CHAPTER

5

MEASUREMENT OF LENGTH AND MOTION

CLASS 6TH

NCERT EXERCISE AND SOLUTIONS - SCIENCE

P1 P2

Q. 1. **Some lengths are given in Column I of Table Some units are given in Column II. Match the lengths with the units suitable for measuring those lengths.**

Column I	Column II
Distance between Delhi and Lucknow	centimetre
Thickness of a coin	kilometre
Length of an eraser	metre
Length of school ground	millimetre

ANSWER:-

Column I	Column II
Distance between Delhi and Lucknow	kilometre
Thickness of a coin	millimetre
Length of an eraser	centimetre
Length of school ground	metre

Q. 2. **Read the following statements and mark True (T) or False (F) against each.**

(i) **The motion of a car moving on a straight road is an example of linear motion. [ ]**

(ii) **Any object which is changing its position with respect to a reference point with time is said to be in motion. [ ]**

(iii) **1 km =100 cm [ ]**

ANSWER:-

(i) The motion of a car moving on a straight road is an example of linear motion. [T]

(ii) Any object which is changing its position with respect to a reference point with time is said to be in motion. [T]

(iii) 1 km =100 cm [F]

Q. 3. **Which of the following is not a standard unit of measuring length?**

(i) **millimetre**

(ii) **centimetre**

(iii) kilometre
(iv) handspan

ANSWER:-

(iv) handspan

Q. 4. Search for the different scales or measuring tapes at your home and school. Find out the smallest value that can be measured using each of these scales. Record your observations in a tabular form.

ANSWER:-

Observations of Different Scales or Measuring Tapes:

Scale/Measuring Tape Location	Smallest Value Measured
Home measuring tape	1 mm
School ruler	1 mm
Tailor's measuring tape	1 mm
Metal measuring rod	1 mm

Q. 5. Suppose the distance between your school and home is 1.5 km. Express it in metres.

ANSWER:-

The distance between school and home is 1.5 km.
Expressed in metres: 1.5 km = 1.5×1000 = 1500 metres.

Q. 6. Take a tumbler or a bottle. Measure the length of the curved part of the base of glass or bottle and record it.

ANSWER:-

Measuring the Curved Part of a Tumbler/Bottle

1. Use a flexible measuring tape to wrap around the curved base.
2. Align the tape properly along the curve to get an accurate measurement.
3. Record the length in centimetres (cm) or millimetres (mm) as shown on the tape.

Q. 7. Measure the height of your friend and express it in (i) metres (ii) centimetres and (iii) millimetres.

ANSWER:-

Height measurement of my friend

In metres (m): 1.6 m
In centimetres (cm): 160 cm
In millimetres (mm): 1600 mm

Q. 8. You are given a coin. Estimate how many coins are required to be placed one after the other lengthwise, without leaving any gap between them, to cover the whole length of the chosen side of a notebook. Verify your estimate by measuring the same side of the notebook and the size of the coin using a 15-cm scale.

ANSWER:-

The length of the side of your notebook is 30 cm.
The size of the coin 2.5 cm.
Therefore, the coin to estimate the number of coins needed:
30 cm/2.5 cm = 12 coins

Q. 9. Give two examples each for linear, circular and oscillatory motion.

ANSWER:-

Examples of Different Types of Motion

1. **Linear Motion:** Car moving on a straight road, a person walking in a straight line.
2. **Circular Motion:** Ferris wheel, rotating ceiling fan.
3. **Oscillatory Motion:** Pendulum of a clock, a swinging swing.

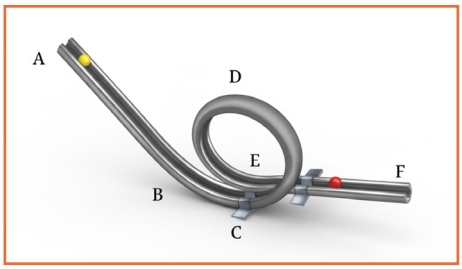
Q. 10. Observe different objects around you. It is easier to express the lengths of some objects in mm, some in cm and some in m. Make a list of three objects in each category and enter them in given table.

Size	Objects
mm	
cm	
m	

ANSWER:-

Size	Objects
mm	1. Thickness of a coin
	2. Width of a pencil
	3. Thickness of a book cover
cm	1. Length of a pen
	2. Width of a notebook
	3. Height of a coffee mug
m	1. Height of a door
	2. Length of a table
	3. Height of a person

Q. 11. A rollercoaster track is made in the shape shown in Figure. A ball starts from point A and escapes through point F. Identify the types of motion of the ball on the rollercoaster and corresponding portions of the track.



ANSWER:-

Types of Motion in the Rollercoaster Track

Linear Motion:

- **Portions:** A to B, E to F
- The ball moves **in a straight line** along these sections.

Curved Motion:

- **Portion:** B to C
- The ball moves along a **curved path** between these points.

Circular Motion:

- **Portion:** C to E
- The ball moves in a **circular loop** from C to E.

Conclusion:

- **A to B:** Linear motion
- **B to C:** Curved motion
- **C to E:** Circular motion
- **E to F:** Linear motion

Q. 12. Tasneem wants to make a metre scale by herself. She considers the following materials for it - plywood, paper, cloth, stretchable rubber and steel. Which of these should she not use and why?

ANSWER:-

Stretchable rubber is **not ideal** because it **stretches and deforms**, leading to **inaccurate measurements**. A metre scale must be **rigid and consistent** for reliable use.

Better Options for a Metre Scale

- **Plywood** – Strong and durable.
- **Steel** – Highly accurate and long-lasting.
- **Paper (Reinforced)** – Usable if properly stiffened.
- **Cloth** – Flexible for curved surfaces but not ideal for precision.

  Avoid stretchable rubber, as it **changes length when stretched**, making measurements inconsistent.

Q. 13. Think, design and develop a card game on conversion of units of length to play with your friends.

ANSWER:-

Card Game: Length Master
Objective: Convert units of length correctly to win the most cards!

Setup:

- Length Cards – Show a length with a unit (e.g., 2 m, 150 cm).
- Conversion Cards – Ask for a specific conversion (e.g., Convert to cm).
- Reference Cards – Display conversion formulas (e.g., 1 m = 100 cm).

Rules:

1. Draw one Length Card and one Conversion Card.
2. Convert the length as required (e.g., 2 m → 200 cm).
3. Check your answer with a Reference Card.
4. Correct? Keep the card. Wrong? Put it back.
5. The player with the most cards at the end wins.