System of Units: MKS, CGS and SI

Measurement of any physical quantity involves comparison with a certain basic, arbitrarily chosen, internationally accepted reference standard called unit. The result of a measurement of a physical quantity is expressed by a number (or numerical measure) accompanied by a unit.

A unit of measurement is a definite magnitude of a quantity, defined and adopted by convention or by law, that is used as a standard for measurement of the same quantity. Any other value of that quantity can be expressed as a simple multiple of the unit of measurement. For example, length is a physical quantity.

Four different systems of units are commonly used in science and engineering. The difference among them arises from the difference in the units used to represent the three fundamental quantities, namely length (l), mass (m) and time (t).
The base units for length, mass and time in these systems were as follows :
• In CGS system they were centimetre, gram and second respectively.
• In FPS system they were foot, pound and second respectively.
• In MKS system they were metre, kilogram and second respectively

SI Units

SI Base Units

Base quantity	Name	Symbol
length	meter	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol
luminous intensity	candela	cd

SI Derived Units:-

area	square meter	m^2
volume	cubic meter	m^3
speed, velocity	meter per second	m/s

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