

6. Measurement of Physical Quantities

- Physical quantities that can be described completely by its magnitude are called **scalar quantities**.
- Physical quantities that can be described completely by its magnitude and direction are called **vector quantities**.
- **Standard units** are used to measure different quantities accurately.
- Basic physical quantities from which other quantities are derived are known as **fundamental quantities**.
- There are 7 fundamental quantities- mass, length, time, electric current, amount of substance, temperature and luminous intensity.
- **Systems of Units**
 - **CGS System:** The base units for length, mass and time are centimetre, gram and second, respectively.
 - **MKS System:** The base units for length, mass and time are metre, kilogram and second, respectively.
 - **International Systems of Units:** It is a system of units based on the seven fundamental units, known as System International(SI), widely used all over the world.

Approximation:

- It is a quick judgment about a measurement.
- Our sense of sight and touch is used to make estimations.
- Accuracy in measurement: Approximation is not always reliable; in some situations accurate measurement is required.

Error in measurement

- Due to the usage of an inappropriate measuring device.
- Due to improper usage of the device.
- Due to fluctuation in temperature/voltage or any other external parameter.

