallel Reactions
	10	Concentration Terms and Their Interconversion
	11	Application of Molarity, Molarity of dilution, Molarity of mixing
	12	Volume Strength of H ₂ O ₂ , Miscellaneous Questions
	14	Eudiometry and its application
	15	Methods of determination of Atomic and Molecular mass
	Atomic Structure (4 weeks)	1
2		Electromagnetic Radiation, Planck's Quantum Theory and its Application
3		Photoelectric effect, black body radiation
4		Bohr's atomic model, radius of electron in nth bohr orbit, velocity, time period & frequency of electron in nth bohr orbit
5		Energy of electron in nth bohr orbit, energy of different energy levels, ionisation energy
6		Spectrum & its types, hydrogen spectrum, different series in hydrogen spectrum
7		Calculation of number spectral lines, drawbacks of bohr's model, De-Broglie concept, association of de-broglie concept with bohr's model
8		Heisenberg's uncertainty principle, calculation of uncertainty in wavelength from uncertainty in position, quantum numbers
9		Magnetic Quantum Number, Spin Quantum Number, Orbital Diagrams, Nodal Planes
10		Pauli's Exclusion Principle, Hund's Rule of Maximum Multiplicity, Writing Electron Configurations, Exceptional Electronic Configurations Stability of Half Filled & Full Filled
11		Schrodinger wave equation, radial and angular nodes, graphs of wave functions & orbitals, Radial probability density function, illustration Radial probability density function, illustration
	1	Introduction, Gas laws & Graphs Related to Gas Laws, Ideal gas Equation

Gaseous State (3 weeks)	2	Types of Vessels, Manometer and Barometer, faulty barometer
	3	Dalton's law & its application, effusion & diffusion
	4	Effusion, diffusion & its applications, kinetic theory of gases
	5	Kinetic gas equation, types of molecular speeds, K.E. of gas, Maxwell's speed distribution curve
	6	Maxwell's speed distribution curve, real gas and van der Waal's equation, significance of van der Waal's constant, compressibility factor (Z)
	7	Variation of compressibility factor with pressure, calculation of compressibility factor in different conditions
	8	Variation of compressibility factor with temperature, liquefaction of gases & Andrew's isotherms, critical temperature, pressure & volume
	9	Virial equation of state, Boyle's temperature & inversion temperature, collision theory & mean free path
Chemical Equilibrium (2 weeks)	1	Introduction
	2	Writing the expression of equilibrium constant, relation between K_p & K_c and their units, characteristics of equilibrium constant, calculation of K_p & K_c for various reactions
	3	Calculation of K_p & K_c , illustrations on K_p & K_c
	4	Degree of dissociation, Calculation of K_p and K_c by degree of dissociation method, Calculation of Degree of dissociation by Vapour Density measurement
	5	Significance of Equilibrium Constant, Reaction Quotient and its Application, Le-Chatelier's Principle
	6	Le-Chatelier's principle (effect of temperature, addition of inert gas and catalyst), Simultaneous equilibrium
	7	Physical equilibrium, vapor pressure and boiling point, triple phase diagram, relative humidity and its calculation
Ionic Equilibrium (4.2 weeks)	1	Introduction, acid base theories, amphiprotic species and conjugate acid base pairs, self ionisation
	2	Weak and strong electrolytes, Ionisation constant of weak and strong electrolyte, common ion effect and its application
	3	Numericals on common ion effect, properties of water, ionic product, pH scale, pH calculation for strong monoprotic acids
	4	pH calculation of strong diprotic acid, pH of mixture of strong acids or strong bases, pH of mixture of strong acid and strong base, pH of weak monoprotic acids and bases
	5	pH of mixture of weak acid and strong acid, pH of mixture of two weak acids, relative strength of weak acids, pH of weak diprotic acid and bases
	6	Relation between K_a & K_b for conjugate acid base pair, types of salt and salt hydrolysis, hydrolysis of salt of different types
	7	Hydrolysis of salt of W.A and W.B, illustration, hydrolysis of polyprotic ions
	8	Hydrolysis of Amphiprotic Ions, Buffer Solutions, Working of Buffer, pH Calculation for Buffer Solutions
	9	Illustrations, effective buffer range, buffer capacity
	10	Isohydric Solutions, Acid-Base Titrations
	11	Theory of indicators, color transition range, titration curves & selection of indicator
	12	Titration of Weak Base vs Strong Base, Titration of Polyprotic Acid vs Strong Base, Solubility & Solubility Products
	13	Calculation of Solubility in Pure Water, Solubility in Presence of Common Ion, Simultaneous Solubility, Condition for Precipitation, Significance of Value of K_{sp}
	14	Selective precipitation, solubility of salt of acid in different cases, complex formation equilibrium

Redox Reaction (3 weeks)	1	Oxidation number and its calculation, some special cases in oxidation numbers
	2	Oxidation & reduction, oxidising agent & reducing agent, redox reaction & their types, balancing of redox reaction by ion electron method
	3	Balancing of redox reactions by oxidation number method, balancing of disproportionation reaction
	4	n-factor & its calculation in different cases,
	5	Calculation of n factor for oxidising agent, n-factor when O.N. of more than one element changes
	6	Calculation of n-factor, n-factor for disproportionation reaction, n-factor for intramolecular redox reaction
	7	Calculation of eq. mass, calculation of no. of equivalent, normality, Normality of dilution & Mixing
	8	Introduction of equivalent concept, titration (introduction), redox titrations
	9	Acid base titration, iodometric & Iodimetric titrations
	10	Back titration, concept of bleaching powder & H ₂ O ₂
	11	Double titration, hardness of water
Periodic Table (2.5 weeks)	1	Introduction, Historical Development of Periodic Table, Mendleev's Periodic table, Modern Periodic Table
	2	Screening Effect, Nomenclature of elements with Z>100
	3	Atomic Size & Exception, Ionic Radii & its variation,
	4	Ionisation Energy, Its Variation & application
	5	Electron affinity & Electron Gain Enthalpy, Factors affecting electron affinity, Trends in Electron Affinity
	6	Electro negativity, Scales to measure electronegativity, factors affecting electronegativity & Applications of electronegativity,
	7	Hydration enthalpy and applications of Hydration Enthalpy
Chemical Bonding (4 weeks)	1	Introduction to chemical bonding, Types Of Chemical Bonds - Ionic, Covalent & Coordinate Bonds, Lewis Octet Rule & Lewis Dot Structure
	2	Exceptions to Lewis Octet Rule, Formal Charge & Its application, Lewis Acid- Base Concept
	3	Valence Bond Theory, Concept Of Overlapping, Formation of sigma, pi & Delta Bonds
	4	Hybridization, predicting geometry on the basis of hybridization, calculation of hybridization state in different compounds, electro negativity and hybridization
	5	VSEPR & its application, Equivalent and non-equivalent Hybridized orbitals, Calculation of pp-pp & pp-dp bonds, Hybridisation in solid state
	6	Bent Rule & Its application, Bond order and its calculation
	7	Bond Angle & Drago's rule, Comparison of Bond Angle, Bond length and comparison of bond length
	8	Dipole moment & Its application
	9	Miscellaneous type of bonds, Back - Bonding, Banana bond,
	10	Molecular Orbital Theory & Formation Of molecular orbitals & Their energy Order
	11	Filling of electrons, Bond Order, magnetic character and stability of species, MOT for Heteroatomic species

	12	Hydrogen Bonding , Strenth Of H bonding,Intermolecular & Intramolecular H - Bonding, Comparison of Physical properties on the basis of H- Bonding
	13	Symmetrical & Asymmetrical H- Bond , Vander Waal's Forces,
	14	Ionic Bond, Polarisation & Fajan's Rule and Its application,
	15	Applications of Fajan's Rule - Comparison Of Covalent character, Thermal stability Of compounds, Color of compounds, Solubility of ionic compounds in water
S - Block (1 weeks)	1	Introduction , Comparison of Physical & Chemical properties of Alkali Metals & Alkaline Earth Metals
	2	Some important compounds of Alkali Metals & Alkaline Earth Metals- NaOH, NaHCO ₃ , Na ₂ CO ₃ , CaCO ₃ ,
	3	Cement & Its composition, Biological Roles of Na, K, Mg & Ca
Hydrogen (1 weeks)	1	Introduction, Ortho & Para Hydrogen, Preparation Of Hydrogen, Physical & Chemical Properties Of Hydrogen
	2	Hydrides and their classification, Water and its properties
	3	Hardness of water, Types of hardness and removal of hardness
	4	Hydrogen peroxide & Its properties,

JEE Yearlong Physical & Inorganic Chemistry for Class 11th of JEE Main and Advanced 2021 by JH Sir		
CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
Mole Concept (5)	1	Introduction to mole (Basics)
	2	Mole calculation
	3	Vapour Density/ Avg atomic mass/Avg molecular mass,
	4	Rxn Stoichiometric, Limiting reactants, percentage yields
	5	Percentage Purity, mixture
	6	Prallel/sequential Degree of dissociation
	8	Empirical and molecular formula
	9	POAC, Estimation of elements
	10	Discussion
	Concentration (5)	1
2		Molarity, molality, mole fraction
3		Conversion of one concentration term to another
4		Volume strength of H ₂ O ₂ , % labelling of Oleum
5		Discussion
Eudiometry	1	Introduction,Eudiometry tube & Various solved example

(2)	2	Discussion
Redox (7)	1	Introduction, Oxidation number
	2	Balancing of redox reaction
	3	Law of chemical equivalence
	4	n-factor calculation
	5	Titration, Types of Titration
	6	Hardness of water
	7	Discussion
Gaseous state (Ideal Gas) 10	1	Difference between solid / liq. / gas, Barometer, Manometer
	2	Boyle's law, Charle's law, Pressure law & Avogadro's law
	3	Ideal gas equation
	4	Dalton's law, Amagat's law of partial volume,
	5	Graham's Law
	7	Kinetic theory of gases
	8	Maxwell distribution of molecular speed
	9	Collision theory
	10	Discussion
	Real Gas (4)	1
2		Compressibility, Boyle's temperature
3		Liquifaction (T_c , P_c , V_c)
4		Discussion
Atomic Structure (11)	1	Introduction, Discharge Tube Experiment
	2	Rutherford experiment
	3	Planck's quantum theory, Electromagnetic wave, Photoelectric Effect
	4	Spectrum
	5	Bohr Model
	6	Spectral Line
	7	Various solved example
	8	De-Broglie Hypothesis, Heisenberg uncertainty principle

	9	Schrodinger equation
	11	Discussion
Chemical Equilibrium (6)	1	Introduction, Introduction to equilibrium, Law of mass action
	2	Various types of equilibrium constant, Application of equilibrium
	3	Lechatelier principle
	4	Various solved example (Parallel / Sequential)
	5	Phase diagram of H ₂ O
	6	Discussion
Quantum Number and Electronic Configuration (5)	1	Four types of Quantum Numbers Principle Quantum Number
	2	Azimuthal Quantum Number
	3	Magnetic Quantum Number
	4	Spin Formula of No. of electron / Subshell / orbital in a Shell / Subshell / orbital Numerical Example
	5	Rule of Writing electronic Configuration - Aufbau Rule, - Hund's Rule -Pauli's Exclusion Principle, Question on Quantum Numbers, Nodes (Radical Angular), Shapes of Orbital
Periodic Table (8)	1	Modern Periodic Table
	2	Introduction, Historical Development of Periodic Table, Mendleev's Periodic table ,
	3	Screening Effect, Nomenclature of elements with Z>100
	4	Atomic Size & Exception, Ionic Radii & its variation,
	5	Ionisation Energy , Its Variation & application
	6	Electron affinity & Electron Gain Enthalpy, Factors affecting electronaffinity , Trends in Electron Affinity
	7	Electro negativity , Scales to measure electronegativity, factors affecting electronegativity & Applications of electronegativity,
	8	Hydration enthalpy and applications of Hydration Enthalpy
Chemical Bonding (20)	1	Introduction to chemical bonding, Types Of Chemical Bonds - Ionic bond
	2	Symmetrical & Asymmetrical H- Bond , Vander Waal's Forces
	3	Ionic Bond, Polarisation & Fajan's Rule and Its application
	4	Covalent & Coordinate Bonds, Lewis Octet Rule & Lewis Dot Structure
	5	Exceptions to Lewis Octet Rule, Formal Charge & Its application, Lewis Acid- Base Concept
	6	Valence Bond Theory, Concept Of Overlapping, Formation of sigma, pi & Delta Bonds
	7+8	Hybridization , predicting geometry on the basis of hybridization, calculation of hybridization state in different compounds, electro negativity and hybridization
	9+10	VSEPR & its application, Equivalent and non-equivalent Hybridized orbitals, Calculation of pp-pp & pp-dp bonds, Hybridisation in solid state

	11	Bent Rule & Its application, Bond order and its calculation
	12	Bond Angle & Drago's rule, Comparison of Bond Angle, Bond length and comparison of bond length
	13	Dipole moment & Its application
	14	Miscellaneous type of bonds, Back - Bonding , Banana bond,
	15+16	Molecular Orbital Theory & Formation Of molecular orbitals & Their energy Order
	17	Filling of electrones, Bond Order, magnetic charcter and stability of species, MOT for Heteroatomic species
	18 +19	Hydrogen Bonding , Strenth Of H bonding,Intermolecular & Intramolecular H - Bonding, Comparison of Physical properties on the basis of H- Bonding
	20	Applications of Fajan's Rule - Comparison Of Covalent character, Thermal stability Of compounds, Color of compounds, Solubility of ionic compounds in water
s- block (4)	1	Introduction , Comparison of Physical & Chemical properties of Alkali Metals & Alkaline Earth Metals
	2	Some important compounds of Alkali Metals & Alkaline Earth Metals- NaOH, NaHCO ₃ , Na ₂ CO ₃ , CaCO ₃ ,
	3	Cement & Its composition
	4	Biological Roles of Na, K, Mg & Ca
Hydrogen (4)	1	Introduction, Ortho & Para Hydrogen, Preparation Of Hydrogen, Physical & Chemical Properties Of Hydrogen
	2	Hydrides and their classification, Water and its properties
	3	Hardness of water, Types of hardness and removal of hardness
	4	Hydrogen peroxide & Its properties,

JEE Yearlong Organic Chemistry for Class 11th of JEE Main and Advanced 2021 by Sy Sir		
CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
Classification and Nomenclature of organic compound (11)	1	Introduction, method of presentation of O.C (bond linenotation),
	2	Classification / types of C, H, R-X, R-OH, Amines, Functional group.
	3	Homologous series Degree of unsaturation
	4	IUPAC - Naming, types of alkyl group
	5	IUPAC - Naming, types of alkyl group
	6	IUPAC - Naming, types of alkyl group
	7	IUPAC - Naming, types of alkyl group
	8	IUPAC - Naming, types of alkyl group
	9	IUPAC - Naming, Aromatic compound
	10	Common naming

	11	Mislaneous
General organic chemistry (18)		(a)Effect of electronic displacements
	1	Inductive effect and its types
	2	Application of I-effect
	3	Resonance coridition of resonance method of resonance
	4	Method of resonance, +R and –R group
	5	Stability of resonating sructures.
	6	Aromaticity
	7	Resonace energy
	8	Hyperconjugation
	9	Application of all effect
	10	Application of all effect
	11	Application of all effect
	12	Application of all effect
		(b)Acidic & Basic strength comparism (6)
	13	Audity of diff acids, phenol, & benzoic acid derivatives
	14	Audity of diff acids, phenol, & benzoic acid derivatives
	15	Audity of diff acids, phenol, & benzoic acid derivatives
	16	Basic strength comparism
17	Basic strength comparism	
18	Basic strength comparism	
Structural isomerism (4)	1	Structural Isomerism (induding tautomerism)
	2	Structural Isomerism (induding tautomerism)
	3	Structural Isomerism (induding tautomerism)
	4	Structural Isomerism (induding tautomerism)

MATHS COURSE SCHEDULE

JEE Yearlong Mathematics for Class 11th of JEE Main and Advanced 2021 by GB Sir & MS sir

CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
Basic Maths (7)	1	Number System
	2	Surds
	3	Indices and Polynomials
	4	Polynomial and Factorization
	5	Factorization and Ratio Proportion, Intervals and Some Geometrical Results Discussion
	6	Modulus function / Absolute value function
	7	Brief Introduction of Greatest Integer Function and Fractional Part Function
Logarithm (11)	1	Definition Fundamental identities
	2	Fundamental identities
	3	The principal properties of logarithms
	4	Base changing theorem
	5	Logarithm equations
	6 +7	Characteristic and Mantissa Antilogarithm
Inequalities (6)	1	Modulus Inequality
	2	Graph of Logarithm and Log Inequality
	3	Properties related with Arithmetic mean, Geometric mean & Harmonic mean
	4	Properties related with Arithmetic mean, Geometric mean & Harmonic mean
Quadratic Equation (11)	1	Definition of polynomial quadratic equation Roots of quadratic equation
	2	Relation between roots and coefficient of quadratic equation Nature of roots If root of the equation $ax^2 + bx + c = 0$ are α and β , then finding equation whose roots are symmetric expression of α and β
	3	Quadratic equation V/S identity Condition of common roots
	4	Rational algebraic inequalities (Method of interval)
	5	Graphs of quadratic expression $y = ax^2 + bx + c$ Explanation of above graphs Computing the maximum or minimum values of rational function
	6	Graphs of quadratic expression $y = ax^2 + bx + c$ Explanation of above graphs Computing the maximum or minimum values of rational function
	7	Location of roots General and mixed problem
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	9	Finding the condition for which a general two degree expression Theory of equations

	10	Finding the condition for which a general two degree expression Theory of equations
	11	Pseudo quadratic equations
Trigonometric ratio & Identities (Compound Angle) (9)	1	Introduction, Measurement of angle, Trigonometric ratios
	2	Trigonometric ratios of allied angles
	3	Important observation for t-ratios
	4+5	Trigonometric ratio of compound angles
	6	T-ratios of multiple & sub multiple angles
	7	T-ratios for some standard angles
	8+9	Trigonometric identities in a triangle (conditional identities)
Trigonometric Equation (6)	1	Definition, General Solution of Standard trigonometric equations
	2	Types of trigonometric equation (a) Type -1
	3	Types of trigonometric equation (a) Type -2
	4+5	Types of trigonometric equation (a) Type -3,4,5,6
	6	Types of trigonometric equation (a) Type -7 Trigonometric inequalities and system of inequality
Solution of Triangle (9)	1	General introduction Basic Laws : (a) Sine Law, (b) Cosine Rule
	2+3	Basic Laws : (c) Projection Formula, (d) Tangent rule (Napier's Analogy),(e) Area of the triangle Sines/Cosines/Tangent of half the angles in terms of sides of the triangle m-n theorem (cotangent
	4+5	Properties of triangle and circles connected with T-ratios and sides of the triangle
	6+7	Length of angle bisectors & median Orthocentre
	8+9	Distances between special points Solution of triangle Regular Polygon Cyclic Quadrilateral
Sequence & Progression (16)	1	Introduction Arithmetic progression
	2+3	Summation of n terms of an A.P.Properties of A.P.Arithmetic mean
	4+5	Geometrical Progression Summation of n terms of A.G.P Properties of G.P.Geometric mean
	6+7	Harmonic progression, Harmonical mean
	8+9	Arithmetic mean, Geometric mean and Harmonic mean of 'n' numbers
	10+11	Arithmetic geometric progression Special sequences (Upto Type -1)
	12+13	Special sequence (Type -2, 3, 4)
	14+15+16	Application of trigonometry in maximizing and minimizing summation of trigonometric series
	1	General introduction Co-ordinates system Distance formula Section formula Application of distance formulae Co-ordinates of some particular points : (a) Centroid
	2+3	Co-ordinates of some particular points : (b) Incentre, (c) Circumcentre, (d) Orthocentre, (e) Ex-centers Area of a Triangle and condition for co linearity Brief description of elementary locus (Four basic

Straight line (13)	4	Straight line Equation of straight Line Different forms of straight lines Position of a point w.r.t. a line
	5+6	Straight line Equation of straight Line Different forms of straight lines Position of a point w.r.t. a line
	7+8	Length of perpendicular Reflection of a point Internal angles of triangle Line inclined at an angle to other line(s)
	9	Condition for concurrency Family of straight line
	10+11	Transformation of axes Equation of Bisectors of angles between two lines
	12+13	Pair of Straight lines General equation of second degree representing a pair of straight lines Problems on locii
Circle (12)	1+2	Basic geometries Definition Diametrical form of circle
	3+4	Intercept (Made by the circle) Position of a point w.r.t a circle Parametric equation of a circle
	5	Line & A Circle Tangent and normal
	6	Director circle
	7+8	Equation of chord with given middle point Chord of contact Pair of Tangents
	9	Family of circles
	10	Pole & Polar Common tangents to two circles
	11+12	Radical Axis & Radical Centre Coaxial system of circles
Permutation & Combination (13)	1	General introduction & Historical development Fundamental principle of counting
	2+3	Significance / meaning of the title of the chapter Useful theorems (For faster execution rate of the problems)
	4+5	Useful theorems (For faster execution rate of the problems) (Remaining)
	6+7	Permutation of alike objects
	8	Circular Permutation
	9+10	Total number of combinations Summation of numbers (3 different ways)
	11+12+13	Distribution of alike objects General / Miscellaneous
Binomial Theorem (9)	1	Binomial expression Binomial theorem General term
	2+3	Number of terms in expansion Middle term
	4+5	Numerically greatest term Applications of binomial theorem : (i) Divisibility problems, (ii) Remainder problems
	6+7	Applications of binomial theorem : (iii) An important concept using Pseudo function Properties of binomial coefficients Summation of series Miscellaneous problems on summation
	8+9	Multinomial theorem Multinomial theorem for negative and fractional index Approximation