Glossary

Absolute error: The difference between magnitude of the individual measurement and the true value of the quantity.

Absolute temperature: The temperature of a body on the Kelvin scale.

Absolute zero: The lowest possible temperature of –273.16 °C or 0 K at which entropy attains its minimum value.

Acceleration due to gravity: Acceleration caused on an object by gravity.

Acceleration: The rate of change of velocity of an object with respect to time.

Accuracy: The correctness of a measurement which can be determined by comparing the measurement against the true or accepted value.

Action – reaction: Another name for Newton's third law – which states that whenever an object applies a force on another object, there is an equal and opposite force back on the original object.

Addition of vectors: The method of adding two vectors to determine their resultant.

Adiabatic process: A thermodynamic process in which there is no loss or gain of the heat by the system.

Adiabatic wall: The interface between a thermodynamic system and its surroundings, which does not allow transfer of heat or entropy.

Aerofoil: The aerodynamic shape of a wing or a blade.

Air resistance: A force which acts on a solid object traveling in air, in the opposite direction of its motion.

Ampere: The S.I. unit of electric current, equal to the flow of 1 coulomb of electric charge per second.

Amplitude: The displacement of an oscillating object from its point of equilibrium.

Angle of contact: The angle between tangents to the liquid surface and the solid surface present inside the liquid such that both the tangents are drawn at the point of contact.

Angle of friction: The angle which the resultant of the force of limiting friction and normal reaction makes with the direction of normal reaction.

Angle of repose: The minimum angle of inclination of a plane with the horizontal at which the body placed on the plane just begins to slide down the inclination.

Angstrom: The unit of length which is equal to one hundred-millionth of a centimeter.

Angular acceleration: The rate of change of angular velocity of an object with time.

Angular displacement: The angle in radians through which a point or line has been rotated about a particular axis.

Angular frequency: A scalar measure of rotation rate.

Angular momentum: The product of linear momentum and the perpendicular distance of line of action of linear momentum vector from the axis of rotation of a particle.

Angular velocity: The rate of change of angular displacement of a particle with time.

Anharmonic oscillators: An oscillator which is in deviation from harmonic oscillation.

Antinodes: The positions of maximum amplitude in a standing wave.

Archimedes principle: A principle stating that any object, wholly or partially immersed in a fluid, is buoyed up by a force equal to the weight of the fluid displaced by the object.

Atmospheric pressure: The force per unit area exerted by the weight of the atmosphere.

Average acceleration: The ratio between the change in velocity and the time interval. The SI unit of average velocity is m/s^2 and is a vector quantity.

Average speed: The total path length travelled (or distance) divided by the total time interval during which the motion has taken place.

Average velocity: The ratio of the change in position or displacement (Δx) of the object to the time interval (Δt). The SI unit of average velocity is m/s and it is a vector quantity.

Avogadro's law: A law stating that, at the same temperature and pressure, equal volumes of all gases contain the same number of molecules.

Axis of rotation: An imaginary axis around which rotation takes place.

Axis of symmetry: An imaginary line passing through an object such that the part of the object on one side is a mirror image of the other.

Banking of roads: The raising of the outer edge of a curved road, with respect to its inner edge, to facilitate the turning of vehicles without slipping.

Barometer: An instrument used to measure atmospheric pressure.

Base units: Units of the base quantities of mass, length, and time.

Beats: The phenomenon of wavering of sound intensity when two waves, of nearly same frequencies and amplitudes travelling in the same direction, are superimposed on each other.

Bending of beam: A bend in a beam of particular type which changes its shape due to development of internal stress.

Bernoulli's principle: The principle in hydrodynamics which states that an increase in the velocity of a stream of fluid results in an apparent decrease in pressure.

Blood pressure: The pressure of blood against the inner walls of the blood vessels.

Boiling point: The temperature at which the liquid and the vapor states of a substance coexist.

Boyle's law: The law which states that the pressure of a given mass of an ideal gas is inversely proportional to its volume at a constant temperature.

Bulk's modulus of elasticity: The ratio of normal stress to the volumetric strain produced in a body.

Calorimeter: The device used to measure the heat released or absorbed in chemical reactions or physical changes as well as heat capacity.

Candela: The luminous intensity, in a given direction, of a source that emits monochromatic radiation of frequency 540×10^{12} Hz and that has a radiant intensity in that direction of 1/683 W per steradian.

Capillary rise: A phenomenon which involves the spontaneous rise in the level of a liquid placed in a narrow thin tube.

Capillary wave: A wave which travels along the phase boundary of a fluid, whose dynamics are dominated by the effects of surface tension.

Carnot engine: A hypothetical engine that operates on the reversible Carnot cycle.

Catapult: An ancient device used to throw or hurl a projectile to a great distance without the aid of explosives.

Center of gravity: A point where the weight of the body acts and where the total gravitational torque on the body is zero.

Center of mass: A point at which the entire mass of the body or system of bodies is supposed to be concentrated.

Central forces: A force between two objects whose magnitude depends only on the distance between them and which acts along the line joining their centers.

Centripetal acceleration: The acceleration, directed radially inward, of an object undergoing circular motion.

Centripetal force: The force, directed radially inward, required for moving a body in a circle.

Change of state: The change in the physical state (solid, liquid or gas) of a substance without any change in its chemical composition.

Charles' law: A law describing the fact that gases tend to expand upon heating.

Chemical energy: The energy absorbed or released as a part of chemical reaction.

Classical physics: A branch of physics which does not involve the use of quantum mechanics or the theory of relativity.

Clausius statement: A law stating that it is impossible for a self-acting machine working in a cyclic process to transfer heat from a colder to a hotter body without producing some other effect.

Coefficient of kinetic friction: The ratio of the force of kinetic friction and the normal reaction between two surfaces.

Coefficient of limiting friction: The ratio of the force of limiting friction and the normal reaction between two surfaces.

Coefficient of static friction: The ratio of the maximum static frictional force and the normal reaction between the surfaces in contact.

Coefficient of viscosity: The degree to which a fluid resists its flow under an applied force.

Co-initial vectors: The vectors which have a common initial point.

Cold reservoir: A cooling system or place.

Collinear vector: Two or more vectors which are in the same line or can be brought in the same line by shifting them parallel to each other.

Collision: An isolated event in which two or more bodies interact with each other and exert forces on each other for a relatively short period of time.

Compressibility: A measure of the relative volume change (result of change in external pressure) in a fluid or solid.

Conduction: The transfer of heat from a region of higher temperature to a region of lower temperature by increased kinetic energy moving from molecule to molecule.

Conservation laws: A law describing a process wherein properties of a physical system are transformed, transported or stored without loss.

Conservation of angular momentum: A law stating that angular momentum is a conserved vector quantity used to describe overall state of physical system.

Conservation of mechanical energy: Mechanical work is the amount of energy transferred by a force and in the presence of non-conservative forces, mechanical energy is conserved.

Conservation of momentum: A law stating that total momentum of an isolated system is constant.

Conservative force: The force whose work done does not depend on a path to move an object from point A to B.

Constant acceleration: The change in velocity by constant amount each second.

Contact forces: The forces, such as friction, which require contact between the objects involved in order to act between them.

Convection: The transfer of heat which occurs due to transfer of matter.

Coplanar vector: Vectors which lie in the same plane.

Cosmology: A branch of astronomy which involves the study of the universe as a whole.

Crest: A point on a wave with the maximum value within a cycle.

Cyclic process: A process that returns to the same phase from where it was started.

Dalton's law of partial pressures: A law stating that the total pressure exerted by the gaseous mixture is equal to the sum of the partial pressure of each individual component present in that gas mixture.

Damped oscillations: The effect which tends to reduce the amplitude of oscillations.

Damped simple harmonic motion: Simple harmonic motion in which a damping force causes the amplitude of oscillations to decrease with time.

Damping constant: A damping effect that tends to reduce the amplitude of oscillation in an oscillatory system.

Derived quantities: Those physical quantities which can be derived by suitable multiplication or division of powers of the fundamental quantities.

Derived units: One of the class of SI units expressed algebraically in terms of base units or other derived units.

Detergent: A water-soluble cleansing substance that helps to remove dirt and grease from surfaces.

Diathermic wall: The walls from which heat can neither be transfer from system to surroundings nor from surroundings to system.

Diatomic gases: Gases whose molecule is composed of two atoms.

Differential calculus: A subfield of calculus involving study of the rate at which quantities change.

Dimensional analysis: An analytical method which exploits the use of dimensions of the physical quantities to check the relation among them.

Dimensional equation: An equation which can be derived by equating a physical quantity with its dimensional formula.

Dimensional formula: The expression which shows how and which of the base quantities represent the dimensions of a physical quantity.

Dimensions: Measurement in length, width and thickness.

Displacement: The measure of change in position of an object with time.

Displacement vector: The vector which shows the total displacement and direction of an object.

Dissipative forces: Forces, such as friction, which result in loss of energy – usually in the form of heat – from a system.

Distance: The length of the path traveled by a moving object.

Doppler effect/shift: A change in the observed frequency of a wave due to relative motion between the source and the observer.

Efficiency of heat engine: The efficiency with which a heat engine converts energy into mechanical work.

Elastic collision: A collision between two bodies in which the total kinetic energy of the bodies is the same before and after the collision.

Elastic deformation: The reversible change in length, volume, or shape of an elastic substance.

Elastic energy: A collision during which there is no loss of kinetic energy.

Elastic limit: The maximum stress that can be applied to a metal without producing permanent deformation.

Elastic moduli: The tendency of the object to be deformed elastically.

Elastic potential energy: The energy stored in an object as a result of a reversible change in its shape.

Elasticity: The ability of a body to regain its original shape after an applied force has deformed it.

Elastomers: The polymers which undergo very long elongation when pulled apart, and return to their original length on release. These are usually coiled and long chained polymers.

Electrical energy: The energy generated due to flow of electric charge.

Electrodynamics: A branch of mechanics which involves the study of moving electric charges and their interaction with electric and magnetic fields.

Electromagnet: A magnet whose magnetic properties are the result of an applied electric current.

Electromagnetic force: The force which causes interaction between electrically charged particles.

Electromagnetic waves: The waves in which there is sinusoidal variation of electric and magnetic field vectors, such that they are perpendicular to each other and also to the direction of propagation of the wave.

Electrophoresis: The process involving motion of dispersed particles relative to a fluid under the influence of a uniform electric field.

Endergonic reactions: A chemical reaction in which the standard change in the Gibbs free energy is positive and energy is absorbed.

Equation of continuity: The Equation describing the transport of a conserved quantity.

Equilibrium of a particle: The state when the vector sum of the external forces acting on a particle is zero. Thus, its acceleration is zero.

Equilibrium of rigid body: The state when all the external forces acting on a rigid body form a system of forces equivalent to zero.

Error: The uncertainty in measurement of an instrument.

Escape speed: The minimum speed with which an object must be thrown upward so as to overcome the gravitational pull of the Earth.

Exergonic reactions: A spontaneous chemical reaction in which the change in the Gibbs free energy is negative.

External force: Any force on a system from bodies outside the system.

First law of thermodynamics: Energy can neither be created nor destroyed; it can only be transformed from one form to another.

Fluid pressure: The pressure exerted by a fluid at any point inside it.

Flywheel: A rotating mechanical device used to store rotational energy.

Force: An external effort in the form of a push or a pull which tries to produce or produces motion in a body at rest, and which tries to stop or stops a moving object or which tries to change or changes the direction of motion of the object.

Forced frequency: The frequency of an external force acting on an oscillating mass.

Forced oscillations: The oscillations of an object under an external force, resulting in the object oscillating with the frequency of the external force.

Fractional error: The ratio of the mean absolute error to the mean value of the physical quantity being measured.

Fracture point: The point at which failure occurs.

Frame of reference: The coordinate system or set of axes with reference to which the position or motion of an object is described.

Free fall: The motion of a body when which gravity is the only force acting upon it.

Free-body diagram: A pictorial representation used to study all the forces acting on a body of interest.

Frequency: The number of revolutions completed by the object on its circular path in unit time while undergoing circular motion.

Friction: The opposing force which comes into play when a body moves or tries to move over the surface of another body.

Fundamental forces: The four major forces – gravitation, electromagnetism, strong, and weak nuclear forces – that act between physical objects and are mediated by one or more force-carrying particles.

Fundamental mode: The oscillation mode with the lowest frequency.

Fundamental quantities: Those physical quantities which are arbitrary defined and from which all other physical quantities can be derived.

Fundamental units: Any unit which cannot be expressed in terms of other units.

Galileo's law of inertia: A law stating that if the net external force acting on a body is zero then a body at rest will remain at rest and a body in uniform motion will continue in uniform motion along a straight line.

Gauge pressure: The extra pressure above atmospheric pressure.

Geostationary satellites: The satellites which orbit around the earth.

Gravitational constant: The constant in Newton's law of gravitation which relates gravity to the masses and separation of particles, and is equal to $6.67 \times 10^{-11}\ m^3\ kg^{-1}\ s^{-2}$.

Gravitational field strength: The force of a gravity on an object having unit mass, at a particular point in a gravitational field.

Gravitational potential energy: The energy stored in an object as a result of its position relative to another object to which it is attracted by the force of gravity.

Gyroscope: An apparatus consisting of a wheel mounted in a set of rings such that its axis of rotation is free to turn in any direction.

Harmonic oscillator: A physical system which, when displaced from its equilibrium position, experiences a restoring force proportional to its displacement.

Heat capacity: The amount of heat required to raise the temperature of an object or a substance by one degree.

Heat engine: A system that performs the conversion of heat or thermal energy to mechanical work.

Heat pump: A machine or device that transfers thermal energy from one location to another.

Hooke's law: A law stating that the strain in a solid is proportional to the applied stress, within the elastic limit of that solid.

Hot reservoir: A place where heat is stored.

Hydraulic brakes: The brake system in which a brake pedal moves a piston in the master cylinder; brake fluid then applies great force to the brake pads or shoes.

Hydraulic lift: An instrument used to lift or move objects using the force created when pressure is exerted on liquid in a piston.

Hydrostatic paradox: The proposition in hydrostatics that any quantity of water, however small, may be made to counterbalance any weight, however great; or the law of the equality of pressure of fluids in all directions.

Hypothesis: A supposition which is not assumed to be true and can be verified and substantiated by experiments and observations.

Ideal gas: A hypothetical gas composed of a set of randomly-moving, non-interacting point particles.

$$\frac{PV}{T} = \mu R$$

or

$$PV = \mu RT$$

Impulse of a force: The product of the force and the time interval over which it acts. It is usually taken as the integral of a force with respect to time.

Inelastic collision: A collision during which there occurs some loss of kinetic energy.

Inertia: The property of a body by virtue of which it resists a change in its state of rest or of uniform motion along a straight line.

Instantaneous acceleration: The acceleration of an object at any given instant of time.

Instantaneous speed: The speed of an object at any given instant of time.

Instantaneous velocity: The velocity of an object at any given instant of time.

Interference: Superposition of two or more wave that results in variation of wave amplitude.

Internal energy: The total amount of energy, of all forms, present in a thermodynamic system.

Internal force: A force exerted by one part of a system on another.

Irreversible process: A process that cannot reverse both the system and the surroundings to their original conditions.

Isobaric processes: A thermodynamic process in which the pressure on the system remains constant.

Isochoric process: A thermodynamic process in which the volume of the system remains constant.

Isothermal process: A thermodynamic process in which the temperature of the system remains constant.

Kelvin – Planck statement: The law stating that no process is possible whose sole result is the absorption of heat from a reservoir and the conversion of all of this heat into work.

Kinematics: The concepts that are needed to describe motion without any reference to forces.

Kinetic energy: The energy possessed by a body by virtue of its motion.

Kinetic friction: The opposing force that comes into existence when one object is in motion over the surface of another object.

Kinetic theory of gases: A theory stating that gases of small particles in random motion.

Laminar flow: The smooth flow of fluid.

Latent heat: The heat released (per mole) or absorbed by a body during a change of state without a change of temperature.

Latent heat of fusion: The latent heat for a solid liquid state change.

Latent heat of vaporization: The input of energy required by a change of state from liquid to vapor at a constant temperature.

Law of compound motion: The motion in one dimension has no effect on motion in another dimension.

Law of inertia: Another name for Newton's first law of motion, which states that the velocity of a body remains constant unless the body is acted upon by an external force.

Law of sine: An equation which relates the lengths of the sides of an arbitrary triangle to the sines of its angles.

Least count error: Error which possibly occurs due to some defect with resolution of the instrument.

Least count: The smallest value that can be measured accurately by any measuring instrument.

Limiting friction: The maximum opposing frictional force which comes into play when one body is just about to begin moving over the surface of another object.

Linear harmonic oscillator: An oscillator describing vibrations in molecules and their counterparts in solids.

Longitudinal strain: The change in length.

Longitudinal wave: The wave that has the same direction of vibration as the direction of travel.

Magnetism: The force of attraction or repulsion between various substances due to motion of electric charges.

Magnus effect: A phenomenon which explains the spinning of a flying object in a fluid, creating a whirlpool of fluid around itself, and experiences a force perpendicular to the line of motion.

Manometer: An instrument for measuring the pressure acting on a column of fluid.

Mass: The basic property of matter which measures the quantity of matter contained in the body.

Matter waves: The wave of matter.

Maximum height: The maximum vertical height above the plane of projection attained by a projectile during its flight.

Maxwell distribution: An expression based on the theory of probability for the fractional number of molecules in a gas that are in equilibrium at a given temperature and have a specified range of velocities.

Mean absolute error: The arithmetic mean of the magnitudes of the absolute errors in all the measurements of a physical quantity.

Mean free path: The average distance covered by a moving particle between collisions.

Mechanical wave: A wave that needs a physical medium to travel.

Modulus of elasticity: The ratio of stress to the strain produced in a body.

Modulus of rigidity: The ratio of tangential stress to the shear strain produced in a body.

Molar specific heat:

$$C = \frac{S}{\mu} = \frac{1}{\mu}\frac{\Delta Q}{\Delta T}$$

Mole: The amount of a substance which contains as many elementary entities as there are atoms in 0.012 kg of carbon-12.

Moment of force: The tendency of a force to twist or rotate an object.

Moment of inertia: A physical quantity which measures the inertia of rotational motion of the body.

Momentum: The product of the mass of an object and its velocity.

Monoatomic gases: A gas whose molecule consists of a single atom.

Motion: The change in position of an object with time.

Natural frequency: The frequency at which a system naturally vibrates, once it has been set in motion.

Net force: The vector sum of the all the external forces acting on a system.

Neutral equilibrium: A condition in which a body can stay in equilibrium even after being slightly displaced and released.

Newton's first law of motion: A law stating that if the net force is zero, then the velocity of the object is constant.

Newton's law of cooling: A law stating that the rate of heat flow out of a system is proportional to the temperature difference between the system and its surroundings, and to the surface area of the object.

Newton's law of gravitation: A law stating that every mass in the universe attracts every other mass with a force that is directly proportional to the product of their masses and inversely proportional to the square of the distance between them.

Newton's second law of motion: A law stating that the rate of change of momentum is proportional to the imposed force and goes in the direction of the force.

Newton's third law of motion: A law stating which explains that every action has an equal and opposite reaction.

Nodes: The positions of zero amplitude in a standing wave.

Non-contact forces: A force, such as gravitation, which does not require the objects on which it acts to be in physical contact.

Non-uniform motion: The motion of a body travelling in a straight line which covers unequal distances in equal intervals of time.

Normal boiling point: The boiling point of a substance at standard atmospheric pressure.

Normal reaction: The force that acts perpendicular to a surface as a result of an object applying a force to the surface.

Nuclear energy: The energy emitted when a nucleus releases energy to become more stable.

Nuclear fission: The process of splitting a large nucleus to form two or more smaller, more stable nuclei, along with the release of energy.

Nuclear fusion: The process of joining two smaller nuclei together to form a larger, more stable nucleus, in which energy is released.

Null vector: A vector with magnitude zero and an arbitrary direction.

Optics: The study of light and related emissions.

Orbital velocity/speed: The speed at which a body such as planet, a natural satellite, or artificial satellite orbits around a more massive body.

Order of magnitude: The class of scale or magnitude used to make very approximate comparisons.

Oscillation: A motion that repeats itself in a regular cycle.

Oscillatory motion: The to and fro motion of a body about its mean position.

Parallax angle: The angle between the Earth at one time of year, and the earth six months later, as measured from a nearby star.

Parallax method: A method – based on measurement of the angle subtended – to measure large distances such as the distance of a star from the Earth.

Parallax: An apparent effect in which the position or direction of an object differs when viewed from different positions.

Pascal's law: The pressure exerted anywhere in a confined incompressible fluid which is usually transmitted equally in all directions throughout the fluid such that there is no difference in the pressure ratio (initial difference).

Path length: The length with which light travels through a sample in an analytical cell.

Percentage error: A type of error in which relative error is expressed in percent.

Period of motion: The smallest interval of time after which the motion is repeated.

Periodic motion: A motion that repeats itself at regular intervals of time.

Phase of the motion: A condition that describes state of motion at a given time.

Plane angle: An angle equal to the ratio of length of arc to the radius.

Plastic deformation: A process which causes plastic to get deformed in a desired shape.

Plastic: The organic or Inorganic solid which can be molded into desired shape.

Plasticity: The ability of the body to undergo deformation.

Point object: An object small enough to be treated as similar to another olar satellites.

Poisson ratio: The ratio, when a sample object is stretched, of the contraction or transverse strain, to the extension or axial strain.

Polar satellite: An expandable launch system developed by ISRO (Indian space research organization) to allow India to launch its Indian Remote Sensing (IRS) satellites into sun synchronous orbit.

Position vector: A vector which gives the position of a point with reference to the origin of the coordinate system.

Potential energy of a spring: The energy of a spring associated with its state of compression or expansion.

Potential energy: The energy possessed by a body by virtue of its position or configuration in a field such as a gravitational or electric field.

Precession: The change in the orientation of the rotation axis of a rotating body.

Precision: The limit or resolution to which a physical quantity is measured by a measuring instrument.

Pressure: Force per unit area.

Pressure pulse: The difference between the maximum and minimum blood pressures produced during one heartbeat.

Principle of Conservation of Energy: A principle which states that total amount of energy in an isolated system remains constant over time.

Principle of superposition: A principle stating that, for all linear systems, the net response at a given place and time caused by two or more stimuli is the sum of the responses which would have been caused by each stimulus individually.

Progressive wave: A wave which transfers energy from one part of a medium to another.

Projectile: A missile designed to be fired from a rocket or gun.

Pure rotational motion: The type of motion of a rigid body in which it rotates about a fixed axis and every particle of the body moves in a circle, which lies in a plane perpendicular to the fixed axis and has its center on the fixed axis.

Pure translational motion: The type of motion of a rigid body in which every particle of the body in motion moves through the same linear distance in a straight line in a given time interval.

Quasi-static process: A thermodynamic process that happens infinitely slowly, with the system being in equilibrium at each step.

Radial acceleration: Change in the direction of a moving body without a change in its speed.

Radiation: The emission and propagation of waves transmitting energy through space or through some medium.

Radius of gyration: The perpendicular distance of a point on a body from a given axis, where if whole mass of the body was concentrated, the body would have the same moment of inertia as it has with its actual distribution of mass.

Raman effect: The inelastic scattering of a photon.

Rarefactions: A decrease in the density of the medium.

Rectilinear motion: The One-dimensional motion.

Reductionism: The tendency to explain a more complex phenomenon, or a fact with the set of simpler method.

Reference point: A point in the space that stays still and does not move and is generally used to analyze the behavior of an object moving through the space.

Refracted wave: a wave is obliquely incident on the boundary between two different media the transmitted wave.

Regelation: The phenomenon of melting under pressure and freezing again when the pressure is reduced.

Relative error: The ratio of mean absolute error to the mean value of the quantity being measured.

Relative velocity: The velocity with which an object moves with respect to another object.

Resolution of a vector: The process of splitting a single vector into two or more vectors in different directions which collectively produce the same effect as produced by the single vector alone.

Resonance: The phenomenon of oscillation with large amplitude, which occurs when the frequency of an applied external force matches the natural frequency of the oscillating body.

Restoring force: A variable responsible for giving rise to equilibrium in a physical system.

Reversible process: A process that can be reversed without the loss of energy form the system.

Rigid body: A system of particles in which the distances between the particles do not vary with time.

Rolling friction: The opposing force that comes into existence when one object rolls over the surface of another object.

Rolling motion: A combination of rotational and translational motion in which the body rotates about a moving axis as it translates from one position to another.

Rotation: The process or an act to turn around the centre or an axis.

Scalar product: A real number which is a product of two vectors.

Scientific notation: Numbers expressed with the aid of powers of 10.

Shear modulus: The ratio of shear stress to the shear strain.

Shearing strain: The change in the original right angle between two orthogonal directions.

Shearing stress: The restoring force developed per unit area when a deforming force acts tangentially to the surface of a body, changing its shape without changing its volume.

Significant figures: The number of digits of a measured number that have uncertainty only in the last digit.

Simple harmonic motion: Periodic motion where the displacement of the oscillating particle is a sinusoidal function of time.

Sonography: An imaging technique which analysis the sound using an instrument that produces a graphical representation of its component frequencies.

Specific heat capacity: The specific amount of heat required to change a body's temperature by a given amount.

Spectroscopy: The study of the interaction between matter and radiated energy.

Sphygmomanometer: An instrument used for measuring blood pressure.

Standing wave: A wave that tends to remain in the constant position.

Static friction: The opposing force which acts when one object tries to move over the surface of other object, before the actual motion starts.

Stress: The Pressure or tension exerted on a material object.

Strong nuclear force: The force that binds together the nucleons (protons and neutrons) inside the nucleus of an atom.

Sublimation: The process of change of state of a substance from solid to vapor without passing through the liquid state.

Superposition principle: A principle which states that in a series of stratified sedimentary rocks the lowest stratum is the oldest.

Surface energy: The disruption of intermolecular bonds that occur when a surface is created.

Surface tension: The property of a liquid due to which it behaves like a stretched membrane.

System of units: A complete set of units, including both fundamental and derived, for expressing all kinds of physical quantities.

Systemic errors: Errors which are either positive or negative and possess the tendency to be in one direction.

Systolic pressure: The pressure in the blood caused due to contraction of the left ventricle of the heart.

Telescope: A device that improves our ability to see over long distances.

Tensile strength: The ability of a material to resist tearing or breakage.

Tensile stress: A stress that leads to expansion.

Terminal velocity: The constant maximum speed that a freely falling body reaches when the resistance of the medium through which it is falling prevents further acceleration.

Thermal conductivity: A measure of the ability of a material to conduct heat.

Thermal equilibrium: A theoretical physical concept which means that all temperatures of interest are unchanging in time and uniform in space.

Thermodynamics: The branch of physics that deals with the study of heat and temperature.

Time of flight: The total time for which a projectile is in flight.

Torque: The turning effect of the force about a fixed point or axis.

Torricelli's Law: A law which relates the speed of fluid flowing out of an opening to the height of fluid above the opening.

Trajectory: The path followed by a projectile during its motion.

Translational motion: A motion in which a body moves along a linear axis rather than a rotational one.

Transverse wave: A wave in which theparticles of the medium oscillate in a direction perpendicular to the direction of propagation of the wave.

Trough: The point of maximum negative displacement on a transverse wave.

Turbulent flow: The flow of a fluid in which the fluid undergoes random fluctuations, erratic velocity.

Ultrasonic waves: A cyclic sound wave which is beyond the normal hearing range of humans.

Unbalanced force: The sum of all the forces acting on an object.

Unified atomic mass: A unit used for indicating mass on an atomic or molecular scale.

Uniform circular motion: The motion of an object traveling at a constant speed on a circular path of constant radius.

Uniform motion: The motion of a body covering equal distances in equal intervals of time.

Unit: The measurement of any physical quantity involving comparison with a certain basic, arbitrarily chosen, internationally accepted reference standard.

Unstable equilibrium: A condition in which a body gets disturbed further and does not return to its equilibrium position after being slightly displaced and released.

Vaporization: The change of liquid state of a substance into its vapor state.

Vector product: A vector whose magnitude is the product of other two vectors.

Vector: A physical quantity that has both magnitude and direction.

Velocity: A vector quantity in which distance is traveled by a body in a particular direction per unit time or the displacement of the body per unit time.

Venturimeter: An instrument used for efficiently measuring the rate of fluid flow in a piping system.

Vibrational motion: Motion involving backward and forward movement.

Viscosity: A measure of the resistance of a fluid which is being deformed by either shear or tensile stress.

Wave: A disturbance that propagates in a medium.

Wave equation: The partial differential equation.

Wavelength: The distance between the two nearest crests on a wave.

Wave speed: The speed at which wave travels.

Weightlessness: The state achieved when the apparent weight of a body becomes zero.

Wave: A disturbance that propagates in a medium.

Weak nuclear force: The force responsible for the radioactive decay of subatomic particles.

Weight: The force on an object due to the gravitational attraction.

Work: The result of a force applied to an object through a particular distance.

Yield point: The stress beyond which a material becomes plastic.

Yield strength: The stress at which a predetermined amount of permanent deformation occurs.

Young's modulus of elasticity: The ratio of normal stress to the longitudinal strain produced in a body.

Zeroth law of Thermodynamics: A law stating that if two systems are in thermal equilibrium with a third system, then they are also in thermal equilibrium with each other.