

**FREQUENTLY ASKED QUESTIONS (FAQs) – PUBLIC EXAMINATION**

(From March 2006 to September 2015)

**1. ELECTROSTATICS**

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Coulomb's law	6
2	Safer inside a car during lightning - why?	6
3	State Gauss's law	5
4	Electric potential at a point	4
5	Electric polarisation	4
6	Corona discharge	4
7	Non-polar molecules	3
8	Define one coulomb	3
9	Dipole and dipole moment	3
10	Uses of capacitors	3
11	Electric flux - define	2
12	Polar molecules	2
13	Define capacitance	2
14	Properties of Electric lines of force	2
15	Microwave oven	2
16	Additive law of charges	1
17	What is meant by Electro static shielding	1
18	Problem Question 1.7 (i)	2
19	Problem Question 1.8, 1.12, 1.59 (i) (each)	1
20	New created problems	2
<b>PART - III</b>		
1	Properties of electric lines of force	9
2	Torque experienced by a dipole	3
3	Electric potential energy (System of 2 charges)	2
4	Problem Que. 1.59, 1.16, 1.54	2
5	Capacitance of parallel plate capacitor	2
6	Energy stored in a capacitor	2

S.No.	Questions	No. of Repetition
7	Cap. C of parallel plate capacitor - dielectric slab	1
8	Capacitors in series	1
9	What is capacitor? Explain principle.	1
10	Problem Que. 1.13, 1.56, 1.9, 1.10, 1.49	1
<b>PART - IV</b>		
1	Dipole - Electric field at axial line	7
2	Potential at a point due to a dipole - Special cases	7
3	Van De Graff generator	5
4	Dipole - Electric field at an equatorial line	4
5	Gauss's law and application	3
6	Capacitances in series and parallel	3
7	Explain Principle of capacitor. Capacitance of Parallel plate capacitor.	1

## 2. CURRENT ELECTRICITY

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Define drift velocity	10
2	State Kirchoff's laws	8
3	Ohm's law	7
4	Difference between Electrical energy and power	6
5	Applications of Super conductors	6
6	Differentiate PD and EMF	6
7	Faraday's laws of electrolysis	5
8	Define mobility	4
9	Temperature coefficient of resistance	3
10	Applications of secondary cells	3
11	Changes during Transition Temperature	2
12	Define - Resistivity	2
13	Define critical temperature	1
14	What is Super conductivity	1

S.No.	Questions	No. of Repetition
15	Problem Question 2.5	9
16	Problem Question 2.1	3
17	Problem Question 2.32, 2.39 (each)	2
18	Prob Qns 2.6, 2.34, 2.38, 2.3, 2.43 (each)	1
19	New created problems	3
<b>PART - III</b>		
1	Applications of superconductors	7
2	Balanced condition of Wheatstone's bridge	6
3	Internal resistance using voltmeter	6
4	Construction and working of Daniel cell	5
5	Comparison of e.m.f.s – potentiometer	5
6	Verification of Faraday's II law of electrolysis	4
7	Construction and working of Leclanchee cell	3
8	Principle of a potentiometer	3
9	Faradays I law verification	2
10	Resistances in parallel	2
11	State and explain Kirchoff's second law	1
12	Define Mobility, I – V relation	1
13	Resistance Vs Temp. expression and graph	1
14	Lead Acid accumulator	1
15	Wheatstone's Bridge	1
16	Problem Que. 2.10, 2.33 (each)	3
17	Problem Que. 2.11, 2.30, 2.44 (each)	2
18	Problem Que. 2.2, 2.8, 2.9, 2.12, 2.34 (each)	1

### 3. EFFECTS OF ELECTRIC CURRENT

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Peltier coeficient	4
2	Define one ampere	4

S.No.	Questions	No. of Repetition
3	Limitation of cyclotron	3
4	Nichrome is used as heating element - why?	3
5	Ampere circuital law	2
6	How to increase sensitivity of a galvanometer	2
7	Define Thomson coefficient	2
8	Fleming's left hand rule	2
9	Differentiate Peltier and Joule heating effect	1
10	Neutral temperature and inversion temperature	1
11	Tangent law	1
12	Conversion of Galvan into voltmeter ammeter	1
13	Problem Question 3.2, 3.4, 3.12 (each)	1
<b>PART - III</b>		
1	Conversion of galvanometer into an ammeter	3
2	Conversion of galvanometer into an voltmeter	3
3	Special features of Lorentz force	2
4	State and explain Biot - Savart law	1
5	Principle and Construction of TG	1
6	Problem Que. 3.16	4
7	Problem Que. 3.13, 3.35 (each)	3
8	Problem Que. 3.3, 3.30, 3.36 (each)	2
9	Problem Que. 3.6, 3.7, 3.11, 3.14, 3.15, 3.17, 3.18, 3.39 (each)	1
<b>PART - IV</b>		
1	Biot - Savart law - B due to straight conductor	7
2	Cyclotron	5
3	Force on a current carrying condu. In mag. Field	4
4	Mag. Induction - circular coil	4
5	Motion of charged particle in uniform mag. Field	4
6	Joule's law of heating	2
7	Tangent Galvanometer	1
8	Ampere's circuital law + long solenoid	1
9	Force bet. Current carrying parallel conductor	1

**4. ELECTROMAGNETIC INDUCTION AND  
ALTERNATING CURRENT**

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Quality factor	6
2	Fleming right hand rule	5
3	Faradays' law of Electro magnetic induction	5
4	Methods of producing induced emf	4
5	r.m.s value of AC	4
6	Lenz's law	3
7	Define self inductance	2
8	Efficiency of a transformer	2
9	What is meant by Electro magnetic induction	1
10	AF choke coil and RF choke coil	1
11	DC ammeter doesn't measure AC	1
12	Capacitor block dc why?	1
13	Define - unit of self induction	1
14	Define- Coefficient of self induction & its unit	1
15	Problem Question 4.2	6
16	Problem Question 4.7	4
17	Problem Question 4.4, 4.6	3
18	Problem Question 4.1, 4.3 (i), 4.5, 4.55 (each)	1
19	New created problems	3
<b>PART - III</b>		
1	Power losses in a transformer	9
2	Induced EMF by changing the area of the coil	8
3	Application of Eddy current	3
4	AC Circuit having Inductor only	2
5	Mutual induction of 2 long solenoid	2
6	AC Circuit having Resistor only	2
7	Self induction of long solenoid	1
8	EM induction Faraday's law and Lenz's law	1

S.No.	Questions	No. of Repetition
9	Energy associated with an inductor	1
10	Problem Que. 4.5	1
<b>PART - IV</b>		
1	AC Generator (single phase)	10
2	EMF induced by changing orientation of coil	8
3	RLC series circuit, V, Z, $\phi$	6
4	Transformer	3
5	Eddy current applications	1
6	AC circuit with inductance	1
7	AC circuit with capacitor	1

## 5. ELECTROMAGNETIC WAVES AND WAVE OPTICS

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Tyndall scattering	6
2	Specific rotation	4
3	Huygen's principle	4
4	Sky look blue in colour - why?	3
5	Factors of optical rotation	3
6	Difference bet. Fresnel and Fraunhofer diffraction	2
7	Centre of newton's ring is black - why?	2
8	Define Optical axis	2
9	Conditions for Total internal reflection	2
10	Application of IR rays	1
11	Brewster's law	1
12	Emission and absorption spectra	1
13	Fraunhofer lines define	1
14	Band emission spectra	1
15	Uses of UV rays	1
16	Conditions for sustained interference	1

S.No.	Questions	No. of Repetition
17	3 characteristics of EM wave	1
18	What is Uniaxial, Biaxial crystals? Give Examples.	1
19	Problem Question 5.4, 5.5, 5.8, 5.45 (each)	3
20	Problem Question 5.2, 5.49 (each)	2
21	Problem Question 5.6, 5.40 (each)	1
<b>PART - III</b>		
1	State and prove Brewster's law	9
2	Write a note on Nicol prism	3
3	Pile of plates	2
4	Radius of nth ring in newton rings experiment	2
5	Diff. bet. Interference and diffraction	1
6	Problem Que. 5.7	4
7	Problem Que. 5.3, 5.47 (each)	3
8	Problem Que. 5.43	2
9	Problem Que. 5.1, 5.4, 5.5, 5.8, 5.42, 5.44, 5.45, 5.48 (each)	1
<b>PART - IV</b>		
1	Young's double slit experiment - Exp for Bandwidth	9
2	Emission and Absorption spectra	7
3	Raman effect	7
4	Total internal reflection	3
5	Interference transparent film	2
6	Huygen's principle - explain law of reflection	2

### 6. ATOMIC PHYSICS

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	characteristics of LASER	6
2	Mosley's law	5
3	Medical applications of Laser	4
4	Conditions for LASER action	4

S.No.	Questions	No. of Repetition
5	Ionisation potential / Ionisation energy	4
6	Applications of Mosley's law	4
7	Conclusion from Laue's experiment	3
8	Principle of Millikan's oil drop experiment	3
9	Industrial applications of Laser	1
10	3 Properties of cathode rays	1
11	Hologram and its applications	1
12	Limitations of Rutherford model	1
13	Limitations of sommerfeld model	1
14	Distinguish Soft & Hard X - rays	1
15	Problem Question 6.9	7
16	Problem Question 6.49, 6.52 (each)	3
17	Problem Question 6.50	2
18	Problem Question 6.1, 6.5, 6.7(i), 6.7(ii), 6.45(i) (each)	1
19	New created problem	1
<b>PART - III</b>		
1	Explain the spectral series of hydrogen atom	6
2	Origin of characteristic X-ray spectrum	4
3	Obtain Brag's law	4
4	Characteristics of X - rays	4
5	Properties of cathode rays	3
6	Laue's experiment	2
7	Radius of nth orbit of Hydrogen	1
8	Energy of nth orbit of Hydrogen atom	1
9	Properties of Canal rays	1
10	Problem Que. 6.4, 6.5, 6.8, 6.45 (each)	1
<b>PART - IV</b>		
1	JJ Thomson e/m experiment	8
2	Ruby laser	7
3	Radius of n-th orbit of hydrogen atom	6
4	He - Ne laser	4
5	Millikan's oil drop experiment	2



S.No.	Questions	No. of Repetition
6	Bragg's law & Bragg's spectrometer	1
7	Bragg's spectrometer & Charact. X-ray spectrum	1

**7. DUAL NATURE OF RADIATION AND MATTER -  
RELATIVITY**

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Applications of photo electric cells	6
2	Postulates of special theory of relativity	4
3	Limitations of electron microscope	4
4	Inertial and non-inertial frames of reference	3
5	Stopping potential	3
6	Applications of electron microscope	2
7	Define - Threshold frequency	2
8	Define - Concept of time	1
9	What is photoelectric cell? Its types	1
10	Problem Question 7.5	2
11	Problem Question 7.6 (i)	1
12	New created problem	1
<b>PART - III</b>		
1	De Broglie wavelength of matter waves	9
2	Derive Einstein's photoelectric equation	8
3	Explain length contraction	8
4	Applications of photoelectric cells	7
5	State the laws of photoelectric emission	5
6	Time dilation	3
7	Working of photo emissive cell	2
8	Wave mechanical concept of atom	1
9	Uses and limitations of Elect. Microscope	1
10	De Broglie wavelength of electron	1
11	$E = mc^2$ relation	1

S.No.	Questions	No. of Repetition
12	Problem Que. 7.9	4
13	Problem Que. 7.2, 7.8 (each)	3
14	Problem Que. 7.38	2
15	Problem Que. 7.4, 7.5, 7.34, 7.40, 7.42 (each)	1

## 8. NUCLEAR PHYSICS

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Define - 1 curie	7
2	Properties of neutrons	5
3	Pair production- annihilation of matter	4
4	Cosmic rays	3
5	Leptons	3
6	Properties of nuclear forces	2
7	Uses of nuclear reactor	2
8	Define - 1 Rontgen	2
9	Alpha decay	2
10	Define Artificial radio activity	2
11	Critical volume and critical mass	2
12	Breeder reactor	2
13	Results of binding energy per nucleon graph	1
14	Control rods in a nuclear reactor	1
15	Mass defect	1
16	Binding energy	1
17	Neutrons on the basis of kinetic energy	1
18	Proton - Proton cycle	1
19	State Radio active disintegration law (or) Rutherford Soddy law	1
20	Methods of producing artificial radio isotopes	1
21	Precautions - in radioactive lab	1

S.No.	Questions	No. of Repetition
22	Problem Question 8.52, 8.57 (each)	4
23	Problem Question 8.58	3
24	Problem Question 8.47, 8.60 (each)	1
25	New created problems	2
<b>PART - III</b>		
1	Cosmic ray shower	2
2	Latitude effect of cosmic rays	2
3	Properties of alpha rays	2
4	Properties of neutrons	1
5	Properties of Gamma rays	1
6	Soddy and Fajan's displacement laws	1
7	Biological hazards	1
8	BE curve	1
9	Principle and working of atom bomb	1
10	Carbon - Nitrogen cycle in stellar energy	1
11	Problem Que. 8.55	4
12	Problem Que. 8.10, 8.53 (each)	3
13	Problem Que. 8.2, 8.5, 8.7, 8.9 (each)	2
14	Problem Que. 8.6, 8.49, 8.51, 8.54, 8.56, 8.57, 8.59 (each)	1
15	New created problem	1
<b>PART - IV</b>		
1	Bainbridge mass spectrometer	11
2	Geiger - Muller counter	7
3	Radioactive law of Disintegration	6
4	Latitude and altitude effect of cosmic rays	4
5	Nuclear reactor	1
6	Discovery & properties of neutrons	1

## 9. SEMICONDUCTOR DEVICES AND THEIR APPLICATIONS

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Advantages of negative feedback	7
2	Extrinsic semiconductor	6
3	De-Morgan's theorem	6
4	Zener breakdown	5
5	Advantages of IC's	5
6	Barkausen condition	5
7	Bandwidth of an amplifier	4
8	What is meant by IC	4
9	Zener diode & symbol	3
10	What is rectification	3
11	Methods of Doping	3
12	What is LED and its uses, symbol	3
13	Define Input impedance	2
14	Define Output impedance	2
15	NAND and NOR are universal gates why?	2
16	Characteristics of OP-AMP	2
17	Applications of CRO	2
18	Intrinsic semiconductor	2
19	What is doping	1
20	Energy level diagram of N type and P type	1
21	biasing of a transistor	1
22	Distinguish Avalanche and Zener breakdown	1
23	Distinguish Analog and digital signal	1
24	Circuit diagram of OP-AMP as summing amp.	3
25	Circuit diagram of NPN transistor in CE mode	2
26	Essential parts of LC oscillator & block diagram	2

S.No.	Questions	No. of Repetition
27	Circuit diagram of AND gate using diodes	2
28	Circuit diagram of OR gate using diodes	1
29	Circuit diagram of OP-AMP as inverting amplifier	1
30	Circuit diagram of OP-AMP as difference amplifier	1
31	Circuit diagram of NPN transistor in CC mode	1
32	Problem Question 9.3	5
33	Problem Question 9.50	4
34	Problem Question 9.56, 9.60 (each)	3
35	Problem Question 9.4, 9.8(i), 9.52 (each)	2
36	Problem Question 9.2, 9.5, 9.8(iii), 9.51, 9.55, 9.57, 9.60 (each)	1
37	New created problems	7
<b>PART - III</b>		
1	State and prove De Morgan's theorem	8
2	Half wave rectifier	5
3	Transistor as a switch	3
4	Voltage divider bias	2
5	$\alpha, \beta$ - relation	2
6	Zener diode as voltage regulator	2
7	Multimeter as ohm meter	2
8	OP AMP as a summing Amplifier	1
9	Frequency curve of single stage CE ampl.	1
10	AND gate- function, using electronic and diode	1
11	Circuit diagram and pin configuration of OP-AMP	1
12	Bridge rectifier	1
13	Problem Que. 9.2	1
<b>PART - IV</b>		
1	Colpitt's oscillator	8
2	Bridge rectifier	7
3	CE single stage amplifier	4
4	NPN CE transistor characteristics	3
5	Def. Feedback. Gain of the amp.with - ve feed back.	3
6	Inverting and Non-inverting OP-AMP	2

S.No.	Questions	No. of Repetition
7	Summing amplifier	2
8	Difference amplifier	1

## 10. COMMUNICATION SYSTEMS

S.No.	Questions	No. of Repetition
<b>PART - II</b>		
1	Skip distance	9
2	Modulation factor	7
3	Advantages of digital communication	3
4	FAX and its applications	2
5	Advantages of fiber optic communication	2
6	Amplitude of modulation	1
7	Necessity of modulation	1
8	Applications of RADAR	1
9	Advantages of FM	1
10	Different type of radiowave propagation	1
11	What is interlaced scanning	1
12	What is Skip Zone ?	1
<b>PART - III</b>		
1	Explain the function of FM transmitter	6
2	Merits and demerits of digital communication	5
3	Principle of RADAR and write it's applications	4
4	Function of AM radio transmitter	4
5	Optice fibre and it's advantages	3
6	Merits and demerits of satellite communication	3
7	FM superhetrodyne receiver	2
8	Space wave propagation	1
9	Block diagram of RADAR	1
10	Problem Que. 10.1	1

S.No.	Questions	No. of Repetition
<b>PART - IV</b>		
1	<b>AM wave analysis and its spectrum</b>	9
2	<b>B/W TV receiver</b>	7
3	<b>Super hetrodyne AM Radio receiver</b>	4
4	<b>RADAR - transmission and reception</b>	4
5	<b>B/W TV transmitter</b>	4
6	<b>Vidicon camera tube</b>	2

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**XII - PHYSICS YEAR WISE PUBLIC QUESTION PAPER ANALYSIS  
PART - II**

Ln.	Q.No.	Mar-06	Jun-06	Oct-06	Mar-07	Jun-07	Oct-07	Mar-08	Jun-08	Oct-08	Mar-09
1	31	coulomb - define	Gauss law	Gauss law	potenatial at a point - Def	coulomb law	application of capacitor	1.59 (I -part)	electric flux & unit	Corona discharge	Gauss Law
1	32	car - lighting	car - lighting	electric polarisation	polar molecule -eg	corona discharge uses	Additive nature of charge	electristatic shielding	microwave oven	Created Problem Effective Capacitance	capacitor + capacitance
2	33	ohm's law	3 uses of super conudctors	3 uses of super conudctors	drift velocity	3 uses of super conudctors	ohm's law	2.5	Temperature coefficient	Drift Velocity	2.6
2	34	new Problem Kirchoff's II law	2.32	2.10.	2.39	2.5	2.5	mobility & unit	D.b ele.power & energy	emf & P.D. distinguish	Kirchhoff's II Law
2	35	Faraday's laws of 1,2	Kirchoff's 1. current 2. voltage law	mobility + unit	Kirchoff's voltage law	emf-PD differences	3 uses of super conductors	state kirchoff's current & voltage law	2.9	Uses of Secondary cells	Mobility + unit
3	36	Peltier - joule effects differences	Peltier coefficient + unit	limitations of cyclotron	Increasing curr. Sens-volt.Sens. Doesn't change	fiament - nichrome why ?	3.2	Define ampere	ampere -Define	Def. Neutral Temperature	Ampere's circuital law
4	37	methods of inducing emf	Faraday's laws of e.m. inudction	quality factor	Flemings R.H rule	Faraday em law	DC ammeter can not read a.c. Why ?	4.2	Diff between AF & RF choke	Lenz's law	4.4
4	38	4.4	4.2	created Problem e = - Blv	Problem 4.2 (ii)	rms value of AC	Faraday's em law	Define electromag. Induction	4.7	Created Problem Transformer Pri. Sec. current	Fleming's right hand rule
5	39	emission - absorption spectra	sky is blue - why	band emission spectrum & eg	Tyndall scattering	optic axis of a crystal	Diff between interference diffraction fringes	5.6	on what factor does the amount of optical rotation	IR rays 3 - uses	5.8
5	40	5.8	5.2	5.45	5.5	5.5	5.45 similar	specific rotation	5.45	Conditions to achieve Total int. reflecn.	why-centre of the newton ring dark

**PART - II**

Ln.	Q.No.	Jun-09	Oct-09	Mar-10	10-Jun	Oct-10	Mar-11	Jun-11	Sep-11	Mar-12	Jun-12
1	31	Define electric potential	elect dipole, dipole mom	coulomb law	electric lines of force - properties	coulomb - define	Gauss Law	electric dipole + dipole moment	coulomb law	application of capacitor	coulomb law
1	32	why -safer during lightning	dielect polariza	why -safer during lightning	coulomb law	non-polar molecule -eg	Uses of capacitors	non-polar molecule -eg	dielectric polarizatration	1.7 (i)	Def. Electric flux Unit
2	33	2.5	2.34	Drift Velocity	2.38	Drift Velocity	Drift Velocity	2.1	Drift Velocity Unit	Kirchhoff's Volt Law	emf & P.D. distinguish
2	34	D/b-electric power& energy	ohm's law	ohm's law	changes at transition temp.	2.5	Calculate I New problem	emf & P.D. distinguish	2.5	Appln Sec cell	ohm's law
2	35	Drift velocity	Drift velocity	2.1	Faraday's laws of 1,2	Faraday's I law of Electrolysis	Temp. co-effi Resist	Kirchoff's voltage law	Appln Sec cell	Def. transition temp.	2.12 (a part)
3	36	galvanomet to ammeter & voltmeter	How do increase current sens.	fiament - nichrome why ?	limitations of cyclotron	Flemings L.H rule	Tangent law	Peltier coefficient + unit	Define one Ampere	Peltier coefficient + unit	3.4
4	37	define coeffi. Of self induction	Fleming's right hand rule	4.6 model	4.2	methods of inducing emf	4.2	Flemings R.H rule	Cap block DC but allow AC	methods of inducing emf	define unit of self induction
4	38	4.7	rms value of AC	Fleming's right hand rule	Lenz's law	4.2	methods of inducing emf	quality factor	4.6	4.6	quality factor
5	39	Tyndall scattering	5.49	specific rotation	optic axis of a crystal	Tyndall scattering	Brewster's law	5.45	state Huygen's priciple	state Huygen's principle	D/b fresnel& franunhofer
5	40	5.45	state Huygen's priciple	D/b fresnel& franunhofer	Tyndall scattering	5.4	5.2	Factors depend Opt rotat	5.5	Young d.slit D= 1m, d=1.9mm, $\beta= 0.35$ , $\lambda = ?$	5.4

PART - II

Ln.	Q.No.	Sep-12	Mar--13	Jun-13	Oct-13	Mar--14	Jun-14	Sep-14	Mar--15	Jun-15	Sep-15
1	31	electric lines of force - properties	coulomb - define	Define electric potential	Define electric potential	electric dipole moment, Unit	why -safer during lightning	Corona discharge & applications	coulomb law	Gauss Law	Corona discharge & applications
1	32	capacitor + capacitance	polar molecule -eg	Effect. Capac. Created problem	non-polar molecule -eg	1.7 (i)	dielectric polarization	microwave oven	1.8	why -safer during lightning	1.12
2	33	2.5	ohm's law	Drift Velocity Unit	2.5	changes at transition temp.	Disting electric Power & elect. Energy.	ohm's law	Define Resistivity & Unit	Drift Velocity Unit	Kirchhoff's I & II Law
2	34	Define Resistivity	emf & P.D. distinguish	3 Applns. Super Conductors	What is super Conductivity?	Kirchhoff's Volt Law	Temp. co-effi Resist	Disting electric Power & elect. Energy	emf & P.D. distinguish	2.5	2.39
2	35	ohm's law	2.32	Faraday's I law of Electrolysis	elect.power & elect. energy distinguish	2.3	2.43	New created problem kirchoff's II law	3 Applns. Super Conductors	Faraday's laws of Electrolysis	Mobility + unit
3	36	Thomson coefficient + unit	limitations of cyclotron	Galvano met. Current sensit Vs volt sensit	3.12	Peltier coefficient + unit	Ampere's circuital law	Define ampere	Flemings L.H rule	Thomson coefficient + unit	filament - nichrome why ?
4	37	Efficiency of a transformer	4.3 (i)	4.6	Faraday's E.M. induction laws	Lenz's law	rms value of AC	Faraday's E.M. induction laws	4.5	Efficiency of a transformer	define coeffi. Of self induction
4	38	quality factor	rms value of AC	quality factor	4.7	4.1	P= 11 kW, V= 20000 V, r = 2Ω power loss = ?	4.55	quality factor	4.4	4.7
5	39	Tyndall scattering	5.40.	why-centre of the newton ring dark	sky is blue - why	Uses of UV rays	sky is blue - why	conditions - sustained interference	Factors depend Opt rotat	3 charact of EM waves	state Huygen's principle
5	40	5.49	Fraunhofer lines - Def.	Tyndall scattering	Specific Rotation Define.	Conditions for Total Internal reflection	specific rotation	5.2	5.4	5.8	What is uniaxial & biaxial crystals examples

PART - II

Ln.	Q.No.	Mar-06	Jun-06	Oct-06	Mar-07	Jun-07	Oct-07	Mar-08	Jun-08	Oct-08	Mar-09
6	41	conditions for laser action	millikan oil drop principle	characteristics of laser	Mosley's law	conditions for laser action	holography	moseley's law & equation	important fact by laue experiment	Ruther ford atom model & 1 draw back	6.9
6	42	6.52	6.9	6.7	Define ionisation potential	6.50.	laue expt - 2 facts	medical app. Of laser	laser app. industry	6.9	Moseley's law
7	43	electron microscope limitations	3 uses of photo electrons	inertial, Non-Inertial frames	electron microscope uses	7.5	postulates of spl. Theory of relativity	interital & non-inertialframe	7.5	W= 1.8 eV Calculate threshold wavelength	limitation of electron microscope
8	44	$\alpha$ - Decay + eg	3 properties of neutrons	BE/A curve -3 conclusions	8.58	Define roentgen	8.47	Define one curie	What are cosmic rays?	Define Rontgen	what is breeder reactor
8	45	pair production, annihilation	pair production, annihilation	Define one curie	pair production annihilation	What are leptons	use of control rod + Examples	properties of neutron	properties of nuclear force	Def. Critical mass and critical size	properties of nuclear force
9	46	intrinsic semiconductor eg	CE circuit input impedance	Zener breakdown	What is LED + 1 use	Zener breakdown	advantage of -ve feedback	Draw circuit configuration - C.C mode [NPN]	What is an IC?	Define Output impedance of a transistor	9.56
9	47	A=100; Af=200; +ve feedback, $\beta$ =?	9.3	A=100; $\beta$ =0.1 - ve feedback, Af=?	9.52	OP-AMP circuit problem - new	Barkhousan conditions	Zener break down	extrinsic semicondu	Define doping	Draw-summing amplifier
9	48	NPN-CE circuit	OR gate diode circuit	NPN-CE circuit	Define bandwidth of amplifier	Advantages of -ve feedback	Characteristics of an OP-AMP	9.2	advantage of negative feedback	Barkhousan Condition for oscillation	rectification
9	49	Advantages of IC	Extrinsic semiconductor.eg	Advantages of IC	What is Rectification	AND circuit with Diodes	9.5	de-morgan's theorem	9.8 (a)	output of given logic gate	De-morgan's theorems
10	50	Modulation factor	3 uses of radar	what is fax - its uses	digital commun merits.	Define Skip distance	necessity of modulation	Define skip distance	modulation factor.	Advantages of Fiber optic commn	advantages of frequency modulation

**PART - II**

Ln.	Q.No.	Jun-09	Oct-09	Mar-10	Jun-10	Oct-10	Mar-11	Jun-11	Sep-11	Mar-12	Jun-12
6	41	characteristics of laser	calcu short wavelen for lyman	characteristics of laser	characteristics of laser	ionisation potential	6.9	Like 6.50	Draw back Sommerfeld model	millikan oil drop principle	characteristics of laser
6	42	ionization potential energy	medical application of laser	6.52	6.9	6.9	Moseley's law	3 Appln of laser in Medici	3 Appln of laser in Medici	6.1	6.9
7	43	postulates of special theory of relativity	stopping potential	appli. Photoelectric cell	concept of time	appl Ph electric cell	postulates of special theory of relativity	7.6 (ii)	Diff bet inertial, Non iner frames	limitation of electron microscope	appli. Photoelectric cell
8	44	8.57	Binding energy	8.52	8.58	mass defect	Proton-Proton cycle	3 Properties of Neutrons	3 Properties of Neutrons	Select Isotopes Isobar isotone	8.52 model
8	45	classify the neutrons - by KE	8.58	define curie	cosmic ray	define curie	Like 8.52	Use of Nuclear reactor	Created Probl Avagadro number	Note on Leptons	Def. Artificial radioactivity
9	46	9.60.	method of doping	9.55	de-morgan's theorem	extrinsic semiconductor	9.4	Advant of IC	What is Zener diode & symbol	Disting Avalanche & Zener break down	What is Zener breakdown
9	47	what is IC	zener diode + symbol	9.3	9.50.	essential part of LC oscillator	Extrinsic Semiconductor	Input imped of transistor in CE mode	Def Band width of amplifier	advantage of -ve feed back	Def Band width of amplifier
9	48	Barkhausen conditions	output impedance	energy dia. Of N&P type	3Uses of IC	9.3	Draw Inv OP-Amp Circu Diagram	OP AMP diff amp circuit	NOT gate circuit using transistor	De-morgan's theorems	Universal gates why?
9	49	use of CRO	9.3	Barkhausen Condition for oscillation	Draw NOT gate using transistor	What is zener diode	Advantages - ve feed back	9.57	9.52	9.8 (a)	how is biasing provided?
10	50	Define Skip distance	modulation factor	modulation factor	digital commun merits.	Define Skip distance	Define Skip distance	Modulation factor	Diff types of radio wav propagation	Def. Amplitude modulation	Define Skip distance

PART - II

Ln.	Q.No.	Sep-12	Mar---13	Jun-13	Oct-13	Mar--14	Jun-14	Sep-14	Mar--15	Jun-15	Sep-15
6	41	characteristics of laser	6.50.	Applns of Moseley's law	Conditions for laser action	Dist. Soft & Hard X-rays	Moseley's law	Applns of Moseley's law	ionisation potential	millikan oil drop principle	3 Properties of Cathode rays
6	42	Applns of Moseley's law	Important facts of Laue exp.	6.52	6.49	6.45 (i)	Conditions for laser action	6.49	6.7	Applns of Moseley's law	6.49
7	43	stopping potential	postulates of special theory of relativity	Def. Threshold freq	Define - stopping potential	3 appli. Photoelectric cell	3 appli. Photoelectric cell	Define Photo cells & its types	Def. Threshold freq	limitation of electron microscope	electron microscope uses
8	44	Def. Artificial radioactivity	alpha decay example	8.47	define curie	3 Properties of Neutrons	8.60.	8.57	define curie	8.57	Def. critical mass & critical size
8	45	8.52	Use of Nuclear reactor	define curie	state law of Radio active disint. Law.	What is Pair productn & annihilation of matter	methods of producing artificial radio isotopes	cosmic ray	Precautions in Radioactive labs	what is breeder reactor	Write a note on Leptons
9	46	9.4	9.50.	methods of doping	Extrinsic Semiconductor	essential part of oscillator draw block diagram	Extrinsic Semiconductor	rectification	methods of doping	$I_B=30 \mu A$ , $I_C=15 mA$ , $\alpha=?$	Intrinsic Semiconductor
9	47	Def Band width of amplifier	advantage of -ve feed back	Zener breakdown	NOT gate circuit using transistor	Advant of IC	9.51	What is an IC?	De-morgan's theorems	advantage of -ve feed back	What is LED + symbol
9	48	What is an IC?	Draw OP AMP summing amp circuit	Draw OP AMP summing amp circuit	Universal gates why?	Characteristics of an OP-AMP	9.3	use of CRO	AND gate using diodes - circuit	What is LED + 1 use	Barkhausen Condition for oscillation
9	49	9.50.	De-morgan's theorems	$I_B=80 \mu A$ , $I_C=0.97 mA$ , $\alpha=?$	$(A+B)(A+B)$ $=B$	9.56	Disting analog & digital signal	Prove that $(A+B)(A+C) = A+BC$	9.8 (c.)	NOT gate circuit using transistor	9.50.
10	50	What is interlaced scanning?	digital commun merits.	Modulation factor	Define Skip distance	Define Skip distance	what is skip zone?	What is Fax? Its use	Modulation factor	Advantages of Fiber optic commn	Define Skip distance

**PART - III**

Ln	Q.No.	Mar-06	Jun-06	Oct-06	Mar-07	Jun-07	Oct-07	Mar-08	Jun-08	Oct-08	Mar-09
1	51	1.13	1.56	1.59	Electric lines of force - properties	1.54 / 1.9	electric lines of force - properties	electric lines of force - properties	1.49	1.54	Define elect poten. + obtain expression for V
2	52	mobility - Definition I-V relation	Farad II law of Electroly + verificatn	Resistors in parallel	potentiometer E1 / E2	Kirchoff's II law + Explanation	principle of a potentiometer	Wheatst brid cond for bridge bala	det. - internl resis of a cell - voltmeter	Daniel cell	2.2
2	53	Wheat stone bridge	Wheststone bridge	Wheststone bridge	2.12 / 2.34	Lechalanche cell	lead acid accumulater	Faraday's II law state & verify	faraday's I Law state & verified	5 Uses of super conductors	applications of super-conduor
3	54	3.3	3.36	3.3	3.16	magnetic lorentz foce	3.14	Galvanometer into an ammeter	3.18	T.G Principle and construction	3.16/3.30
4	55	AC circuit having L only	Energy losses in a transformer	Energy losses in a transformer	applications of Eddy current	induced emf by changing area	Inducued emf by changing area	AC Circuit having L only	mutual inducn two long solen expression	induced emf by changing area	Induced emf by changing area
5	56	Pile of plates	Brewster law state & explain	Brewster law state & explain	Nicol prism	Brewster law state & explain	5.3 similar / 5.45	5.7	Brewster's law state explain	5.3 (or) 5.44	Brewster's law state explain
6	57	H spectral series	X-rays 5 properties	Laue's experiment	6.5	6.8	Engy of elect in n th orbit	6.4	Bragg's law state & explain	5 character Cathode rays	orgin of characteristics X-rays
7	58	Eineteins photo electric equation	Eineteins photo electric equation	5 uses of photo electric cell	Def. work fun + laws photo ele. emission	5 uses of photoelectric cell	Wave mech concept of atom	5 applns - photo electric cell	applications of photoelectric cell	Construction and work - phot emiss cell	state photo electric emission & laws
7	59	Fitzgerald constraction	time dilation	De Broglie wavelength of matter	De Broglie wavelength of matter	$E = mc^2$ realtion	7.9	Lorentz-Fitz Gerald contraction	Explain Time dilation	7.8	De Broglie wavelength of matter
8	60	8.10 / 8.7	8.53 / 8.59	8.57 / 8.9	cosmic ray showers	mass defect Problem New	latitude effect cosmic rays	8.5 / 8.53	8.55 / 8.9	Biolog Hazard of Radioact	8.2
9	61	Demorgan's theorem	bridge rectifier	Demorgan's theorem	voltage divider biasing	Def. $\alpha$ $\beta$ and its relation	Transistor as a switch	Frequency curve single stage CE & discuss result	AND Gate ? Function using electric & diode circuit	Circuit dia. & pin configu. Of OP-AMP	half-wave rectifer
10	62	Advantage & disadvantage digital Commu	Avantage & disadvantage of Digital com.	space wave propagation	principle of radar & applications	fibre optical commuN & advantages	AM radio transmitter.	optical fibre & advantage	Avantage & disadvantage of Digital com.	FM transmitter and its working	FM - super heterdyne receiver

PART - III

Ln	Q.No.	Jun-09	Oct-09	Mar-10	Jun-10	10-Oct	Mar-11	Jun-11	Sep-11	Mar-12	Jun-12
1	51	1.16	elect poten energy + obtain expression	electric lines of force - properties	Capacitance of parallel plate	torque experienced by electric dipole	electric lines of force - properties	1.59 / 1.10	electric lines of force - properties	Energy stored P. plate capac	electric lines of force properties
2	52	wheatstones bridge	det.- internl resis of a cell - voltmeter	wheatstones bridge	2.10 / 2.30	potentimeter E1 / E2	Daniel cell	det.- internl resis of a cell - voltmeter	potentimeter E1 / E2	2.10	Resis Vs temp express & graph
2	53	Daniel cell	faraday's I law state verify	2.33	Daniel cell	2.11 / 2.44	Faraday's II law state & verify	5 Appln. Super Conductors	2.33	potentimeter E1 / E2	2.9 / 2.44
3	54	state & explain Biot-savart law	3.13 / 3.35	Galvanometer into an voltmeter	3.13	3.39	Characters Mag Lorentz Force	Galvan into an voltmeter	3.36	Galvan into an voltmeter	Galvan into an ammeter
4	55	4.5	losses in a transformer	applications of Eddy current	losses in a transformer	losses in a transformer	losses in a transformer	E/M Indu Faraday's law - Lenz's Law	AC circuit having R only	mut ind 2 long solen expn	AC circuit with R only
5	56	pile of plates	Nicolprism	5.7 / 5.47	Brewster's law state explain	Diff. Bet Interference & diffraction	5.42 / 5.4	Newton's ring radius of n-th ring	Nicolprism	Newton's ring radius of n-th ring	5.7
6	57	properties of cathode ray	state & expla Bragg's law	H spectral series	H spectral series	6.45	X-rays 5 properties	Origin of Chara X-ray Spectrum	Bragg's law state & explain	H spectral series	Origin of Chara X-ray Spectrum
7	58	7.38 / 7.40	Einsteins photoerle. equation	Einsteins photoerle. equation	Einsteins photoerle. equation	De Broglie wavelength of matter	Def. Phot Elec Eff & Laws Phot ele effect	De Broglie wavelength of matter	Laws of photo ele. emission	applns of photoelectric cell	7.2
7	59	application of phtoto cell	7.2	Lorentz-Fitz Gerald contraction	De Broglie wavelength of matter	Lorentz-Fitz Gerald contraction	7.42	7.9	Lorentz-Fitz Gerald contraction	7.9 / 7.38	De Broglie wavelength of matter
8	60	latitude effect of cosmicray	8.55	8.54	binding engery curve	properties of alpha ray	Law of Radiact disinteg	8.55	8.10 / 8.51	8.53	cosmic ray showers
9	61	voltage divider bias	De-morgan's theorems	Demorgan's theorems	9.2	De-morgan's theorems	Multi meter as Ohm meter Explain	half-wave rectifer	De-morgan's theorem	half-wave rectifer	Op-amp summing ampli
10	62	merits & demerits digit comun	FM Transmitter block digram + Explain	RADAR & Application.	FM Transm block digram + Explain	AM radio transmitter.	10.1	FM transm and its working	fibre optical commn & advan	RADAR & Application.	Avan & disadvan of Digital com.



PART - III

Ln	Q.No.	Sep-12	Mar---13	Jun-13	Oct-13	Mar---14	Jun-14	Sep-14	Mar--15	Jun-15	Sep-15
1	51	torque experienced by electric dipole	electric lines of force - properties	Capacitance of parallel plate cap. with dielectric slab	1.16	3 Capacitors in series, eff. Capacitance	What is capacitor? Principle.	torque experienced by electric dipole	electric lines of force - properties	Capacitance of parallel plate cap.	Energy stored in parallel plate cap
2	52	some Appln. Super Conductors	det. - internl resis of a cell - voltmeter	det. - internl resis of a cell - voltmeter	Faraday's II law state & verify	Daniel cell	principle of a potentiometer, diagram.	Relation bet. Drift velo. & current	Wheatstone's Bridge cond. For balancing	det. - internl resis of a cell - voltmeter	lead acid accumulator
2	53	Constr. & working of Leclanche cell	5 Appln. Super Conductors	2.8	Constr. & working of Leclanche cell	potentimeter E1 / E2	5 Appln. Super Conductors	5 Appln. Super Conductors	2.11 / 2.33	principle of a potentiometer, diagram.	Effective resist. in parallel combination
3	54	3.17	3.13 / 3.35	3.16	Galvan into an ammeter	3.6	3.15	3.7	3.16	3.30.	3.11 / 3.35
4	55	induced emf by changing area	losses in a transformer	induced emf by changing area	energy associated with an inductor	self induct. of long solenoid	applications Eddy current exp. Any 2	losses in a transformer	losses in a transformer	induced emf by changing area	induced emf by changing area
5	56	Brewster's law state explain	Brewster's law state explain	5.48 / 5.8	5.3	5.47	5.5	5.1 / 5.43	Brewster's law state explain	5.7 / 5.43.	5.47
6	57	Origin of Chara X-ray Spectrum	H spectral series	Bohr's postula. Radius of nth orbit	X-rays 5 properties	canal rays 5 properties	H spectral series	properties of cathode ray	X-rays 5 properties	Bragg's law state & explain	Laue's experiment
7	58	7.5	De Broglie wavelength of matter	Lorentz-Fitz Gerald contraction	Photo cell & explain its working	Einsteins photoele. equation	Einsteins photoele. equation	De Broglie wavelength of electron	Lorentz-Fitz Gerald contraction	Photo elect effect? Laws of photo ele. emission	Length contraction
7	59	Einsteins photoele. equation	7.2	5 applns of photoelectric cell	time dilation with an example	uses & limitatins of elect. Microscop	7.9 / 7.34	7.8	De Broglie wavelength of matter	7.8	7.4
8	60	8.6 / 8.49	8.5	5 properties of neutrons	8.7 / 8.56	8.55 / 8.10	Principle & working of atom bomb	Explain carbon - Nitrogen cycle - stellar energy	8.2	properties of alpha ray	5 properties of gamma ray
9	61	Zener diode as voltage regulator	half-wave rectifier	State & prove De-morgan's theorem	half-wave rectifier	Relation bet $\alpha$ and $\beta$	State & prove De-morgan's theorem	Transistor as a switch	Transistor as a switch	Zener diode as voltage regulator	Multimeter used as Ohm meter.
10	62	FM Transm block digram + Explain	RADAR & Principle Application.	Satelite commun. Merits	Satelite commun. Merits & demerits	AM Transm block digram + Explain	FM Transm block digram + Explain	Block diagram of a simple RADAR	FM - super heterdyne receiver	Satelite commun. Merits & demerits	AM Transm block digram + Explain

**PART - IV**

Ln	Q.No.	Mar-06	Jun-06	Oct-06	Mar-07	Jun-07	Oct-07	Mar-08	Jun-08	Oct-08	Mar-09
1	63	Electric dipole - axial line electric field	Electric dipole - axial line electric field	Electric dipole -potential special cases	Electric dipole-equatorial line - electric field	capacitors - in series and parallel	capacitors - in series and parallel	Electric dipole -potential special cases	electric dipole ? electric potential due to an electric dipole	Van de Graff generator	Electric dipole - axial line electric field
3	64	infinitely long current conductor -B	infinitely long current conductor -B	Amp circuital law, mag indu due to solenoid	cyclotron Principle construction working	Joules's law-calorimeter expt	Mag. Indun. along the axis of a circular coil carrying current	Mag. Indun. along the axis of a circular coil carrying current	Tangent Galvanometer	Mag. Indu-current carrying Infinite long st conductor	force on current carrying condu in magnet field
4	65	Transformer pricipie - theory -efficiency- losses	RLC series circuit V, Z, $\phi$ - relation	ac.circuit having capacitors only	single phase ac generator	single phase ac generator	single phase ac generator	single phase a.c.generator - principle, constru. working	inducing e.m.f. -changing orientation direction of mag. Field	ac.circuit having inductor only	eddy current + application + minimised
5	66	Wave theory- total internal reflection	Wave theory- total internal reflection	expression for bandwidth of young's double slit	Raman effect	expression for bandwidth of young's double slit	Raman scattering	Raman effect Explain spectrum with diagram	interference - trans parent film - condition - max & minimum	Hygen's principle Explain reflection based on wave front theory	expression for bandwidth of young's double slit
6	67	Bohr's postulates + n-th orbit radius expression	He - Ne Laser	Ruby Laser construcion working diagram	Bragg's Spec. meter + X-ray 5 properties	Bragg's law + Bragg's Spectrometer	Ruby Laser construcion working diagram	radius of n orbit - Bohr's theory	Millikan's oil drop	Millikan's oil drop	Ruby Laser construcion working diagram
8	68	nuclear reactor uses + moderater, control rods, neutron reflector	Bainbridge mass spectrometer	Bainbridge mass spectrometer	GM counter	Bainbridge mass spectrometer	G.M. counter	cosmic ray Explain - latitude & altitude effect	Bainbridge mass spectrometer	Radio active disint law Half life, $\lambda$ -relation	Bainbridge mass spectrometer
9	69	Rectification + bridge Rectifier	colpitt's oscillator	colpitt's oscillator	OP-AMP as summing amplifier	bridge rectifier	OP- AMP as difference amplifier	Colpitt's oscillator	circuit diagram working single stage CE amplifier	Working of CE transistor amplifier	what is feedback + negative feed back
10	70	monochrome TV Receiver	analysis of AM wave + frequency spectrum	analysis of AM wave + frequency spectrum	mono chrome TV receiver	Superhetrodyne AM receiver	RADAR	analysis of AM wave + frequency spectrum	monochrome TV transmitter	monochrome TV transmitter	analysis of amplitude modulation

**PART - IV**

Ln	Q.No.	Jun-09	Oct-09	Mar-10	Jun-10	Oct-10	Mar-11	Jun-11	Sep-11	Mar-12	Jun-12
1	63	Electric dipole - equatorial line electric field	Van- de- Graff	Electric dipole -potential special cases	Electric dipole - axial line electric field	Electric dipole - axial line electric field	Electric dipole - axial line electric field	Gauss Law E due to infinitely long straight wire	Electric dipole -potential special cases	Gauss Law E due to infinitely long straight wire	capacitors in series and parallel
3	64	Ampere's circuital law + long solenoid	infinitely long current conductor - B	infinitely long current conductor -B	motion of the charged particle in magnetic field	cyclotron Principle construction working	Force bet current carrying parallel conductors	force on current carrying conductor in magnet field	cyclotron Principle construction working	Mag Inducn. along the axis of a circular coil carrying current	Joules's law-calorimeter expt
4	65	RLC series circuit V, Z, $\phi$ - relation	changing orientation of coil induced emf	inducing e.m.f-changing orientation direction of mag. Field	inducing e.m.f-changing orientation direction of mag. Field	single phase ac generator	single phase ac generator	single phase a.c.generator - principle, constru., working	inducing e.m.f-changing orientation direction of mag. Field	Transformer principle - theory -efficiency	single phase ac generator
5	66	emission & absorption spectra	interference transparent film	emission & absorption spectra	expression for bandwidth of young's double slit	expression for bandwidth of young's double slit	expression for bandwidth of young's double slit	Raman scattering energy level diagram	expression for bandwidth of young's double slit	emission & absorption spectra	emission & absorption spectra
6	67	postulates of Bohr atom model + n radius	J.J. Thomson Sp. Charge of electron	J.J. Thomson Sp. Charge of electron	J.J. Thomson Sp. Charge of electron	J.J. Thomson Sp. Charge of electron	He - Ne Laser	Ruby Laser construction working diagram	J.J. Thomson Sp. Charge of electron	radius of n orbit - Bohr's theory	J.J. Thomson Sp. Charge of electron
8	68	G.M. counter	relation $N = N_0 e^{-\lambda t}$ + half life	cosmic ray Explain - latitude & altitude effect	Bainbridge mass spectrometer	Bainbridge mass spectrometer	G.M. counter	Bainbridge mass spectrometer	relation $N = N_0 e^{-\lambda t}$ + half life	relation $N = N_0 e^{-\lambda t}$ + half life	relation $N = N_0 e^{-\lambda t}$ + half life
9	69	colpitts oscillator	OP-amplifier inverting noninverting	Rectification + bridge Rectifier	bridge rectifier	NPN CE transistor & output character	circuit diagram working single stage CE amplifier	Colpitt's oscillator	bridge rectifier	Colpitt's oscillator	bridge rectifier
10	70	vidicon camera tube	monochrome TV transmitter	monochrome TV receiver	analysis of AM wave + frequency spectrum	analysis of AM wave + frequency spectrum	Super Hetro dyne Receiver Explain	monochrome TV receiver	RADAR Block Diagram	Super Hetro dyne AM Receiver Explain	analysis of AM wave + frequency spectrum

**PART - IV**

Ln	Q.No.	Sep-12	Mar---13	Jun-13	Oct-13	Mar---14	Jun-14	Sep-14	Mar--15	Jun-15	Sep-15
1	63	Van- de- Graff	Electric dipole -potential special cases	Gauss Law E due to infinitely long straight wire	Electric dipole - equatorial line electric field	Van- de- Graff	Electric dipole - axial line electric field	Principle of capacitor. Exp for C of parallel plate cap.	Electric dipole -potential special cases	Electric dipole - equatorial line electric field	Van- de- Graff
3	64	force on current carrying condu in magnet field	motion ofthe charged particle in maganetic field	cyclotron Principle construction working	infinitely long current counductor - B	force on current carrying condu in magnet field	motion ofthe charged particle in maganetic field	Mag. Indun. along the axis of a circular coil carrying current	infinitely long current counductor B	cyclotron Principle construction working	motion ofthe charged particle in maganetic field
4	65	RLC series circuit V, Z, $\phi$ - relation	inducing e.m.f- changing orientation direction of mag. Field	single phase ac generator	Transformer pricipie - theory -efficiency	single phase a.c.generator principle, constru., working	RLC series circuit V, Z, $\phi$ - relation	inducing e.m.f- changing orientation direction of mag. Field	inducing e.m.f- changing orientation direction of mag. Field	RLC series circuit V, Z, $\phi$ - relation	RLC series circuit V, Z, $\phi$ - relation
5	66	emission & absorpion spectra	Raman scattering engery level diagram	emission & absorpion spectra	Wave theory- total internal reflection	expression for bandwidth of young's double slit	expression for bandwidth of young's double slit	Raman scattering engery level diagram	emission & absorpion spectra	Hygen's principle Explain reflection based on wave front theory	Raman scattering engery level diagram
6	67	Ruby Laser construction working diagram	Ruby Laser construction working diagram	He - Ne Laser	J.J. Thomson Sp. Charge of electron	postulates of Bohr atom model + n radius	State Bragg's law. Expl. Bragg's spectro meter	J.J. Thomson Sp. Charge of electron	Ruby Laser construction working diagram	He - Ne Laser	postulates of Bohr atom model + n radius
8	68	Bainbridge mass spectrometer	G.M. counter	cosmic ray Explain latitude & altitude effect	Bainbridge mass spectrometer	Bainbridge mass spectrometer	G.M. counter	Discovery of Neutrons. Properties of Neutrons.	cosmic ray Explain - latitude & altitude effect	relation $N = N_0 e^{-\lambda t}$ + half life	G.M. counter
9	69	Characteristics of transistor in CE mode	circuit diag working single stage CE amplifier	what is feedback exp for negative feed back	OP-amp? exp. For inverting amp.	bridge rectifier	Colpitt's oscillator	Characteristics of transistor in CE mode	what is feedback exp for negative feed back	OP-AMP as summing amplifier	Colpitt's oscillator
10	70	RADAR Block Diagram	analysis of AM wave + frequency spectrum	Characteristics of transistor in CE mode	Super Hetro dyne AM Receiver Explain	vidicon camera tube	analysis of AM wave + frequency spectrum	mono chrome TV receiver	RADAR Block Diagram	monochrome TV transmitter	mono chrome TV receiver