Physics
II PUC

Chapter-1 Electric charges and fields

RETAINED PORTION	DELETED PORTION
1.1 Introduction	1.15.3 Uniformly charged thin spherical shell (field inside and outside).
1.2 Electric Charge	
1.3 Conductors and Insulators	
1.4 Charging by Induction	
1.5 Basic Properties of Electric Charge	
1.6 Coulomb's Law	
1.7 Forces between Multiple Charges	
1.8 Electric Field	
1.9 Electric Field Lines	
1.10 Electric Flux	
1.11 Electric Dipole	
1.12 Dipole in a Uniform External Field	
1.13 Continuous Charge Distribution	
1.14 Gauss's Law	
1.15 Applications of Gauss's Law	
1.15.1 Field due to infinitely long straight uniformly charged wire.	
1.15.2 Field due to uniformly charged infinite plane sheet.	

Chapter-2 ELECTROSTATIC POTENTIAL AND CAPACITANCE

RETAINED PORTION	DELETED PORTION
2.1 Introduction	Nil
2.2 Electrostatic Potential	
2.3 Potential due to a Point Charge	
2.4 Potential due to an Electric Dipole	
2.5 Potential due to a System of Charges	
2.6 Equipotential Surfaces	
2.7 Potential Energy of a System of Charges	
2.8 Potential Energy in an External Field	
2.9 Electrostatics of Conductors	
2.10 Dielectrics and Polarisation	
2.11 Capacitors and Capacitance	
2.12 The Parallel Plate Capacitor	
2.13 Effect of Dielectric on Capacitance	
2.14 Combination of Capacitors	
2.15 Energy Stored in a Capacitor	

Chapter-3 Current Electricity

RETAINED PORTION	DELETED PORTION
3.1 Introduction	Carbon resistors, colour code for carbon resistors; series and parallel combinations of resistors
3.2 Electric Current	
3.3 Electric Currents in Conductors	
3.4 Ohm's law	

RETAINED PORTION	DELETED PORTION
3.5 Drift of Electrons and the Origin of Resistivity 3.6 Limitations of Ohm's Law 3.8 Temperature Dependence of Resistivity 3.9 Electrical Energy, Power 3.11 Cells, emf, Internal Resistance 3.12 Cells in Series and in Parallel 3.13 Kirchhoff's Rules 3.14 Wheatstone Bridge 3.15 Meter Bridge 3.16 Potentiometer	

Chapter-4 Moving Charges and Magnetism

RETAINED PORTION	DELETED PORTION
4.1 Introduction 4.2 Magnetic Force 4.3 Motion in a Magnetic Field 4.4 Motion in Combined Electric and Magnetic Fields 4.4.1 velocity selector 4.5 Magnetic Field due to a Current Element, Biot-Savart Law 4.6 Magnetic Field on the Axis of a Circular Current Loop 4.7 Ampere's Circuital Law 4.8 The Solenoid and the Toroid 4.9 Force between Two Parallel Currents, the Ampere 4.10 Torque on Current Loop, Magnetic Dipole 4.11 The Moving Coil Galvanometer	4.4.2 Cyclotron

Chapter-5 Magnetism and Matter

RETAINED PORTION	DELETED PORTION
5.1 Introduction 5.2 The Bar Magnet 5.2.1 The magnetic field lines 5.3 Magnetism and Gauss's Law 5.4 The Earth's Magnetism 5.5 Magnetisation and magnetic intensity	5.2.2 Magnetic field intensity due to a magnetic dipole (bar magnet) along its axis and perpendicular to its axis. 5.2.3 Torque on a magnetic dipole (bar magnet) in a uniform magnetic field 5.6 Para-, dia- and ferro - magnetic substances, with examples. 5.7 Electromagnets and factors affecting their strengths, permanent magnets.

Chapter-6 ELECTROMAGNETIC INDUCTION

RETAINED PORTION	DELETED PORTION
6.1 Introduction 6.2 The Experiments of Faraday and Henry 6.3 Magnetic Flux	Nil

6.4 Faraday's Law of Induction	
6.5 Lenz's Law and Conservation of Energy	
6.6 Motional Electromotive Force	
6.7 Energy Consideration: A Quantitative Study	
6.8 Eddy Currents	
6.9 Inductance	
6.10 AC Generator	

Chapter-7 Alternating Current

RETAINED PORTION	DELETED PORTION
7.1 Introduction	7.7 Power factor, wattless current
7.2 AC Voltage Applied to a Resistor	
7.3 Representation of AC Current and Voltage by Rotating Vectors — Phasors	
7.4 AC Voltage Applied to an Inductor	
7.5 AC Voltage Applied to a Capacitor	
7.6 AC Voltage Applied to a Series LCR Circuit	
7.8 LC Oscillations	
7.9 Transformers	

Chapter 8 Electromagnetic Waves

RETAINED PORTION	DELETED PORTION
8.1 Introduction	8.2 Basic idea of displacement current
8.3 Electromagnetic Waves	
8.4 Electromagnetic Spectrum	

Chapter 9 Ray Optics and Optical Instruments

RETAINED PORTION	DELETED PORTION
9.1 Introduction	9.2 Reflection of light, spherical mirrors,(recapitulation) mirror formula ,
9.3 Refraction	9.7.2 Scattering of light - blue colour of sky and reddish appearance of the sun at sunrise and sunset.
9.4 Total Internal Reflection	
9.5 Refraction at Spherical Surfaces and by Lenses	
9.6 Refraction through a Prism	
9.7 Some Natural Phenomena due to Sunlight	
9.7.1 the rain bow	
9.8 Optical Instruments (except resolving power microscope and astronomical telescope)	

Chapter 10 Wave Optics

RETAINED PORTION	DELETED PORTION
10.1 Introduction	10.6.3 Resolving power of microscope and astronomical telescope.
10.2 Huygens Principle	10.7 Polarisation, plane polarised light, Brewster's law, uses of plane
10.3 Refraction and Reflection of Plane Waves using Huygens Principle	
10.4 Coherent and Incoherent Addition of Waves	

10.5 Interference of Light Waves and Young's Experiment	polarised light and Polaroids.
10.6 Diffraction	
10.6.1 The single slit	
10.6.2 Seeing the single slit diffraction pattern	
10.6.4 the validity of ray optics	

Chapter-11 Dual Nature of radiation and matter

RETAINED PORTION	DELETED PORTION
11.1 Introduction	11.9 Davisson-Germer experiment
11.2 Electron Emission	
11.3 Photoelectric Effect	
11.4 Experimental Study of Photoelectric Effect	
11.5 Photoelectric Effect and Wave Theory of Light	
11.6 Einstein's Photoelectric Equation: Energy Quantum of Radiation	
11.7 Particle Nature of Light: The Photon	
11.8 Wave Nature of Matter	

Chapter-12 Atoms

RETAINED PORTION	DELETED PORTION
12.1 Introduction Experiment	Nil
12.2 Alpha particle Scattering and Rutherford's Nuclear Model of Atom	
12.3 Atomic Spectra	
12.4 Bohr Model of the Hydrogen Atom	
12.5 The Line Spectra of the Hydrogen Atom	
12.6 De Broglie's Explanation of Bohr's Second Postulate of Quantisation	

Chapter-13 NUCLEI

RETAINED PORTION	DELETED PORTION
13.1 Introduction	13.6 Radioactivity, alpha, beta and gamma particles/rays and their properties; radioactive decay law, half life and mean life.
13.2 Atomic Masses and Composition of Nucleus	
13.3 Size of the Nucleus	
13.4 Mass Energy and Nuclear Binding Energy (except binding energy per nucleon and its variation with mass number)	Binding energy per nucleon and its variation with mass number
13.5 Nuclear Force	
13.7 Nuclear Energy	

Chapter 14 Semiconductor Electronics: Materials, Devices and Simple Circuits

RETAINED PORTION	DELETED PORTION
14.1 Introduction	14.8.1 Zener diode and their characteristics, zener diode as a voltage regulator
14.2 Classification of Metals, Conductors and Semiconductors	
14.3 Intrinsic Semiconductor	
14.4 Extrinsic Semiconductor	

14.5 pn Junction 14.6 Semiconductor Diode 14.7 Application of Junction Diode as a Rectifier 14.8 Special Purpose p-n Junction Diodes 14.8.2 OPTOELECTRONIC JUNCTION DEVICES 14.9 Digital Electronics and Logic Gates	

II PUC Physics Practicals: Retained experiments

(Any eight experiments have to be conducted)

1. To determine resistance per unit length of a given wire by plotting a graph of potential difference versus current.
2. To determine the resistance of a given wire using a metre bridge and hence determine the resistivity of the material of the wire.
3. To compare the emf of two given primary cells (Daniel and Leclanche cells) using a potentiometer.
4. To determine the internal resistance of a given primary cell using a potentiometer.
5. To determine the resistance of a galvanometer by half deflection method and to find its figure of merit.
6. To convert the given galvanometer (of known resistance and figure of merit) into (i) an ammeter of a desired range (say 0 to 30 mA) and (ii) a voltmeter of desired range (say 0 to 3 V) and verify the same.
7. To find the focal length of a convex lens by plotting graphs between u and v or between 1/u and 1/v.
8. To find the focal length of a concave lens with the help of a convex lens.
9. To determine the angle of minimum deviation for a given glass prism by plotting a graph between the angle of incidence and the angle of deviation.
10. To draw the I - V characteristic curves of a p-n Junction in forward bias and reverse bias.

II PUC Physics Practicals : Deleted experiments

1. To verify the laws of combination of resistances (series and parallel) using of metre bridge.
2. To determine the frequency of alternating current using a sonometer and an electromagnet.
3. To find the value of 'v' for different values of 'u' in case of concave mirror and to find the focal length.
4. To find the focal length of convex mirror using a convex lens.
5. To determine refractive index of a glass slab using a travelling microscope.
6. To determine the refractive index of liquid (water) using (i) concave mirror, (ii) convex lens and a plane mirror.
7. To draw the characteristic curve of a zener diode and to determine its reverse breakdown voltage.

To study the characteristics of common emitter n-p-n (or p-n-p) transistor and to find out the values of current and voltage gains.