COURSE PLANNER JEE 2021 (TIME SAVER COURSE)

COURSE PLAN JEE PHYSICS (CLASS 13TH) PM SIR

UNIT	CHAPTER NAME	NO. OF LECTURES	CONTENT OF CHAPTER
UNIT 1	Unit & Dimensions + Vectors(2)	1	Concepts and questions on Unit and Dimensions
		2	Concepts of Vectors
		3	Miscellaneous problems of Vectors
	Kinematics(13)	1	Position vector,distance & displacement,speed,velocity and acceleration,general equations of motion
		2	1D motion(uniform,uniformly accelerated,non uniform acceleration)
		3	Motion under gravity along a straight line
		4	Motion graphs-nature,shape,interconversion
		5	2D Motion,Projectile motion under gravity in 2D,ground to ground projectiles,equation of trajectory of
		6	Projectiles projected from some height(horizontal and oblique projection), projectiles over inclined planes
		7	Kinematics of Circular Motion-General equations for circular motion,uniform and non uniform Circular motion
		8	Radius of curvature, miscellaneous questions on circular motion
		9	Relative Motion- Introduction,Relative motion under gravity,Relative motion between projectiles
		10	Relative motion- Rain problems,River problems
		11	Relative motion- relative angular velocity,miscellaneous questions
UNIT 2	Newton's Laws of Motion + Friction + Circular Motion dynamics (9)	1	Type of Forces,free body diagram,Newton's laws,Inertial and Non Inertial Reference frames,pseudo forces ,problems based on Newton's laws
		2	Problems based on Newton's laws,Recorded weight-Spring balance and Weighing machine
		3	Constraints-string and wedge constraints
		4	Applying Newton's laws with constraints,problems based on pseudo forces &spring forces
		5	Friction-Static and Kinetic Friction , angle of Friction , Friction on incline , angle of repose
		6	Problems on friction in single and multiple contacts between objects
		7	Miscellaneous questions
		8	Dynamics of Circular Motion-Centripetal and Centrifugal forces,Motion of a particle tied to a circle,motion along a vertical circular track
		9	Circular turns and Banking of Roads,Miscellaneous problems on Dynamics of circular motion
UNIT 3	WORK , POWER AND ENERGY(6)	1	Work-work done by constant forces ,variable forces,central and tangential forces with examples
		2	Problems on work done by different forces in inertial/non inertial forces,Kinetic Energy &Work -Energy Theorm
		3	Problems on work energy theorem,Conservative and Non Conservative forces
		4	Potential energy & its relation with Conservative force,Gravitational and Elastic P.E stored in spring,conditions and types of translational equilibrium
		5	Mechanical energy and its conservation, Power
		6	Motion of a particle along a vertical circle - conditions for completing the circle,leaving the circular path and for oscillation
	Centre of Mass and Collision (7)	1	Definition & its location in Discrete systems of particles and in Continous objects ,standard examples,CM of a 2 particle system,composite objects,objects with cavity and problems based on them
		2	Motion of CM-Linear Momentum of System ,velocity and accelaration of CM ,Conservation of Linear Momentum
		3	Problems based on Motion of CM and on Conservation of linear momentum
		4	Motion of a 2 particle system,2 body oscillator,Linear Impulse
		5	Impulse-Momentum equation and problems based on it,Collisions of objects
		6	Head on,oblique elastic and inelastic collisions with problems
		7	Variable mass systems-Concept of thrust force,Rocket propulsion and other examples
UNIT 4	ROTATIONAL MOTION (10)	1	Introduction , Moment of inertia- definition and calculation for discrete systems of particles & for continuous objects, Parallel and Perpendicular axis theorem.Standard results on M.I
		2	M.I Calculation for complex cases including Cavity , Radius of Gyration
		3	Torque- definition,condition for rotational equilibrium,and relation of torque with angular acceleration in fixed axis rotation of rigid objects.Work done,Power delivered due to torqueWork energy theorem,mechanical energy conservation applied to fixed axis rotation.
		4	Problems on applications of torque including toppling, hinge reaction calculation in fixed axis rotation,rotating pulley block systems
		5	Angular Momentum-defintion,calculation in case of pure translation of a particle& in fixed axis rotation of a rigid object.Rotational Kinetic energy
		6	Conservation of Angular Momentum in fixed axis rotation of rigid objects.ICOR and IAOR
		7	Combined Rotation and translation of rigid objects-Total kinetic energy and angular momentum,Rolling motion-Pure Rolling & Rolling withSlipping , uniform and accelerated pure rolling
		8	Mechanical energy and its conservation in Pure Rolling , Pure rolling over a rough inclined Plane .Problems on rolling
		9	Angular Impulse-Definition and Relation with Torque ,Angular momentum.Rigid body collisions with examples.
		10	Miscellaneous Problems
	SIMPLE HARMONIC MOTION(6)	1	Periodic Motion,Oscillatory motion.Equation of Linear SHM .Position,Velocity and Accelaration of a particle in SHM , Energy of SHM .Graphs in SHM.Concept of Phasor Circle in SHM and its applications.
		2	Linear SHM in spring block systems- Time period,Angular frequency,Amplitude calculations.SHM in a block connected to a combination of springs
		3	SHM in a two body oscillator.Problems on linear SHM.
		4	Angular SHM-Definition,equation.Angular SHM in pendulums-Simple Pendulum , Compound pendulum , Torsional Pendulum.
		5	Combination of SHMs-two or more SHMs along same direction,two SHMs along mutually perpendicular directions.Lissajous figures.
		6	Miscellaneous problems on SHM

UNIT 5	ELASTICITY +THERMOMETRY+ CALORIMETRY + THERMAL EXPANSION (6)	1	Definition and explanation of elasticity in solids,Deforming and Restoring Forces,Stress,Strain and their types.Elastic constants and Hookes Law
		2	Stress-Strain curve for a light wire under tension,expression for Elastic PE and elongation in a wire/rod under stress.Examples and problems
		3	Thermometry : Heat and Temperature,Thermometric property of a substance,different temperature scales .
		4	Calorimetry: specific and latent heat capacity of a substance,thermal capacity,mechanical equivalent of heat,water equivalent,heating curve,thermal equilibrium,zeroth law,Principal of Calorimetry.Miscellaneous problems on Calorimetry
		5	Thermal expansion: types of thermal expansion,density variation with temperature,relation between α,βand γ in solids(isotopic & anisotropic),cause of thermal expansion,α for combination of rods.Applications:loss/gain in time in clocks,Bimetallic strips,error in length measurement by metal scale
		6	thermal stress and strain.Thermal expansion in liquids- relation between γ_{real} & γ_{app} in liquids, anomalous expansion of water,effect of temperature change on bouyancy.Miscellaneous problems.
	KTG (3)	1	Concept of Ideal Gas ,state variables and state equation for a gas. Ideal gas Equation .ideal gas laws:Boyle's Law ,Charle's law , Gay , Lussac Law ,graham's law of diffusion Dalton's law of partial pressures
		2	Kinetic gas equation,Degree of Freedom , Maxwell's Law of equipartition of energy , Internal energy
		3	Maxwell's speed distribution , Avg. speed , RMS speed , Mean Speed .mean Free Path. Miscellaneous problems
	THERMODYNAMICS (5)	1	Thermodynamic system ,Surrounding , closed , open , isolated system .First law of Thermodynamics: heat exchanged,internal energy change and mechanical work done in any thermodynamic process.Sign conventions for first law. Relation between Cp AND Cv for ideal gases.work done from P-V curve
		2	Cyclic processes,Internal energy,Cp,Cv,γ,degree of freedom,molecular weight of a mixture of ideal gases,Polytropic process: expressions for W,ΔU and ΔQ ,slope of P-V curve,polytropic bulk modulus.
		3	Standard processes like Isothermal,Adiabatic ,Isobaric and Isochoric.Cyclic processes,efficiency of a cyclic process.
		4	Miscellaneous problems on first law
		5	Second Law of thermodynamics: Kelvin-Planck statement , clausiuss Statement.Heat Engine and its efficiency ,Carnot Cycle and its efficiency , Carnot theorm ,Refrigerator and heat pump and their COP,Carnot refrigerator.Reversible and irreversible processes.Second law statement for entropy.
	HEAT TRANSFER (4)	1	Modes of heat transfer, Law of steady state Conduction , temp. Gradient,Thermal Resistance, heat current for linear, spherical and cylindrical flow.
		2	Different cases of Series and parallel and general Combination of conductors, wheatstone bridge,Growth of ice .
		3	Thermal Radiation , absorpive power , emmisive Power and their spectral definition , emmisitivity ,Black body radiation, Prevost Theory of exchange , kirchhof's Law,stefans law,spectral radiancy curve and Wiens law.Stefan's law of cooling.
		4	Newtons law of Cooling , Solar Constant .Miscellaneous problems
UNIT 6	ELECTROSTATICS (10)	1	Electric Charge - Definition and its properties , Coulombs law , Effect of Medium.
		2	Electric field , Properties of electric field , Electric Field intensity Due to point charge , line charge,circular ring,arc, disc , sheet ,spherical shell,solid non conducting sphere
		3	Motion of Charge particle in Electric field , electric field lines.electrostatic potential energy.
		4	Electric Potential and Potential Difference , Relation between Electric Field and potential difference.equipotential surfaces.Self energy and electrostatic energy density
		5	Electric Potential due to Point Charge , ring ,disc , spherical shell , solid nonconducting sphere.
		6	Electric dipole , dipole moment , electric potential and electric field due to electric dipole , interaction of a dipole with external electric field
		7	SHM of dipoles in uniform field.electric flux and its calculation.Gauss law
		8	Applications of Gauss law in finding electric field ,potential and charge density in case of unform/non uniform charge distributions exhibiting spherical,cylindrical and plane symmetry
		9	Properties of conductors,electrostatic shielding,earthing of conductors,electrostatic pressure
		10	Miscellaneous questions
	GRAVITATION (4)	1	Gravitational field and its comparison with electrostatic field, Newton's law of Gravitation,earth's gravity,variation of g,escape velocity and Binding energy,motion of satellites in circular orbits
		2	geostationary and geo synchronous satellites,weightlessness in a satellite,Binary stars,Kepler's laws
		3	motion of objects in gravitational field,trajectory of object projected from some height above a planet,first and second cosmic speeds
		4	Miscellaneous questions
	CURRENT ELECTRICITY (8)	1	electric current,current density,drift velocity,mobility and Ohm's law in conductors(microscopic and macroscopic form),Conductivity,resistivity and resistance,their variation with temperature
		2	validity of ohm's law,static and dynamic resistance,DC Electrical circuits in steady state;emf of cells, Kirchoff's laws(voltage law and junction law),ideal and real cells
		3	series and parallel combination of resistances,combinations reducible to series/parallel: infinite ladder,balanced wheatsone bridge,symmetry based combinations
		4	equivalent resistance in symmetry based combinations.equivalent resistance in cases without symmetry-by using kirchoff's law,by star delta method
		5	series and parallel combination of cells,circuit solving techniques like Loop method,Nodal method.electrical power.
		6	maximum power transfer theorem,Colour coding in resistors
		7	DC measuring instruments: Galvanometer , Ammeter , Voltmeter(Ideal and non ideal)
		8	Meterbridge,Potentiometer,PO Box and problems on them
	CAPACITOR (5)	1	Capacitance-Definition,Capacitance of isolated conductors, redistribution of charges on connecting conductors,capacitanceofcapacitors, type of capacitor:parallel plate, spherical and cylindrical.
		2	Parallel plate capacitors - Equal and unequal charge cases, force between plates ,energy stored , capacitors in electric circuits-instant charging cases,heat liberated
		3	Combination of capacitors in steady state,circuit solving techniques
		4	RC circuits:Charging and discharging of capacitor with time
		5	Capacitors with dielectrics :effect on capacitance,p.d between plates,energy stored,induced charges etc ,combination of dielectric slabs in between the capacitor plates,force with which a slab gets pulled inside the plates

UNIT 7	MAGNETIC EFFECT OF CURRENT (10)	1	Magnetic field,Sources of Magnetic Field ,magnetic field induction ,Biot Savart law .Magnetic field due to current carrying straight wire(finite and infinite)
		2	Magnetic Field due to circular current Loop ,circular Arc , solenoid
		3	Magnetic Field Due to Moving Charges , Ampere's law :Finding Line Integration of magnetic field.applying Ampere's law to find Magnetic Field inside and Outside long wires , Magnetic field between large current sheets , ideal solenoid , Toroid etc
		4	Force due to magnetic field on moving charges,Motion of charge particles in uniform magnetic field,Circular and helical motions,Lorentz force
		5	Motion under electric and magnetic fields,force on a current carrying wire placed in magnetic field
		6	Ampere's force between parallel current wires,miscellaneous problems on magnetic force
		7	Magnetic dipoles,magnetic dipole moment of current loops,rotating charges,torque and P.E of a magnetic dipole in external magnetic field(analogy with electric dipoles)
		8	Dipole moment ,M of moving charge , field on dipole ,Torque , energy and force on dipole due to Magnetic field
		9	Moving coil galvanometer,Hall's effect
		10	Miscellaneous problems
	MAGNETISM (3)	1	Magnetic materials and magnets:bar magnets,field due to bar magnets at axial and equitorial positions,magnetic material placed in external magnetic field
		2	paramagnetic,diamagneticand ferromagnetic substances,Curie's law.Magnetic hysteresis.Earth's magnetism: geographical and magnetic meridian ,declination and dip.Dip circle to measure true and apparent dip at a place.Neutral points
		3	Tangent galvanometer,Vibrational Magnetometers and their applications.Miscellaneous problems
	EMI (6)	1	Electromagnetic induction and its types,Magnticflux and Gauss law for magnetism.Faraday's laws.Lenz'S Law and their application
		2	Self Induction,inductor,self inductance of an ideal solenoid,behavior of an inductor in an electric circuit,magnetic energy stored in an inductor,energy density in a magnetic field,LR circuits:growth and decay of current with time
		3	Problems on LR circuits,combination of inductors ,Mutual Induction and mutual inductance due to a pair of coils
		4	Motional emf in a conductor,motional emf forming a part of an external circiut containing R,C or L
		5	Rotational emf in conductors.LC Oscillations.Induced electric field
		6	Miscellaneous problems
	AC (4)	1	AC signals: leadand lag concept,mean and rms values.Significance of rms value of an ac signal,difference between dc and ac meters.AC Circuits: power factor,difference between Resistance,Reactance and Impedance
		2	Single element circuits: R only, L only , C only .Mixed circuits in series: R-L ,L-C , R-C , L-C-R Circuit .Resonance in series and parallel LCR circuits
		3	half power frequencies,Quality factor and Band width.Power in ac circuits
		4	Choke Coil , Transformers .Damped oscillations and forced oscillations.
UNIT 8	EM RADIATION+PHOTOELECTRIC EFFECT(3)	1	EM radiation,Photon , wave particle duality,Power ,intensity , force and radiation pressure due to a photon beam
		2	Photo electric effect: photoelectric equation,photoelectric cell,stopping potential
		3	Miscellaneous problems
	ATOM+ X RAYS (3)	1	Physics of the atom: Bohr atom
		2	Problems based on Bohr atom
		3	X Rays: Continuous and Characteristic X rays,Moseley's law
	NUCLEAR + RADIOACTIVITY (3)	1	representation of nuclei and Nucleons,size of the nucleus,stabilty criteria,Radioactive decay
		2	problems on radioactive decay,Nuclear reactions,Q value,thresholdenergy.Alpha,beta decay,K capture.gamma decay
		3	Mass defect,Binding energy,Binding energy per nucleon,Nuclear fission and Nuclear fusion reactions
UNIT 9	RAY OPTICS (11)	1	Fermat's principle.optical elements,optical events,real and vitual objects and images.Reflection.Laws of reflection , Plane mirror reflection
		2	plane mirror reflection,reflection in Spherical Mirrors - Concave /convex , focal length , mirror formula , newtons formula , object - image speed , u-v Graph
		3	Refraction ,Law of refraction, critical angle and TIR
		4	Angular deviation due to refraction,refraction formula to locate image of point objects in plane and curved interfaces for near normal incidence/paraxialrays.real and apparent depth.Lateral and normal shift caused by a rectangular slab
		5	refraction through medium of continuously varying refractive index.Refraction through prisms
		6	refraction through prisms
		7	Dispersion:Cauchy 's Formula , Dispersion due to thin prisms , Dispersive Power , Prism Combination:dispersion without deviation,deviation without dispersion
		8	Spherical Refraction examples , Lens Formula , Magnification , obj-image Velocity , cutting -splitting of lenses
		9	Lens Combination , power ,silvering of lens , Displacement Method ,Chromatic aberration in thin lens,Achromatic combination of thin lenses
		10	Optical instruments:Simple Microscope ,Compound Microscope ,Telescopes,defects of human eye
		11	miscellaneous problems
	STRING WAVE (4)	1	Equation of travelling Wave , particle Velocity and accelaration , Speed of transverse waves on string ,energy in waves
		2	Superposition of waves,reflection and transmission of waves between two strings and due to free and fixed boundaries
		3	Equation of Standing Waves (Stationary Wave) , Stationary wave in String , vibration in sttring wave , Sonometer Wire
		4	miscellaneous problems on string waves
	SOUND WAVE(5)	1	Equation of travelling longitudinal wave:displacement and Pressure Wave , Velocty , Newton's and laplace Formula , Loudness and Intensity , energy in Sound Waves
		2	Interference of waves ,Quinke's tube
		3	longitudinal Standing wave (Organ pipe), resonance Tube
		4	Beats , Doppler's Effect (Sound Wave)
		5	Miscellaneous questions
	WAVE OPTICS (4)	1	Huygens principle , wave front , secondary wavelets .interference of light.calculation of path difference
		2	YDSE : standard YDSE, location of maxima and minima on screen.Modifications in YDSE arrangement and their effects

		3	cases similar to YDSE:Iloyd's mirror arrangement,Fresnel's biprism,Billet split lens.shape of fringes
		4	Interference due to thin films.Miscellaneous questions
	POLARIZATION + DIFFRACTION (1)	1	Polarization : polaroid , malus and Brewster Law , Scattering , Diffraction , fresnel/Fraunhofer diffraction ,
	EM WAVES (1)	1	Maxwell's equations.Displacement current and Ampere's law , Poynting vector ,energy density and intensity of em waves.Specturm of EM Waves
UNIT 10	FLUID STATICS (4)	1	fluid statics: hydrostatic pressure and its variation with depth.pressure variation due to acceleration of vessel
		2	pressure variation due to rotating vessels.Hydrostatic thrust force
		3	Force of Liquid on Container Base and Side walls .barometer and manometer,Pascal's law.Archimedes principle
		4	Applications of Archimedes Principle in determining R.D of a substance , Centre of Buoyancy , Floating ,Stability in Floating
	FLUID DYNAMICS (3)	1	Ideal Fluid , Steady and turbulent flow , Streamlime flow ,Equation of Contiunity .,Bernoulli's theorem
		2	Applications of Bernoulli's theorem: Magnus effect , atomiser , venturimeter,siphon pipe,pitot tube,efflux through a narrow hole.
		3	Miscellaneous problems
	SURFACE TENSION + VISCOSITY (3)	1	**SURFACE TENSION :** Surface tension , Surface tension Force , Surface energy , excess pressure
		2	angle on contact ,concave and convex meniscus , Capillary rise/fall of liquids -Jurin's law , Liquid between two plates
		3	**VISCOSITY :** Viscous Force , its unit in SI and CGS , Viscous Flow in Steady state in a cylinder , Poiseuille equation , Stoke's law and terminal velocity in a viscous fluid,Reynolds No.
	SEMICONDUCTORS+COMMUNICATION(5	1	Concept of Holes in semi-conductor , Intrinsic ,extrinsic ,doping , N type ,P type , Mass action law , P-N Junction ,diffusioin , drift current , potential barrier , deplection layer , Diode- Forward & Reversed Biased
		2	Zener and avalanche breakdown , application of diode LED ,photodiode ,solarcell ,Zener diode ,rectifier - Full wave , half wave ,Bridge recitifier
		3	Transistor , E,B,C, npn ,pnp . Region of Working , Common base , Common emiiter Common collecter , input output charateristics
		4	Logic gates : OR ,AND, NOT , NOR,NAND , XOR, XNOR Gate . Boolean algebra ,truth table , Elec. Analogue and Circuit diagram
		5	Basic elements of communication systems,Modulation : AM ,FM , Modulation Index , Band Width of signals and Transmission medium.Ground,sky and space wave propagation
	ERRORS AND MEASUREMENT(2)	1	Accuracy and precision,significant figures,rounding off digits in mathematical operations, true value,error,relative and percentage error,combination of errors
		2	Vernier callipers,screw gauge
	TOTAL	173 LECTURES	

IIT-JEE TIME SAVER COURSE PC (2020-21)			
Sr. No.	**PC**	**CODES**	**DETAILED CONTENT**
1	**Mole concept-3**	**LC001**	Basic moles , average molar mass ,% of element , emperical & Molecular Formula, Laws Of chemica Combination
2		**LC002**	Stochiometry , Limiting Reagent, % Yield , POAC, Series Reactions
3		**LC003**	Concentration Terms and their interconversion,Dilution and mixing of solutions
4		**LC004**	, Volume strength of H2O2 , Eudiometry & Methods of atomic mass determination
7	**Redox-4**	**LC005**	Introduction Oxidation number, Balancing of redox reactions
8		**LC006**	n-factor calculation & Law of chemical equivalence
9		**LC007**	Acid base , redox, iodometric titrations
13	**Kinetics & Radioactivity-11**	**LC008**	Introduction Rate of reaction Rate law, order and molecularity , significance of order of reaction
14		**LC009**	Zero order,1st order, 2nd order, nth order
15		**LC010**	Calculation of 1st order rate constant in terms of different Parameters
16		**LC011**	Calculation of 1st order rate constant in terms of different ParametersKinetics of parallel reaction
17		**LC012**	Collision Theory and Arrhenius Equation
18		**LC013**	Maxwell's distribution, factors affecting rate of reaction,
19		**LC014**	Basic Radioactivity useful upto Mains [As it is not in MAINS syllabus]
24	**Chemical Equilibrium**	**LC015**	Introduction characteristics of equilibrium, Law of mass action and equilibrium constant , Characteristics of equilibrium constant, writing equilibrium constant for various reactions
25		**LC016**	Calculation of Equilibrium constant and numerical application
26		**LC017**	Significance of value of equilibrium constant, calculation of degree of dissociation by V.D. Measurement , Simultaneous equilibrium
27		**LC018**	Reaction Quotient & Le chatlier's principle
28			
29		**LC019**	Le chatlier's principle & Physical equilibrium
30	**Ionic Equilibrium-11**	**LC020**	Acid - Base theories , Amphiprotic species, Levelling effect Arrhenius theory of dissociation, common ion effect
		LC021	properties of water, pH scale , Calculation of pH for strong acids /bases
31		**LC022**	Calculation of pH of solution containing weak acid or base Calculation of pH of mixtures
32		**LC023**	Calculation of pH of solution containing polytropic acid/base, Salt hydrolysis
33		**LC024**	Buffer solutions and Acid Base Titrations
34		**LC025**	Indicators and selection of Indicators
35		**LC026**	Solubility and solubility product,Solubility in presence of common ion Condition for precipitation , selective precipitation
36		**LC027**	Solubility in buffer and complex formation
41	**Thermodynamics**	**LC028**	Introduction , Basic definition Types of system State function / path unction Extensive & intensive properties, Work, Heat & Internal Energy, heat capacities
42		**LC029**	First law of thermodynamics, Enthalpy , Relation between Enthalpy and Internal
43		**LC030**	Thermodynamic Processes , Reversible & Irreversible process and their comparision
44		**LC031**	Isochoric process Isobaric process , Isothermal process, Adiabatic process
45		**LC032**	Comparison between isothermal & adiabatic process Polytropic process
46		**LC033**	Second law of Thermodynamics , Entropy &spontaniety , Calculation of ΔS total ΔSsys & ΔS surr.
47		**LC034**	Calculation of entropy in different cases ,, third law of thermodyanmics
48		**LC035**	Gibbs free energy , calculation of Change in G, condition for spontaniety,
49		**LC036**	Variation of gibbs free energy with P & T, concept of equilibrium
58		LC037	Enthalpy of reaction, Enthalpy of formation, Enthalpy of combustion , Hess's law
59	**Thermochemistry**	**LC038**	Enthalpy of neutrilisation, lattice enthalpy, Enthalpy of hydration
60		**LC039**	Enthalpy of solution, enthalpy for phase transformation, Enthalpy of atomisation
61		**LC040**	Bond energy, Calculation of Enthalpy of reaction by bond energy data
64	Electrochemistry	**LC041**	Introduction, Construction of galvenic cell, cell reaction and cell representation Electrode potential, EMF of cell, Siginificance of electrode potential
65		**LC042**	Nernst Equation , EMF and equilibrium constant , Application of nernst equation, Concentration cells
66		**LC043**	, different type of half cells, Metal SSS half cell , Thermodynamics of galvenic cells
67		**LC044**	Electrolysis and products of electrolysis,
68		**LC045**	Faradays laws of electrolysis
69		**LC046**	Conductance and conductivity cell, variation of molar conductivity with dilution , Kohlrausch's law and its applications
70		**LC047**	Application of Kohlrausch's law , Type of batteries
71	**Liquid solution-**	**LC048**	Introduction, Vapour pressure,Phase diagram , Raoult's law & Application
72		**LC049**	Mole fractions in liquid and vapor phase , Ideal & Non-Ideal solutions
73		**LC050**	Colligative properties , RLVP, Eubllioscopy, Cryoscopy, Osmotic pressure
74		**LC051**	Abnormal colligative properties and Van't hoff factor, Henry's law
78		**LC052**	Introduction Basic definition Unit cell / Bravais lattices
79		**LC053**	Analysis of unit cells and packing in crystals
80		**LC054**	Radius ratio, structure of ionic crystals
	Solid State	**LC055**	defects in solids and magnetic properties
		LC056	Gas laws and ideal gas equation, types of containers, manometer & barometer
		LC057	Dalton's law of Partial pressure, Effusion and diffusion
		LC058	Kinetic Theory of gases , types of molecular speeds, kinetic energy and maxwell's speed distribution curve,
81	**Gaeous State**	**LC059**	Real gases and deviation from ideal behaviour , compressibility factor & calculation, Liquifaction of gases and critical constants
84		**LC060**	planck's quantum theory , photo electric effect,rutherford's model
85		**LC061**	Bohr's model & Hydrogen spectrum
86		**LC062**	Quantum mechanical model & Schrodinger's wave equation
87	**Atomic Structure-3**	LC063	Adsorption & Absorption
88		LC064	catlysis & their types
89		LC065	colloids and their classification , preparation of colloids
90	**Surface Chemistry-2**	LC066	properties of colloids, Coagulation and protecton of cooloids, purification and Emulsions

IIT-JEE MICRO SCHEDULE LEADER IOC (2020-21)			
Sr. No.	**IOC**	**CODES**	**DETAILED CONTENT**
	Pre-requisites		**Electronic conficurations, valence electrons & Covalncy, Naming of elements with Z>100, Effective Nuclear Charge & screening effect , Idea of I.E., Electron Affinity & Electronegativity , Hydration & Hydration energy , acidic basic & Amphoteric oxides**
		LI001	
		LI002	
1		**LI001**	Introduction of chemical bonding, Formal Charge , Lewis octet rule , Lewis acids & Bases, VBT & Overlapping
2		**LI002**	Hybridisation & VSEPRT ,
3		**LI003**	
5		**LI004**	
7		**LI005**	
9		**LI006**	Bond Parameters - Bond Order, Bond length, Bond Angle & Comparision,
10		**LI007**	Dipole moment , Back bonding , Bridge Bond
11			
12	**Chemical Bonding**	**LI008**	Molecular Orbital Theory (MOT),
13		**LI009**	
14		**LI010**	Intermolecular forces , factoras affecting vanderwaal forces , comparision of B.P. & M.P.
15		**LI011**	Hydrogen Bonding , extent & strength of H-bonding , Types of H-Bonding , properties affected
16		**LI012**	
17			Ionic Bond, polarisation and Fajan's Rule & It's application
18		**LI013**	
19		**LI014**	
21		**LI015**	Solubility orders & Thermal stability
22			
30		**LI016**	Introduction, Classification of Ligands , Oxidation number, Effective atomic number .
31			Nomenclature of Coordination Compounds , Werner's coordination theory
32		**LI017**	
	Co-ordination Compounds	**LI018**	Crystal Field Theory + Valence Bond Theory
33		**LI019**	CFT
34		**LI020**	Calculation of CFSE, Factors affecting splitting energy , Applications Of CFSE
35		**LI021**	Synergic bonding and stability of complexes
36		**LI022**	
37		**LI023**	Structural isomerism & Stereoisomerism
45		**LI025**	Introduction, ore, mineral Steps involved in Metallurgy , Gravity separation, Magnetic separation
46		**LI026**	froth floatation,Leaching,
47	**Metallurgy-10**	**LI027**	Conversion of ore into oxide, Reduction of oxide into metal (smelting), Self reduction
48		**LI028**	Refining of metal
49		**LI029**	Thermodynamics of metallurgy - Ellingham Diagram
50		**LI030**	Extraction of Fe & Cu
51		**LI031**	Extraction of Al, Ag & Au
55	**S-Block-**	**LI032**	General Properties of S-block elements
56		**LI033**	Compounds of S-block elements
57		**LI034**	Boron Family
58		**LI035**	Carbon family & properties
59		**LI036**	Silcates & Silicones
60		**LI037**	Nitrogen family
		LI038	Nitrogen Family
	P-Block-	**LI039**	Oxygen Family
		LI040	Oxygen Family
		LI041	Halogen Family
		LI042	Halogen Family
61		**LI043**	Noble gases
		LI044	Introduction, and general properties of D-block elements ,
	D-Block-	**LI045**	Properties of D-block elements ,
		LI046	Important compounds of D-block elements
62	**Hydrogen And Its**	**LI047**	Complete properties
63	**Compound , F-Block-**	**LI048**	compounds of Hydrogen

75 Hrs	Time Saver	75 Lectures

Time saver course for Class 13th Jee(Organic Chemistry) of 2021 by S.Y. Sir

Chapter Name	No. of Lectures	Content of Chapter
General Organic Chemistry (10-12)	L : 1	Inductive effect and its types
		Application of I-effect
	L : 2	Resonance coordination of resonance method of resonance
		Method of resonance, +R and -R group
	L : 3	Syability of resonating structures
		Aromaticity
	L : 4	Resonance energy
	L : 5	Hyperconjugation
	L : 6	Application of all effect
		Application of all effect
	L : 7	Application of all effect
		Application of all effect
	L : 8	Audity of diff acids, phenol & benzoic acid and derivatives
		Audity of diff acids, phenol & benzoic acid and derivatives
	L : 9	Audity of diff acids, phenol & benzoic acid and derivatives
		Basic strength
	L : 10	Basic strength
		Basic strength
Classification and Nomenclature of Organic Compound (8-9)	L : 1	Introduction, method of presentation of O.C. (bond Linenotation)
		Classification/ types of C, H, R-X, R-OH, Amines, Functional group
	L : 2	Homologous series Degree of unsaturation
	L : 3	IUPAC-Naming Rule
	L : 4	IUPAC-Naming Rule
	L : 5	IUPAC-Naming Examples
	L : 6	IUPAC-Naming Examples
	L : 7	IUPAC-Naming Examples
	L : 8	IUPAC-Naming Aromatic Compound
	L : 9	Miscellaneous
Structural Isomerism (2-3)	L : 1	Structural Isomerism (Inducting tautomerism)
		Structural Isomerism (Inducting tautomerism)
	L : 2	Structural Isomerism (Inducting tautomerism)
		Structural Isomerism (Inducting tautomerism)
Stereoisomerism		**(a) Geometrical Isomerism**
	L : 1	Difference between structural & stereoisomerisms, Introduction of
		Condition of geometrical isomerism
	L : 2	Naming of G.I,. (cis trans, E-Z, syn-anti)
		Properties of G.I. isomers, calculation of G.Is.
		(b) Conformational Analysis
	L : 3	Basic ideas information for conformational analysis
		Conformations in acylic compounds
	L : 4	Conformations in acydic + cyclic compounds
		Conformations in acydic compounds
		(c) Optical Isomerism
	L : 5	Introduction, variation of q, chiral atom
		Elements of symmetry (plane, centre)
	L : 6	Elements of symmetry (AAOS, AOS), Condition for Optical activity
		Methods of representation of diff. molecule and their interconversion
	L : 7	Configuration of compound (D/L - and R/S)
		Optical isomerism in compound with one and two chiral centre
	L : 8	Meso compound, Enantiomers, Diastereomers, Racemic mixture
		Resolution, optical purity, Enantiomeric excess, Calculation,
Halogen Derivatives (21)		**Reactant reagents**
	L : 1	Electrophile, nucleophile
	L : 2	Variation of Electrophilicity and nucleophilicity
		Carbocation
	L : 3	General , Generation
		General reaction and its rearrangements
		Important Reaction involving carbocation (R-X, form + Rxn)
	L : 4	Addition of HX and H_3O^+ addition with alkenes / alkynes
	L : 5	Addition of X_2, IX, NOX, HO-X with alkenes/alkynes
	L : 6	Addition of X_2, IX, NOX, HO-X with alkenes/alkynes
	L : 7	OMDM, HBO
	L : 8	Dehydration of alcohol (E_1-Reaction)
	L : 9	Pinacol-Pinacolone rearrangement
	L : 10	Demjanav rearrangement, Dienone Phenol
		Nucleophillic Substitution reaction (SN-RXN)
	L : 11	SN^1 & SN^2
	L : 12	Comparision of SN^1 & SN^2
	L : 13	SN_1
	L : 14	Examples of SN reactions of R-X, R-OH, R-O-R
	L : 15	Examples of SN reactions of R-X, R-OH, R-O-R + SNGNP
		Elimination Reaction
	L : 16	E_1, E_2, E_{1CB}
		E_1, E_2, E_{1CB}
	L : 17	Orientation of E.R.
	L : 18	Pyrrolytic / thermal ellimination rxn
		Dehydration, Dehalogenation
	L : 19	Important Reaction involving FR (Kolbe, Electrolysis, wurtz reaction) and
	L : 20	Photohalogenation (Chlorination, Bromination)
	L : 21	Per-oxide effect, NBS Rxn, Pinacol-form n
		Grignard Reagent
	L : 1	Grignard Reagent - 1
	L : 2	Grignard Reagent - 2
		Reduction of various functional group
	L : 3	Reduction by H_2/cat
		Reduction by $LiAlH_4$
	L : 4	Reduction by SBH, BH_3-THF/H^+, DIBAL-H
		Some important reduction
		Oxidation
	L : 5	Oxidation - 1 (Alkane, alkene, alkyne)
		Oxidation - 2 (Alkane, alkene, alkyne)
	L : 6	Oxidation - 3 (R-OH, R-X)
		Oxidation - 4 (Aldehyde)
Alcohol & Ether (6)		**Heating effect**
	L : 1	Heating effect on various compound - (2)
		Heating effect on various compound - (2)
		Nucleophilic addition reaction
	L : 2	Reaction with $NaHSO_3$, HCN, H_2O, H_2N-Z
		Reaction with R-OH
		Name reactions
	L : 3	Haloform reaction
	L : 4	Aldol condensation reaction
		Cannizaro's reacion
	L : 5	Some other reactions
Carbonyl compounds (Aldehyde, Ketone) (6)		**Carboxylic acid derivatives**
	L : 1	G.M.P. (General Method of Preparation)
		G.M.P. (General Method of Preparation and Reactions)
		General reactions
	L : 2	General Method of Preparation
	L : 3	Reactions of Amines
		Reactions of Amines
	L : 4	Benzene diazonium chloride and its rxn
Carboxylic Acid Derivatives and Amines (4)	L : 1	Alkanes
		Alkenes
		Alkynes
		Benzene
		Phenols
	L : 2	G.M.P.
		Rxn. of Phenol
		Rxn. of Phenol
		Aniline
	L : 3	G.M.P. & GR
	L : 4	G.M.P. & GR
		Test of phenol and aniline, coupling reactions
		Chlorobenzene
	L : 5	G.M.P. & Rxn.
Aromatic Compound (4-5)		**Amino Acid & Proteins**
	L : 1	Introduction, classification, physical properties isoelectronic point
		Reaction of Amino acid, protein and its classification
		Carbohydrates
	L : 2	Introduction, Classification
		Structure of monoseccharides (Glucose, fructose)
	L : 3	Reactions of monoseccharides
		Disaccharides and polysaccharides
	L : 4	Polymers
	L : 5	Chemistry in every day life
Biomolecules (4)		

IIT-JEE TIME SAVER COURSE PLAN MATHS (2020-21)

MATHS	CODES	DETAILED CONTENT
Basic Maths - 10	LM001	Number System Indices and Polynomials
	LM002	Exponantial and logrithmic functions Illustrations on log function Rational algebraic inequalities (Method of interval)
Trigonometric Ratio Identities + Trigonometric Equation-4	LM003	TRI
	LM004	
	LM005	Trigonometric Equation & Inequation
	LM006	
Quadratic Equation-4	LM007	1. Definition of polynomial 2. Quadratic equation 3. Roots of quadratic equation 4. Relation between roots and coefficient of quadratic equation Nature of roots 5. If root of the equation $ax^2 + bx + c = 0$ are a & b then finding equation 6. whose roots are symmetric expressions of a and b 7. Quadratic equation V/S Identity 8. Condition of common roots
	LM008	10. Graphs of quadratic expressions, $y = ax^2 + bx + c$ 11. Explanation of above graphs
	LM009	12. Computing the maximum or minimum values of rational function 13. Location of roots 14. General and mixed problem
	LM010	15. Finding the condition for which a general two degree expression 16. Theory of equations 17. Pseudo quadratic equations
Sequence & Series-4	LM011	1. Introduction 2. Arithmetic progression 3. Summation of n terms of an A.P. 4. Properties of A.P.
	LM012	5. Arithmetic mean 6. Geometrical progression 7. Summation of n terms of A.G.P. 8. Properties of G.P.
	LM013	9. Geometrical mean 10. Harmonical progression 11. Harmonical mean 12. Arithmetic mean, Geometric mean & Harmonic mean of 'n' numbers 13. Properties related with Arithmetic mean, Geometric mean & Harmonic mean
	LM014	14. Arithmetic geometric progression 15. Special sequences
Function-7	LM015	1. Cartesian product of two sets 2. Function 3. Domain, Co-domain & Range Of A Function 4. Some Important Functions 5. Algebraic
	LM016	Examples on Domain Range
	LM017	6. Equal or Identical Function 7. Homogeneous Functions 8. Bounded Function 9. Implicit & Explicit Function 10. Applications of functional rule 11. Transformations of The graph
	LM018	12. Classification of Functions
	LM019	13. Composite of uniformly & non-uniformly defined Functions
	LM020	14. Inverse of A Function 15. Odd & Even Functions
	LM021	16. Periodic Function
Inverse Trigonometric Function-3	LM022	1. General introduction 2. Domain, Range & Graph of Inverse trigonometric functions 3. Properties of inverse trigonometric function (P1, P2 ..... P5)
	LM023	3. Properties of inverse trigonometric function (P6, P7) 4. Simplification & Transformation of Inverse functions by elementary substitution and their graphs5. Equations involving inverse trigonometric functions6. Identities involving inverse trigonometric functions
Limit-5	LM024	7. Simultaneous equations and inequations involving I.T.F. 8. Summation of series
	LM025	1. General introduction 2. Definition of Limit 3. Left hand limit and right hand limit of a function* 4. ∫ - d Definition (A formal definition of limit) 5. Indeterminate forms 6. Five Fundamental Theorems 7. Various Strategies (To evaluate limit)
	LM026	8. Sandwich / Squeeze play Theorem 9. Limits of Trigonometric Functions 10. Limit using Series Expansion
	LM027	
	LM028	11. Limit of Exponential Functions 12. Limits of the function of the form 1¥
	LM029	13. Generalized Formula for 1¥ 14. limits of functions having built in limit with them
Continuity & Differentiability-6	LM030	
	LM031	Continuity
	LM032	
	LM033	
	LM034	Differentiability
	LM035	
Method of Differentiation-4	LM036	1. Derivative by first principle 2. Derivative of standard functions 3. Supplementary theorems/result 4. Logarithmic differentiation 5. Parametric differentiation 6. Derivative of (x) w.r.t. g(x)
	LM037	7. Derivative of implicit function 8. Derivative of infinite series 9. Derivative of homogeneous equation 10. Derivative of inverse function
	LM038	11. Derivatives of inverse trigonometric function by transforming them into simpler functions 12. Analysis and graphs of some inverse trigonometric functions 13. Successive differentiation
	LM039	14. Deduction of new identities by differentiating a given identity 15. Derivative of functions expressed in the determinant form 16. L'Hospital's Rule
Indefinite Integration-6	LM040	1. Antiderivative 2. Geometrical interpretation of indefinite integral 3. Antiderivative or reverse phenomenon of differentiating 4. Properties of integration Basic Examples
	LM041	5. Integration by substitution
	LM042	6. Integration by parts
	LM043	7. Integrals of trigonometric function
	LM044	8. Integration of rational function
	LM045	9. Integration of irrational algebraic function 10. Miscellaneous 11. Reduction formula 12. Some integrals which cannot be found in terms of known elementary functions
Definite Integration-6	LM046	1. Definite integral as the limit of sum 2. The fundamental theorem of calculus
	LM047	3. Geometrical Interpretation of Definite integral 4. Evaluating definite integrals by finding antiderivatives 5. Walli's theorem
	LM048	6. Properties of definite integral (P1, P2, P3, P4, P5, P6)
	LM049	
	LM050	6. Properties of definite integral (P7) 7. Derivatives of antiderivatives (newton-leibnitz formula)
	LM051	10. Determination of function 11. Estimation of definite integral and general inequality in integration
	LM052	12. Reduction formula 13. Differentiating and integrating series
Tangent & Normal-1	LM053	Tangent & Normal
Monotonocity-3	LM054	
	LM055	Monotonocity
	LM056	
Maxima-Minima- 3	LM057	
	LM058	Maxima-Minima
	LM059	
Differential Equation-3	LM060	1. Definition 2. Order and degree of differential equation 3. Solving differential equation 4. Formation of A Differential Equation 5. General and particular solutions
	LM061	6. Elementary types of first order & first degree differential equations
	LM063	7. General & miscellaneous problems
Area Under The Curve-2	LM064	1. Area under the curves (given by Cartesian equation) 2. Area enclosed between two curves 3. Standard areas
	LM065	4. Area under various cases
Straight Line-7	LM066	1. General introduction 2. Co-ordinates system 3. Distance formula 4. Section formula 5. Application of distance formulae
	LM067	6. Co-ordinates of some particular points 7. Area of a Triangle and condition for collinearity 8. Brief description of elementary locus (Four basic steps) 9. Straight line 10. Equation of straight Line
	LM068	11. Different forms of straight lines 12. Position of a point w.r.t. a line 13. Length of perpendicular
	LM069	14. Reflection of a point 15. Internal angles of triangle 16. Line inclined at an angle to other line(s)
	LM070	17. Condition for concurrency 18. Family of straight line
	LM071	19. Transformation of axes 20. Equation of Bisectors of angles between two lines
	LM072	21. Pair of Straight lines 22. General equation of second degree representing a pair of straight lines 23. Problems on locii
Circle-6	LM073	1. Definition 2. Diametrical form of circle 3. Intercept (Made by the circle) 4. Position of a point w.r.t a circle 5. Parametric equation of a circle
	LM074	6. Line & A Circle 7. Tangent and normal 8. Director circle Length of Tangent & Power of a point
	LM075	9. Equation of chord with given middle point 10. Chord of contact
	LM076	11. Pair of Tangents 12. Family of circles
	LM077	13. Pole & Polar 14. Common tangents to two circles
	LM078	15. Radical Axis & Radical Centre 16. Coaxial system of circles 17. Orthogonality of two circles Discussion
Parabola-4	LM079	1. Introduction to conic sections 2. General equation of a conic 3. Centre of the central conic 4. Standard equation of parabola 5. Shifted parabola
	LM080	6. Position of a point relative to a parabola 7. Focal distance/focal radii 8. Parametric coordinates 9. Chord joining two points t_1 and t_2
	LM081	10. Tangents to the parabola 11. Length of chord of the conic intercepted on line 12. Normal's to the parabola 13. Rules of transformation 14. Common tangents to two conics
	LM082	16. Pair of tangent 17. Chord of contact
Ellipse-3	LM083	18. Chord with a given middle point 19. Important highlights 1. General equation of an ellipse 2. Deriving standard equation of ellipse 3. Tracing of an ellipse 4. Two standard ellipse 5. Eccentricity Shifted ellipse, Generalized version
	LM084	6. Position of a point relative to an ellipse 7. Focal distance / focal radii 8. Auxiliary circle/eccentric angle/ parametric coordinates 9. Chord joining two points whose eccentric angles are a & b
	LM085	10. Tangents to the ellipse 11. Normal's 12. Common articles 13. Important highlights
Hyperbola-3	LM086	1. General equation of a hyperbola 2. General terminology of hyperbola 3. Two standard hyperbola 4. Shifted hyperbola 5 Conjugate hyperbola 6. Position of a point 'P' w.r.t. A Hyperbola 7. Auxiliary Circle/eccentric angle / parametric coordinates 8. Chord joining two points of hyperbola
	LM087	9. Tangents to the hyperbola* 10. An important concept 11. Normal's to the hyperbola 12. Common articles
	LM088	13. Rectangular hyperbola 14. Important highlights 15. Highlights on asymptotes
Vector-6	LM089	1. General definitions 2. Angle between vectors 3. Section formula 4. Geometrical results with vectors & problems 5. Vector equation of a line6. Vector equation of the bisectors of the angles between the lines
	LM090	7. Test of collinearity 8. Scalar product (dot product)
	LM091	9. Linear combination 10. Fundamental theorem in plane
	LM092	11. Vector product (cross product) 12. Shortest distance between 2 skew lines 13. Shortest distance between two parallel lines
	LM093	14. Product of 3 or more vectors
	LM094	15. Necessary & sufficient condition for coplanarity of four points 16. Fundamental theorem in space 17. Real definition of linearly independent 19. Solving vector equation Discussion
3-D- 4	LM095	1. Coordinates of a point in space 2. Distance formula 3. Section formula 4. Direction cosines of vector 5. Direction cosines of line 6. Direction ratios of a line 7. Relationship between direction cosine & direction ratios
	LM096	8. Definition of plane 9. Different forms of the equations of planes 10. Perpendicular distance of a point 'P' from a plane Ax + By + Cz + D = 0 11. Angle between two planes 12. Equation of the bisector planes between the planes 13. Family of planes
	LM097	14. Angle between two planes 15. Condition for line to lie completely in plane16. Symmetrical form of straight line (Cartesian form) 17. Unsymmetrical form of straight line
	LM098	18. Coplanarity of two lines 19. Line of Greatest slope in a plane
Complex Number-4	LM099	1. General introduction 2. Algebra of complex numbers 3. Equality In Complex Number 4. Three Important terms : Conjugate/Modulus/ Argument 5. Representation of a complex in different from 6. Important Properties of conjugate 7. Important Properties of Modulus 8. Important Properties of Amplitude
	LM100	9. Vectorial Representation of a complex number
	LM101	10. Angle between lines 11. Condition for lines to be parallel
	LM102	14. Demoivre's Theorem 15. Cube Root of Unity 16. n^{th} Roots of Unity 17. General loci on complex plane
Permutation & Combination-6	LM103	1. General introduction & Historical development 2. Fundamental principle of counting 3. Significance / meaning of the title of the chapter
	LM104	4. Useful theorems (For faster execution rate of the problems), Examples
	LM105	5. Formatting of groups
	LM106	6. Permutation of alike objects
	LM107	7. Circular Permutation
	LM108	8. Total number of combinations 9. Summation of numbers
	LM109	10. Distribution of alike objects 1. Introduction 2. Basic definitions 3. Venn diagrams
Probability-5	LM110	4. Addition theorem 5. Conditional probability 6. Multiplication theorem 7. Independent Events 8. Law of total probability
	LM111	9. Three events defined on an experimental performance 10. Binomial Probability Distribution
	LM112	11. Probability through Statistical (stochastic) Tree diagram 12. Baye's Theorem 13. Extended Bayes
	LM113	14. Geometrical Probability 15. Mathematical Expectation 16. Probability Distribution (for JEE-Mains)
JEE MAINS Topics-4	LM114	Sets & Relation
	LM115	Height & Distance & PMI
	LM116	Statistics
	LM117	Mathematical Reasoning
Binomial Theorem-3	LM118	1. Binomial expression 2. Binomial theorem 3. General term 4. Number of terms in expansion 5. Middle term 6. Numerically greatest term 7. Applications of binomial theorem
	LM119	8. Properties of binomial coefficients 9. Summation of series
	LM120	10. Miscellaneous problems on summation 11. Multinomial theorem 12. Multinomial theorem for negative and fractional index
Determinant & Matrices-6	LM121	1. Introduction 2. Cofactor and minors of an element 3. Properties of determinants 4. Special determinants 5. Factor theorem
	LM122	6. Multiplication of two determinants 7. Cramer's rule (System of linear equations) 8. Applications of determinant in geometry
	LM123	1. Definition 2. Special type of matrices 3. Algebra of matrices
	LM124	4. Properties of matrix multiplication 5. Positive integral powers of a square matrix 6. Matrix polynomial 7. Characteristic equation 8. Definitions
	LM125	9. The transpose of a matrix : (Changing rows & columns)10. Orthogonal matrices 11. Symmetric & skew symmetric matrix 12. Properties of symmetric and skew matrix
	LM126	13. Adjoint of a square matrix 14. Properties of adjoint 15. Inverse of a matrix (reciprocal matrix) 16. Properties of inverse 17. System of equation & criterion for consistency *18. Finding inverse using elementary row operation