Contents

Clas	ss 11	
1.	Physical World, Units and Measurements Topic-1 Units and Dimensions of Physical Quantities Topic-2 Errors, Precision, Accuracy and Experimental Physics	1-25
2.	Motion in a Straight Line Topic-1 Terms Related to Motion Topic-2 Kinematics Equation for Uniformaly Accelerated Motion and Graphs in Normality Topic-3 Non-uniform Motion and Relative Velocity	26-38 Motion
3.	Motion in a Plane Topic-1 Vector, Motion in a Plane and Projectile Motion Topic-2 Relative Velocity in 2D and Uniform Circular Motion	39-58
4.	Laws of Motion Topic-1 Newton's Laws of Motion and Conservation of Linear Momentum Topic-2 Motion of Connected Bodies, Equilibrium and Friction Topic-3 Dynamics of Circular Motion	59-84
5.	Work, Energy and Power Topic-1 Work and Energy Topic-2 Power Topic-3 Collision	85-112
6.	System of Particles and Rotational Motion Topic-1 Center of Mass and Torque Topic-2 Moment of Inertia and Equation of Rotational Motion Topic-3 Angular Momentum, Conservation of Angular Momentum and Its Appli Topic-4 Dynamics of Rotational Motion	113-166 cation
7.	Gravitation Topic-1 Kepler's Law and Newton's Law of Gravitation Topic-2 Acceleration Due to Gravity, Gravitational Potential and Potential Energy Topic-3 Escape Velocity and Motion of Satellite	167-188
8.	Mechanical Properties of Solids Topic-1 Stress, Strain and Stress-Strain Curve Topic-2 Hooke's Law, Elastic Moduli and Elastic Potential Energy	189-199

9.	Mechai	nical Properties of Fluids	200-224
		Pressure, Density and Archimedes Principle	
		Fluid's Flow, Viscosity and Bernoulli's Principle	
	Topic-3	Surface Tension, Excess Pressure and Capillarity	
	Topic-4	Miscellaneous	
10.	Therma	al Properties of Matter	225-252
	Topic-1	Thermometry, Thermal Expansion and Calorimetry	
	Topic-2	Heat Transfer	
	Topic-3	Miscellaneous	
11.	Thermo	odynamics	253-282
	Topic-1	First Law of Thermodynamics & Thermodynamical Process	
	Topic-2	Heat Energy, Refrigerator and Carnot Cycle	
12.	Kinetic	Theory of Gases	283-303
	Topic-1	Kinetic Theory of Gases and Gas Laws	
	Topic-2	Specific Heat Capacity, Law of Equipartition of Energy, Degree of Freed	om
		and Mean Free Path	
13.	Oscillat	tions	304-332
	Topic-1	Simple Harmonic Motion	
	Topic-2	Some System Executing SHM	
	Topic-3	Resonance, Forced and Damped Oscillation	
14.	Waves		333-362
	Topic-1	Waves and its Types and Superposition of Waves	
	Topic-2	Vibration of String and Organ Pipe	
	Topic-3	Beats and Doppler's Effect	
	Topic-4	Miscellaneous	
Clas	ss 12		
		Charmes and Fields	262 202
15.		: Charges and Fields	363-393
		Electric Charge and Coulomb's Law Electric Field and Electric Dipole	
		•	
	10pic-3	Gauss's Law and its Applications	

Topic-4 Miscellaneous

16.	Electrostatic Potential and Capacitance Topic-1 Electrostatic Potential and Potential Energy Topic-2 Capacitor and its Capacitance Topic-3 Combination of Capacitors and Energy Stored in a Capacitor Topic-4 Miscellaneous	394-422
17.	Current Electricity Topic-1 Electric Current, Ohm's Law, Resistance and Resistivity Topic-2 Cells, Kirchhoff's Law and Thermoelectricity Topic-3 Heating Effect of Current and Electrical Power Topic-4 Measuring Instruments Topic-5 Miscellaneous	423-456
18.	Moving Charges and Magnetism Topic-1 Magnetic Field Lines, Biot-Savart's Law & Ampere's Circuital Law Topic-2 Motion of Charged Particle in Magnetic Field Topic-3 Force and Torque and Current Carrying Conductor in Magnetic Field Topic-4 Moving Coil Galvanometer Topic-5 Miscellaneous	457-502
19.	Magnetism and Matter Topic-1 Bar Magnet, Magnetic Dipole Moment and Earth's Magnetic Field Topic-2 Magnetic Materials and its Properties Topic-3 Miscellaneous	503-516
20.	Electromagnetic Induction Topic-1 Faraday's Law, Lenz's Law & Motional EMF Topic-2 Self Inductance and Mutual Inductance Topic-3 Miscellaneous	517-539
21.	Alternating Current Topic-1 Alternating Current and Voltage Topic-2 AC Circuit, Power and Resonance Topic-3 Transformer and AC Generator	540-562
22.	Electromagnetic Waves Topic-1 Displacement Current and Properties of EM Waves Topic-2 Electromagnetic Spectrum	563-572

23.	Ray Optics and Optical Instruments	573-623
	Topic-1 Reflection of Light	
	Topic-2 Refraction, TIR and Prism	
	Topic-3 Lenses	
	Topic-4 Optical Instruments	
	Topic-5 Miscellaneous	
24.	Wave Optics	624-647
	Topic-1 Huygen's Principle and Interference	
	Topic-2 Diffraction	
	Topic-3 Polarisation & Doppler's Effect of Light	
25.	Dual Nature of Radiation and Matter	648-667
	Topic-1 Photoelectric Effect & Particle Nature of Light	
	Topic-2 Wave Nature of Matter and de- Broglie Wavelength	
26.	Atoms	668-687
	Topic-1 Atomic Structure and Rutherford's Nuclear Model	
	Topic-2 Bohr's Model and Spectra of the Hydrogen Atom	
27.	Nuclei	688-710
	Topic-1 Nucleus and Radioactivity	
	Topic-2 Nuclear Fission and Fusion and Binding Energy	
28.	Semiconductor Electronics : Materials, Devices & Simple Circuits	711-728
	Topic-1 Semiconductor and p-n Junction Diodes	
	Topic-2 Transistors	
	Topic-3 Digital Circuits	
29.	Communication System	729-737
	Topic-1 Elements of Communication System & Propagation of EM Waves	
	Topic-2 Modulation and Demodulation	

Dedication

This book is dedicated to my honourable grandfather

(Late) Sh. Pitamber Pandey

(a Kumaoni poet; resident of village Dhaura (Almora) Uttarakhand)