

CLASS: XI

SUBJECT: PHYSICS

WORK SHEET NO: 1

UNITS AND MEASUREMENTS

Units of measurement:

In order to measure a physical quantity we assume a certain magnitude of this quantity as a 'standard' and call it 'unit' of that quantity. The measurement of a given physical quantity is in fact a comparison of the quantity with its unit.

To express the measurement of any physical quantity two things must be mentioned:

(1) The unit, in which the quantity is measured.

The unit chosen should be of a suitable size, precisely defined, easily accessible, easily reproducible and should not change with time, place and physical conditions like temperature, pressure etc. Simultaneously it should be unanimously accepted worldwide.

(ii) The numerical value, which denotes the magnitude of that quantity in terms of the chosen unit.

Fundamental quantities and fundamental units:

All physical quantities occurring in mechanics can be expressed in terms of 'length', 'mass' and 'time'. The units of these three quantities are independent of one another and no one can neither be derived from ~~one~~ the other, nor can be further resolved into more simpler units. These quantities are called 'fundamental quantities' and their units are called 'fundamental units'.

The units of all physical quantities other than the above fundamental quantities (length, mass, time, electric current, thermodynamic temperature, amount of substance and luminous intensity) are called 'derived units'.