

## Glossary

**Acceleration:** Rate of change of velocity with time.

**Accuracy:** Relative measurement reflected by the number of significant figures.

**Artificial Satellites:** Objects moving in fixed circular orbits around the Earth.

**Base Quantity:** Such quantity, which can be expressed independently without the reference of any other quantity.

**Base Units:** The units in System International, which are seven in number.

**Biofuel Energy:** Energy obtained from waste organic materials.

**Centre of Gravity:** The point of body where its weight acts.

**Centripetal Acceleration:** Acceleration produced by the centripetal force.

**Centripetal Force:** The force which keeps an object to move in a circular path.

**Circular Motion:** Motion of a body along a circular path.

**Components of a Vector:** Such vectors when added give the resultant vector.

**Couple:** When two equal and unlike parallel forces act at different points of a body, then they constitute a couple.

**Density:** Mass of unit volume of a substance.

**Derived Quantity:** A quantity which is expressed with reference to base quantities.

**Derived Units:** Units which can be derived from base units.

**Displacement:** The shortest distance between two points.

**Dynamics:** Study of motion of bodies under action of forces.

**Efficiency:** Ratio of output and input.

**Elastic Potential Energy:** Energy of a compressed or stretched spring.

**Elasticity:** The property of the solids because of which they restore their original shape when external force ceases to act.

**Electromagnet:** A temporary magnet when electric current flows through a coil wrapped around an iron rod.

**Energy:** Ability of a body to do work.

**Equilibrium:** A state of a body which has no acceleration.

**Force:** The agent that changes or tends to change the state of a body.

**Fossil Fuels:** Oil, gas and coal which can be burnt.

**Friction:** The force that tends to prevent the bodies from sliding over each other.

**Geothermal Energy:** Energy of the hot rocks deep under the surface of the Earth.

**Gravitational Field:** The region around an object where its force of gravity acts.

**Gravitational Force:** Mutual force of attraction between the objects.

**Gravitational Potential Energy:** Energy of body due to its position in the gravitational field.

**Heat:** The form of energy, which is transferred from one place to another because of difference of temperature.

**Horizontal Component:** The component of a vector which is along horizontal or x-direction.

**Hydraulic Brakes:** Brakes working according to Pascal's law.

**Hydraulic Press:** A press that work under Pascal's law.

**Hydroelectric Generation:** Conversion of kinetic energy of flowing water into electrical energy.

**Inertia:** The characteristic of a body due to which it resists against any change in its state.

**Internal Energy:** Total energy of molecules of an object.

**Joule:** The unit of work in System International.

**Kilowatt-hour:** Work done in one hour at a rate of one Kilowatt.

**Kinematics:** Study of motion of bodies without taking into consideration of the mass and forces.

**Kinetic Energy:** Energy of a body due to its motion.

**Kinetic Friction:** Friction during motion.

**Least Count:** The minimum measurement recorded by an instrument.

**Light Year:** The unit of distance for celestial bodies equal to  $9.46 \times 10^{15}$  m

**Like Parallel Forces:** Forces acting along parallel lines in the same direction.

**Limiting Friction:** The maximum value of static friction.

**Line of Action of a Force:** The straight line along which the force acts.

**Linear Motion:** The motion of body along a straight line.

**Mass:** That characteristics of a body, which determines the acceleration produced by the application of a force.

**Mechanics:** The branch of Physics which deals with the study of motion of bodies.

**Magnet:** It attracts magnetic materials and stays north-south direction when suspended freely.

**Magnetic Compass:** A direction indicating device using a magnetic needle.

**Magnetic Field:** Space around a magnetic in which force is exerted on another magnet.

**Momentum:** The product of mass and velocity of a moving body.

**Neutral Equilibrium:** The condition of a body in which its centre of gravity neither rises nor lowers of its original position after disturbance.

**Orbital Speed:** A critical speed of a satellite in order to keep on moving around the Earth at a specific height.

**Parallel Forces:** Forces acting along the parallel lines.

**Physical Quantities:** Measurable characteristics of objects.



**Physics:** That branch of Science, which explains the properties of matter, energy, space and time.

**Plasma:** A state of matter in which most of the atoms are ionized into positive ions and electrons.

**Power:** Rate of doing work.

**Precision:** Determined by the instrument used equal to its least count.

**Prefix:** Symbols added to a unit to write it by power of 10.

**Pressure:** Force exerted normally on unit area of an object.

**Random Motion:** Motion without any consideration of time and direction.

**Perpendicular Components:** The components of a vector which are mutually perpendicular to each other.

**Resolution of a Vector:** Division of a vector into its components.

**Resultant Vector:** Such a vector which shows the combined effect of two or more vectors.

**Rolling Friction:** The friction produced during the motion of one body over the other with the help of wheels.

**Scalar Quantities:** Quantities which can be specified by their magnitudes only.

**Scientific Method:** Logical applications of arguments that explain a certain phenomenon.

**Scientific Notation:** The number written as power of ten or prefix in which there is only one non zero number before decimal.

**Significant Figures:** In a measurement, the correctly known digits and the first doubtful digit.

**Sliding Friction:** The friction between two surfaces sliding against each other.

**Solar Energy:** Energy of the sunlight.

**Speed:** Distance covered by a body in one second.

**Stable Equilibrium:** The condition of a body in

which it comes to its original condition after being disturbed.

**Static Friction:** The force of friction arising due to applied external force before motion of one body over the other.

**Temperature:** Degree of hotness or coldness of a body.

**Tension:** The force acting along a string

**Thermometry:** Art of measurement of temperature.

**Torque:** Product of force and its moment arm.

**Trigonometric Ratios:** The ratios of the sides of a right-angled triangle.

**Uniform Acceleration:** Equal changes in velocity in equal intervals of time.

**Uniform Speed:** Equal distances covered by a body in equal intervals of time.

**Uniform Velocity:** Equal changes in displacement in equal intervals of time.

**Unlike Parallel Forces:** Forces acting along parallel lines but in opposite directions.

**Unstable Equilibrium:** The condition of a body in which it does not come to its original condition after disturbance.

**Vectors Quantities:** Quantities which can be specified by magnitude as well as direction.

**Velocity:** Rate of change of displacement with time.

**Vertical Component:** The component of a vector which is along vertical or y-direction.

**Vibratory Motion:** The to and fro motion of body about a fixed point.

**Volume Expansion:** Increase in volume.

**Watt:** The unit of power in System International.

**Weight:** The force with which the Earth pulls a body towards its centre.

**Wind Energy:** Kinetic energy of fast-moving air/wind.

**Work:** The product of force and the displacement in the direction of force.

# INDEX

<b>A</b>			
		Derived units	9
Acceleration	29	Displacement	34
Action	34	Distance	34
Accuracy	20	Distance-time graph	38
Addition of vectors	29	Dynamics	29
Ampere	8	<b>E</b>	
Applications of centripetal force	98	Efficiency	122
Area under graph	43	Electromagnet	169
Artificial satellites	97	Elastic limit	129
Atmospheric pressure	136	Elastic potential energy	111
Axis of rotation	82	Elasticity	129
<b>B</b>		Energy	109
Bar magnet	164	Energy flow system	119
Barometer	138	Equation of motion	46
Base quantities	7	Equilibrium	90
Biofuel-energy	117	<b>F</b>	
Biomass	117	First equation of motion	46
<b>C</b>		First law of Newton	57
Candela	8	Force	53
Car lift	140	Forms of energy	109
Centre of gravity	88	Fossil fuel energy	112
Centre of mass	88	Friction	53
Centripetal force	98	<b>G</b>	
Circular motion	33	Geothermal energy	115
Components of a vector	85	Graphical analysis of motion	38
Conditions of equilibrium	91	Gravitational field strength	53
Conservation of energy	112	Gravitational force	53
Couple	83	Gravitational potential energy	110
<b>D</b>		<b>H</b>	
Density	131	Head-to-tail rule	31
Derived quantities	7	Heat	149



Hooke's Law	129	Measuring cylinder	17
Hydraulic brakes	140	Measuring instruments	11
Hydraulic press	141	Mechanics	185
Hydroelectric energy	113	Methods to reduce friction	69
Hypothesis	189	Metre rule	11
<b>I</b>		Metre	8
Impulse	69	Mole	8
Inertia	58	Molecular theory of matter	150
Internal energy	152	Moment arm of a force	82
<b>J</b>		Momentum	69
Joule	108	Motion	32
Junction	154	Motion under gravity	44
<b>K</b>		<b>N</b>	
Kelvin	8	Neutral equilibrium	95
Kilogram	8	Newton's laws of motion	57
Kinetic energy	109	Normal force	54
Kinetic friction	66	Nuclear energy	115
Kinetic molecular model of matter	150	<b>P</b>	
<b>L</b>		Paramagnetic materials	173
Law of conservation of momentum	72	Parallax error	12
Laws of motion	57	Pascal's law	140
Least count	12	Permanent magnet	165
Like parallel forces	81	Physical balance	16
Limiting friction	75	Physical quantities	6
Line of action of a force	82	Physics	183
Linear motion	33	Plasma	151
Liquid pressure	134	Position	29
<b>M</b>		Potential energy	110
Magnet	167	Power	120
Magnetic field	167	Prefixes	9
Magnetic compass	165	Pressure	133
Magnetic domains	176	Precision	21
Magnetic materials	163	Principle of moments	87
Manometer	139		

**R**

Random motion	33
Rectangular components	84
Renewable energy resources	117
Representation of vectors	30
Resolution of vectors	84
Rigid body	82
Rolling friction	68
Rotatory motion	33

**S**

Scalar quantities	29
Science	181
Scientific notation	10
Screw gauge	13
Second	8
Second equation of motion	46
Second law	59
Significant figures	20
Sliding friction	66
Slope of a graph	40
Solar energy	114
Speed	34
Speed-time graph	41
Spring balance	16
Stable equilibrium	94
Static friction	67
Stopwatch	17
System of units	8

**T**

Technology	188
Temperature scales	154
Temporary magnet	166
Tension in the string	57
Theory	188

**Thermometers** 153

Thermometric properties	151
Third equation of motion	47
Third law	60
Torque	83
Translatory motion	33
Trigonometric ratios	86
Turning effect of a force	82
Types of motion	33

**U**

Uniform acceleration	37
Uniform speed	39
Uniform velocity	36
Unit of force	59
Unit of work	108
Units of power	121
Units of system international	8
Unlike parallel forces	81
Unstable equilibrium	95

**V**

Variable velocity	36
Variation of 'g' with altitude	62
Vector quantities	29
Velocity	34
Vernier Callipers	12
Vibratory motion	33

**W**

Watt	121
Weight	62
Wind energy	116
Work	106

**Z**

Zero error	12
------------	----