ODM EDUCATIONAL GROUP
Changing your Tomorrow

PHYSICAL QUANTITIES AND MEASUREMENT

SUBJECT-PHYSICS

CHAPTER NO- 2

Choice of Unit, basic physical quantities

PERIOD-2

LEARNING OBJECTIVE

Students will be

- familiarized with the properties of unit
- able understand the concept of magnitude
- Sensitized about the basic physical quantities,
- Able to Know how to use standard International unit
- Able to Know the convention while writing the SI units

WARM UP QUESTIONS

Recapitulation of previous topic by asking certain questions

- What is the need and importance of measurement?
- Define measurement
- What is the need for universally accepted unit for measurement?

Choice of units

TWO CHARACTERISTICS OF UNIT

- Two characteristics of a unit are
- It should be of convenient size.
- It must be universally accepted, i. e. its value must remain same at all places and at all times.

Magnitude

- The value obtained on measuring a quantity is called its magnitude.
- The magnitude of a quantity is expressed as numbers in its unit.
- for example to measure the length between two points we take a ruler of length one metre as unit and if the length of measuring is 15 times the unit metre , then we write the length is equal to 15 m.

In the past, different units were used to measure the length, mass and time in different countries. The following three systems of units were used :

1. Centimetre-gram-second (C.G.S.) system
2. Foot-pound-second (F.P.S.) system, and
3. Metre-kilogram-second (M.K.S.) system or metric system.

The units of length, mass and time in these systems are listed below:

System	Unit and symbol of length	Unit and symbol of mass	Unit and symbol of time
1. C.G.S.	centimetre (cm)	gram (g)	second (s)
2. F.P.S.	foot (ft)	pound (lb)	second (s)
3. M.KS.	metre (m)	kilogram (kg)	second (s)

Basic physical quantities

- A quantity that can be measured is called a physical quantity.
- In our daily life the measure the following four basic physical quantities

➢ length

➢ mass

➢ time

➢ temperature

	Quantity	S.I. unit	Symbol of S.I. unit
(i)	Length	metre	m
(ii)	Mass	kilogram	kg
(iii)	Time	second	s.
(iv)	Temperature	kelvin	k

Use and need of Standard International Units for measurement.

In earlier times people across the world were using different systems of units for measurement. Without a widely accepted system of units of measurement, economies all over the world would collapse.
Imagine the chaos if there were no standards for the measurement of mass, length and time.
There was a need, therefore, to end the confusion and bring in uniformity.

- The International System of Units (abbreviated as SI Units from its French name, Système International d'unités) is an internationally agreed metric system of units of measurement that has been in existence since 1960.

We use different units of measurement for length, weight, time, area, and volume.

- Distances are measured in miles and kilometres. Length is measured in inches, millimetres, centimetres, metres.
- Land is measured in feet, yard, acres, hectares, square yards, etc.
- Weight is measured in grams, kilograms, pounds, ounces etc.
- Time is measured in seconds, minutes and hours.

Conventions while writing the S.I. units

- https://youtu.be/mGOWxpaskys

HOME ASSIGNMENT

Exercise- B 2,4

- Q. Define magnitude
- Q. Define basic physical quantities

THANKING YOU

ODM EDUCATIONAL GROUP