

BOARD OF INTERMEDIATE EDUCATION, A.P., HYDERABAD

REVISION OF SYLLABUS

Subject - PHYSICS-I (w.e.f 2012-13)

CHAPTER-I	PERIODS
C H A P T E R 1 PHYSICAL WORLD 1.1 What is physics? 1.2 Scope and excitement of physics 1.3 Physics, technology and society 1.4 Fundamental forces in nature 1.5 Nature of physical laws	4

CHAPTER-II	PERIODS
C H A P T E R 2 UNITS AND MEASUREMENTS 2.1 Introduction 2.2 The international system of units 2.3 Measurement of length 2.4 Measurement of mass 2.5 Measurement of time 2.6 Accuracy, precision of instruments and errors in measurement 2.7 Significant figures 2.8 Dimensions of physical quantities 2.9 Dimensional formulae and dimensional equations 2.10 Dimensional analysis and its applications	9

CHAPTER-III	PERIODS
C H A P T E R 3 MOTION IN A STRAIGHT LINE 3.1 Introduction	10

3.2 Position, path length and displacement 3.3 Average velocity and average speed 3.4 Instantaneous velocity and speed 3.5 Acceleration 3.6 Kinematic equations for uniformly accelerated motion 3.7 Relative velocity	
---	--

CHAPTER-IV	PERIODS
C H A P T E R 4 MOTION IN A PLANE 4.1 Introduction 4.2 Scalars and vectors 4.3 Multiplication of vectors by real numbers 4.4 Addition and subtraction of vectors. graphical method 4.5 Resolution of vectors 4.6 Vector addition. analytical method 4.7 Motion in a plane 4.8 Motion in a plane with constant acceleration 4.9 Relative velocity in two dimensions 4.10 Projectile motion 4.11 Uniform circular motion	14

CHAPTER-V	PERIODS
C H A P T E R 5 LAWS OF MOTION 5.1 Introduction 5.2 Aristotle's fallacy 5.3 The law of inertia 5.4 Newton's first law of motion 5.5 Newton's second law of motion	16

5.6 Newton's third law of motion 5.7 Conservation of momentum 5.8 Equilibrium of a particle 5.9 Common forces in mechanics, friction 5.10 Circular motion 5.11 Solving problems in mechanics	
---	--

CHAPTER-VI	PERIODS
C H A P T E R 6 WORK, ENERGY AND POWER 6.1 Introduction 6.2 Notions of work and kinetic energy : The work-energy theorem 6.3 Work 6.4 Kinetic energy 6.5 Work done by a variable force 6.6 The work-energy theorem for a variable force 6.7 The concept of potential energy 6.8 The conservation of mechanical energy 6.9 The potential energy of a spring 6.10 Various forms of energy : the law of conservation of energy 6.11 Power 6.12 Collisions	18

CHAPTER-VII	PERIODS
C H A P T E R 7 SYSTEM OF PARTICLES AND ROTATIONAL MOTION 7.1 Introduction 7.2 Centre of mass, Centre of Gravity 7.3 Motion of centre of mass	19

<p>7.4 Linear momentum of a system of particles</p> <p>7.5 Vector product of two vectors</p> <p>7.6 Angular velocity and its relation with linear velocity, Kinematics of rotational motion about a fixed axis</p> <p>7.7 Torque and angular momentum</p> <p>7.8 Equilibrium of a rigid body</p> <p>7.9 Moment of inertia</p> <p>7.10 Theorems of perpendicular and parallel axes</p> <p>7.11 Dynamics of rotational motion about a fixed axis</p> <p>7.12 Angular momentum in case of rotations about a fixed axis</p> <p>7.13 Rolling motion</p>	
--	--

CHAPTER-VIII	PERIODS
<p>C H A P T E R 8</p> <p>OSCILLATIONS</p> <p>8.1 Introduction</p> <p>8.2 Periodic and oscillatory motions</p> <p>8.3 Simple harmonic motion</p> <p>8.4 Simple harmonic motion and uniform circular motion</p> <p>8.5 Velocity and acceleration in simple harmonic motion</p> <p>8.6 Force law for Simple harmonic Motion</p> <p>8.7 Energy in simple harmonic motion</p> <p>8.8 Some systems executing Simple Harmonic Motion</p> <p>8.9 Damped simple harmonic motion</p> <p>8.10 Forced oscillations and resonance</p>	12

CHAPTER-IX	PERIODS
C H A P T E R 9 GRAVITATION 9.1 Introduction 9.2 Kepler's laws 9.3 Universal law of gravitation 9.4 The gravitational constant 9.5 Acceleration due to gravity of the earth 9.6 Acceleration due to gravity below and above the surface of earth 9.7 Gravitational potential energy 9.8 Escape speed 9.9 Earth satellite 9.10 Energy of an orbiting satellite 9.11 Geostationary and polar satellites 9.12 Weightlessness	12

CHAPTER-X	PERIODS
C H A P T E R 10 Mechanical Properties of Solids 10.1 Introduction 10.2 Elastic behaviour of solids 10.3 Stress and strain 10.4 Hooke's law 10.5 Stress-strain curve 10.6 Elastic moduli 10.7 Applications of elastic behaviour of materials	10

CHAPTER-XI	PERIODS
C H A P T E R 11 MECHANICAL PROPERTIES OF FLUIDS 11.1 Introduction 11.2 Pressure 11.3 Streamline flow 11.4 Bernoulli's principle 11.5 Viscosity 11.6 Reynolds number 11.7 Surface tension	12

CHAPTER-XII	PERIODS
C H A P T E R 12 THERMAL PROPERTIES OF MATTER 12.1 Introduction 12.2 Temperature and heat 12.3 Measurement of temperature 12.4 Ideal-gas equation and absolute temperature 12.5 Thermal expansion 12.6 Specific heat capacity 12.7 Calorimetry 12.8 Change of state 12.9 Heat transfer 12.10 Newton's law of cooling	16

CHAPTER-XIII	PERIODS
C H A P T E R 13 THERMODYNAMICS 13.1 Introduction 13.2 Thermal equilibrium 13.3 Zeroth law of thermodynamics 13.4 Heat, internal energy and work 13.5 First law of thermodynamics	18

13.6 Specific heat capacity 13.7 Thermodynamic state variables and equation of State 13.8 Thermodynamic processes 13.9 Heat engines 13.10 Refrigerators and heat pumps 13.11 Second law of thermodynamics 13.12 Reversible and irreversible processes 13.13 Carnot engine, Carnot's theorem	
--	--

CHAPTER-XIV	PERIODS
C H A P T E R 14 KINETIC THEORY 14.1 Introduction 14.2 Molecular nature of matter 14.3 Behaviour of gases 14.4 Kinetic theory of an ideal gas 14.5 Law of equipartition of energy 14.6 Specific heat capacity 14.7 Mean free path	10
TOTAL	180