Marks: 85	PART –II(CLASS-XII)	Time: 3:00 Hours

CHAPTER:12 ELECTROSTATICS

Coulomb's Law. Fields of Force. Electric Field Lines. Applications of Electrostatics. Electric Flux. Electric Flux through a Surface enclosing a Charge. Gauss's Law. Applications of Gauss's Law. Electric Potential. Electron Volt. Electric and Gravitational Forces (A Comparison). Charge on an Electron by Millikan's Method. Capacitor. Capacitance of a Parallel Plate Capacitor. Electric Polarization of Dielectrics. Energy Stored in a Capacitor. Charging and Discharging Capacitor

CHAPTER:13 CURRENT ELECTRICITY

Electric Current. Source of Current. Effects of Current. Ohm's Law. Resistivity and its Dependence upon Temperature. Colour code for Carbon Resistances. Electrical Power and Power Dissipation in Resistors. Electromotive force (EMF) and Potential Difference. Kirchhoff's Rules. Wheatstone Bridge. Potentiometer

CHAPTER:14 ELECTROMAGNETISM

Magnetic Field due to Current in a long Straight Wire. Force on a Current Carrying Conductor in a Uniform Magnetic Field. Magnetic Flux and Flux Density. Ampere's Law and Determination of Flux Density B. Force on a Moving Charge in a Magnetic Field. Motion of Charged Particle in an Electric and Magnetic Field. Determination of e/m of an Electron. Cathode ray Oscilloscope

Torque on a Current Carrying Coil. Galvanometer. Avo Meter - Multimeter

CHAPTER:15 ELECTROMAGNETIC INDUCTION

Induced EMF and Induced Current. Motional EMF. Faraday's Law and Induced EMF. Lenz's Law and Direction of Induced EMF. Mutual Induction. Self Induction. Energy Stored in an Inductor. Alternating Current Generator. D.C. Generator. Back Motor Effect in Generators. D.C. Motor. Back EMF Effect in Motors. Transformer

CHAPTER:16 ALTERNATING CURRENT

Alternating Current. A.C. Circuits. A.C. through a Resistor. A.C. through a Capacitor. A.C. through an Inductor. Impedance. R-C and R-L Series Circuits

Power in A.C. Circuits. Series Resonance Circuit. Parallel Resonance Circuit

Three Phase A.C. Supply. Principle of Metal Detectors. Choke. Electromagnetic Waves. Principle of Generation, Transmission and Reception of Electromagnetic Waves. Modulation

CHAPTER:17 PHYSICS OF SOLIDS

Classification of Solids. Mechanical Properties of Solids. Electrical Properties of Solids. Superconductors. Magnetic Properties of Solid

CHAPTER:18 ELECTRONICS

Brief Review of p-n Junction and its Characteristics. Rectification. Specially Designed p-n Junctions. Transistors. Transistor as an Amplifier. Transistor as a Switch. Operational Amplifier. Op-Amp as Inverting Amplifier. Op-Amp as Non-Inverting Amplifier. Op-Amp as A Comparator. Comparator as a Night Switch

Digital Systems. Fundamental Logic Gates. Other Logic Gates. Application of Gates in control Systems

CHAPTER:19 DAWN OF MODERN PHYSICS

Relative Motion. Inertial Frame of Reference. Special Theory of Relativity. Black Body Radiation. Interaction of Electromagnetic Radiation with matter. Annihilation of Matter. Wave Nature of Particles. Uncertainty Principle

CHAPTER:20 ATOMIC SPECTRA

Atomic Spectra. Bohr's Model of the Hydrogen Atom. Inner Shell Transitions and Characteristic X-Rays. Uncertainty within the Atom. Laser

CHAPTER:21 NUCLEAR PHYSICS

Atomic Nucleus. Isotopes. Mass Deffect and Binding Energy. Radioactivity

Half Life. Interaction of Radiation with matter. Radiation Detectors. Nuclear Reactions. Nuclear Fission. Fusion Reaction. Radiation Exposure. Biological Effects of Radiation. Biological and Medical uses of Radiation. Basic Forces of Nature. Building Blocks of Matter

LIST OF EXPERIMENTS IN PHYSICS FOR CLASS XII (PART-II)

1. To determine the resistance of wire by Slide Wire Bridge. Also calculate specific resistance of material of wire.
2. To determine the resistance of galvanometer by half deflection method. Also calculate the current for full scale deflection (or for 30 divisions).
3. To determine the resistance of a voltmeter by drawing a graph between R and $\frac{1}{v}$.
4. To study the variation of resistance of thermistor with temperature.
5. To convert a moving coil galvanometer into an ammeter of range (0 – 1 amp).
6. To convert a moving coil galvanometer into a voltmeter of range (0 – 3 volts).
7. To study the relation between current passing through a tungsten filament bulb and potential difference applied across it.
8. To determine the internal resistance of a cell by using potentiometer.
9. To determine the EMF of a cell by using potentiometer.
10. To compare EMF's of two cells by using potentiometer.
11. To study the charging and discharging of a capacitor and to measure time constant.
12. To study the relation between current and capacitance when different capacitors are used in A.C circuit.
13. To study the characteristics of semiconductor diode and to calculate forward and reverse current resistance.
14. To study the characteristics of N-P-N transistor.
15. To verify the truth table for basic logic gates.
16. To make burglar alarm by using NAND gates.
17. To make a fire alarm by using NOT gate.
18. To study the variation of electric current with intensity of light using a photo cell.
19. To measure the high resistance by Neon Flash Lamp.

ESTIMATED TIME ALLOCATION AND WEIGHTAGE FOR VARIOUS CHAPTERS PHYSICS CLASS XII (PART-II)

Theory	Content	Periods	Weightage,
Chapter 12	Electrostatic	18	12%
Chapter 13	Current electricity	15	10% •
Chapter 14	Electro Magnetism	16	10%
Chapter 15	Electromagnetism Induction	12	8%
Chapter 16	Alternating current	18	12%
Chapter 17	Physics of solids	8	5%
Chapter 18	Electronics	10	7%
Chapter 19	Dawn of Modern Physics	18	12%
Chapter 20	Atomic Spectra	15	10%
Chapter 21	Nuclear Physics	20	14%
Total	*	**150**	**100% .**

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