

Measurement of Distance and Motion

Chapter - 10

A. Very Short - Answer Questions: Answer in one-word

1. What is the SI unit of length?

Ans:- Metre. (m)

2. Name two common devices used for measuring length.

Ans:- Ruler and measuring tape

3. What is the state of an object which changes its position with time called?

Ans:- Motion

4. What are the small and rapid oscillations called?

Ans:- vibrations

5. Are all the passengers sitting in a compartment of a running train at rest or in motion with respect to each other?

Ans:- At rest.

B. Short - Answer Questions: Answer in 10-15 words.

1. What does each measurement consist of?

Ans:- Each measurement consists of.

(i) a number describing the numerical value of the

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measure.

ii) the unit in which the quantity is measured.

2. On what factors does the choice of measuring device depend?

Ans:- The choice of a measuring device depends on the following factors:-

(i) The size of the object to be measured.

(ii) The shape of the object to be measured.

(iii) The degree of accuracy required.

3. What is meant by the rotatory motion?

Ans:- The motion of a body in which every particle on it moves along a circular path about a fixed axis is called rotatory motion. Example:-

(i) Motion of a spinning top.

(ii) Motion of a merry-go-round.

4. Name the three types of translatory motion. Give one example of each type.

Ans:- The three types of translatory motion are-

(i) Linear Motion - Motion of car along a straight road.

(ii) Curvilinear Motion - Motion of a car along a curved path.

(iii) Random Motion - Motion of a butterfly.

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5. Define random motion. Give one example.

Ans: - The translatory motion of a body which keeps on changing its direction in a disorderly order is called random motion. One example is - Motion of an ant.

C Long Answer Type Questions:

1. Why do we need standard units for measurement?

Ans: - A standard unit of measurement is needed for the sake of ~~uniformity~~ uniformity. The unit that can be used everywhere uniformly as a basic unit of measurement is called a standard unit. SI unit of length is metre. SI unit of time is second.

2. Mention the precautions to be observed while measuring the length of pencil using a ruler.

Ans: - The precautions to be observed while measuring the length of pencil using a ruler are -

(i) The scale should be placed along the length to be measured. The scale should be placed very close to the object to be measured.

(ii) Keep your eye in line with the point of measurement. If the eye is not in line with the point of measurement, the measured length will be either shorter or longer than the actual length.

(iii) Do not start measurement from the worn out or damaged

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end of the scale. If the zero end of the scale is damaged, ~~end of the scale~~ start measurement from ~~some~~ some other mark of the scale. Then the actual length of the object is equal to the difference between the readings at the two points.

3. While measuring the length of a metallic rod the reading of the scale at one end is 8.0 cm and the other end is 33.7 cm. What is the length of the rod?

Ans :- Reading of scale at one end = 8.0 cm
Reading of scale at other end = 33.7 cm.

$$\therefore \text{Length of the metallic rod} = 33.7 \text{ cm} - 8.0 \text{ cm} = 25.7 \text{ cm}$$

4. Name the types of motion executed by a rolling body. Give one example of rolling motion.

Ans :- A rolling body executes both translatory as well as rotatory motion. Example - (i) Motion of a cylinder on an inclined plane.

5. Define circular motion. Give one example also.

Ans :- The motion of a body along a circular path is called circular motion. Example :- whirling of a stone tied to a string.

D. Tick (✓) the ODD-ONE out giving reasons:

1. Aeroplane, Bus, Railway train, Ship, Bullock cart

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Ans :- Bullock cart :- others are faster mode of transport.

2. Metre, Kilometre, Yard, Centimetre.

Ans :- Yard :- others are bigger or smaller units in terms of meter.

3. ~~Motion of a stone~~ Handspan, Palm, foot, Cubit

Ans :- foot :- others are measurement by hand.

4. Motion of a stone dropped for certain height, ~~Motion of a fly~~, Motion of a bullet fired from gun (up to chost), Motion of a car on a straight road.

Ans :- Motion of a fly :- others are example of rectilinear motion.

5. Motion of the moon around the earth, Motion of the earth around the sun, motion of a merry-go-round, Heart-beat in a healthy person.

Ans :- Motion of merry-go-round :- others are example of periodic motion.

2. Define the Following Terms :-

1. The position of rest - The objects which do not change their positions with respect to their surroundings are said to be at rest.

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2. Curvilinear motion - The movement of a body along a curved path is called curvilinear motion.
3. Standard unit of measurement - The unit that could be used ~~everywhere~~ everywhere at a basic ~~measured~~ measurement is called a standard unit of measurement.
4. Periodic motion - The motion which repeats itself at a regular interval of time is called periodic motion.
5. Vibratory motion - Small and rapid to and fro movement of a body or a part of it from its mean position is called vibratory motion.

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HOTS

1. A body moves as a whole. All parts of the body move through the same distance. What type of motion is this?

Ans → Translatory motion

2. A turning screw undergoes two kinds of motion at same time. Identify the two kinds of motion.

Ans → Turning screw undergoes a circular motion and a linear motion in forward direction along with it.

3. A student has to measure the length of pencil. The zero mark on the scale is not clearly visible. How should he use the scale to get the correct length of pencil.

Ans → The students can measure the length from the 1cm mark in the scale and add 1cm later to his measurement. This will give them correct length of the pencil.

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