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OF LENGTH AND MOTION

## Worksheet-1

## Multiple Choice Questions

- The SI unit of length is**
  - Centimetre
  - Kilometre
  - Metre
  - Millimetre
- Which of the following is a non-standard unit of measurement?**
  - Metre
  - Handspan
  - Centimetre
  - Kilometre
- One metre is equal to**
  - 10 cm
  - 100 cm
  - 1000 cm
  - 1 cm
- The smallest division on a metre scale is**
  - 1 cm
  - 1 m
  - 1 km
  - 1 mm
- The distance between two cities is best measured in**
  - Centimetre
  - Millimetre
  - Metre
  - Kilometre
- An object is said to be in motion if**
  - It changes its colour
  - It changes its shape
  - Its position changes with respect to a reference point
  - it remains fixed
- Motion along a straight line is called**
  - Circular motion
  - Oscillatory motion
  - Periodic motion
  - Linear motion
- The motion of a swing is an example of**
  - Circular motion
  - Linear motion
  - Oscillatory motion
  - Random motion
- The point with respect to which motion is described is called**
  - Origin
  - Reference point
  - Base point
  - Centre

10. When an object moves along a circular path repeatedly, its motion is
- (a) Linear
  - (b) Random
  - (c) Periodic
  - (d) Rectilinear

### Fill in the blanks :

11. The SI unit of length is \_\_\_\_\_.
12. One kilometre is equal to \_\_\_\_\_ metres.

### True / False

13. All body parts give the same measurement for a given length.
14. Circular and oscillatory motions are examples of periodic motion.

### Very Short Type Questions

15. What is measurement?
16. What is a reference point?

### Short Type Questions

17. Why is there a need for standard units of measurement?
18. Explain linear and circular motion with one example each.

### Essay Type Questions

19. Explain the correct method of measuring length using a scale.
20. Describe different types of motion with suitable examples.

### HOTS

21. **Assertion (A):** An object can be at rest and in motion at the same time.  
**Reason (R):** The state of motion depends on the reference point chosen.  
Choose the correct option:
- a) Both A and R are true and R is the correct explanation of A
  - b) Both A and R are true but R is not the correct explanation of A
  - c) A is true but R is false
  - d) A is false but R is true



1. (c) Metre
2. (b) Handspan
3. (b) 100 cm
4. (d) 1 mm
5. (d) Kilometre
6. (c) Its position changes with respect to a reference point
7. (d) Linear motion
8. (c) Oscillatory motion
9. (b) Reference point
10. (c) Periodic
11. Metre
12. 1000
13. False
14. True
15. Measurement is the process of comparing an unknown quantity with a known standard unit.
16. A reference point is a fixed point with respect to which the position or motion of an object is described.
17. Standard units are needed because non-standard units like handspan or foot differ from person to person and give different results. Standard units ensure uniform and accurate measurements everywhere, making comparison and communication easy.
18. Linear motion is the motion of an object along a straight line, such as a car moving on a straight road. Circular motion is the motion of an object along a circular path, such as a merry-go-round in a park.
19. To measure length accurately with a scale (ruler), follow these steps:
  - 1. Place the object properly**  
Keep the object on a flat surface and place the scale along the length of the object.
  - 2. Align the zero mark correctly**  
Place one end of the object exactly at the zero mark of the scale.  
o If the zero mark is broken or unclear, start from another clear mark (like 1 cm) and subtract the initial reading from the final reading.
  - 3. Keep your eye at the correct position**  
Your eye should be directly above the reading to avoid parallax error.
  - 4. Read the correct division**  
Note the mark on the scale that coincides with the other end of the object.
  - 5. Write the measurement with unit**  
Always mention the unit (cm, mm, m).  
o Example: Length = 7.4 cm

20. Motion means change in position of an object with time. Different types of motion are:

### 1. Rectilinear motion

Motion along a straight line.

Examples:

- A car moving on a straight road
- A stone falling vertically down

### 2. Circular motion

Motion along a circular path.

Examples:

- Blades of a ceiling fan
- Hands of a clock

### 3. Oscillatory motion

Motion in which an object moves to and fro about a fixed position.

Examples:

- A swinging pendulum
- A child on a swing

### 4. Periodic motion

Motion that repeats itself at equal intervals of time.

Examples:

- Earth revolving around the Sun
- Hands of a clock

### 5. Rotational motion

Motion in which an object rotates about its own axis.

Examples:

- A spinning top
- Earth rotating on its axis

21. Correct option: a

**Explanation:** The assertion is true because an object may appear at rest with respect to one reference point and in motion with respect to another. The reason is also true and correctly explains the assertion, as motion depends on the chosen reference point.