

TELANGANA STATE BOARD OF INTERMEDIATE EDUCATION, HYDERABAD

ACADEMIC YEAR 2020-2021

70% CONTENT IN VIEW OF COVID-19 PANDEMIC

INTERMEDIATE 1st YEAR PHYSICS SYLLABUS

CHAPTER – I: PHYSICAL WORLD

- 1.1. What is Physics?
- 1.4 Fundamental forces in nature

CHAPTER –II: 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

Chapter-III: MOTION IN A STRAIGHT LINE

- 3.1 Introduction
- 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 : MOTION IN A PLANE

- 4.1 Introduction
- 4.2 Scalars and vectors
- 4.3 Multiplication of vectors by real members
- 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

CHAPTER-V: LAWS OF MOTION

- 5.1 Introduction
- 5.7 Conservation of momentum
- 5.8 Equilibrium of a particle
- 5.9 Common forces in mechanics
- 5.10 Circular motion
- 5.11 Solving problems in mechanics

CHAPTER – VI: 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

CHAPTER-VII: SYSTEM OF PARTICLES AND ROTATIONAL MOTION

- 7.1 Introduction
- 7.2 Centre of mass. Centre of gravity
- 7.3 Motion of Centre of mass
- 7.4 Linear momentum of a system of particles
- 7.5 Vector product of two vectors
- 7.6 Angular velocity and its relation with linear velocity
- 7.7 Torque and angular momentum
- 7.8 Equilibrium of a rigid body
- 7.9 Moment of inertia

- 7.11 Dynamics of rotational motion about a fixed axis.
- 7.12 Angular momentum in case of rotations about a fixed axis.
- 7.13 Rolling motion

Chapter VIII: OSCILLATIONS

- 8.1 Introduction
- 8.2 Periodic and oscillatory motions
- 8.3 Simple Harmonic motions
- 8.4 Simple Harmonic motion and uniform circular motion
- 8.5 Velocity and acceleration in simple harmonic motion
- 8.6 Force law for simple harmonic motion
- 8.7 Energy in simple harmonic motion
- 8.8 Some systems executing simple harmonic motion
- 8.9 Damped simple harmonic motion
- 8.10 Forced oscillations and resonance

CHAPTER –IX: GRAVITATION

- 9.1 Introduction
- 9.3 Universal law of gravitation
- 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 Geo Stationary and Polar Satellites
- 9.12 Weightlessness

CHAPTER –X: 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
 - 10.6.1 Young's Modulus
 - 10.6.4 Bulk Modulus

CHAPTER –XI: MECHANICAL PROPERTIES OF FLUIDS

- 11.1 Introduction
- 11.2 Pressure
- 11.3 Streamline Flow
- 11.4 Bernoulli's Principle
- 11.5 Viscosity
- 11.6 Renolds Number
- 11.7 Surface Tension

CHAPTER –XII: 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
- 12.9.4 Blackbody Radiation
- 12.9.5 Green House Effect
- 12.10 Newton's Law of Cooling

CHAPTER –XIII: 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
- 13.6 Specific heat capacity
- 13.7 Thermodynamic state variables and equation of state
- 13.8 Thermodynamic Process
- 13.11 Second law of thermodynamics
- 13.12 Reversible and irreversible processes

CHAPTER – XIV: 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 Laws of equipartition of energy
- 14.6 Specific heat capacity
- 14.7 Mean free path