

For question numbers 11 to 13, two statements are given- one labelled Assertion (A) and the other labelled Reason (R).

Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -

- i) Both A and R are true and R is correct explanation of the assertion.
- ii) Both A and R are true but R is not the correct explanation of the assertion.
- iii) A is true but R is false.
- iv) A is false but R is true

11. **Assertion (A):** In ancient times bullock cart was used as a means of transport.

Reason (R): Aeroplanes were developed only in 18th century.

iii) A is true but R is false.

12. **Assertion (A):** Motion of moon around the earth is a circular motion.

Reason (R): In a circular motion, the distance of object from a fixed point remains the same.

i) Both A and R are true and R is correct explanation of the assertion.

13. **Assertion (A):** There are some objects that can have more than one type of motion at the same time.

Reason (R): An object that changes its position with time, relative to its surroundings, is said to be in motion.

ii) Both A and R are true but R is not the correct explanation of the assertion.

II. PASSAGE BASED QUESTIONS:

For the sake of uniformity, scientists all over the world have accepted a set of standard units of measurement. The system of units now used is known as the International System of Units (SI units). The SI unit of length is a metre. Each metre (m) is divided into 100 equal divisions, called centimetre (cm). Each centimetre has ten equal divisions, called millimetre (mm). Thus, 1 m = 100 cm, 1 cm = 10 mm. For measuring large distances, metre is not a convenient unit. We define a larger unit of length. It is called kilometre (km). 1 km = 1000 m.

1. The system having a set of standard units of measurement has been accepted all over the world and is called –

- a) International system of units
- b) American system of units
- c) Metric system of units
- d) U.K. system of units

2. Select the unit of length that is used to measure the distance of stars from the earth.

- a) Metre
- b) Kilometre
- c) Light year
- d) All of the above

3. Which of the following is not an accurate unit of length of measurement?

a] Foot-span

b] Hand-span

c] Cubit

d] All of the above

4. Length of a book is 15 cm. What will be the final reading on the ruler if the ruler reads from 2.2 cm?

a] 1.72 cm

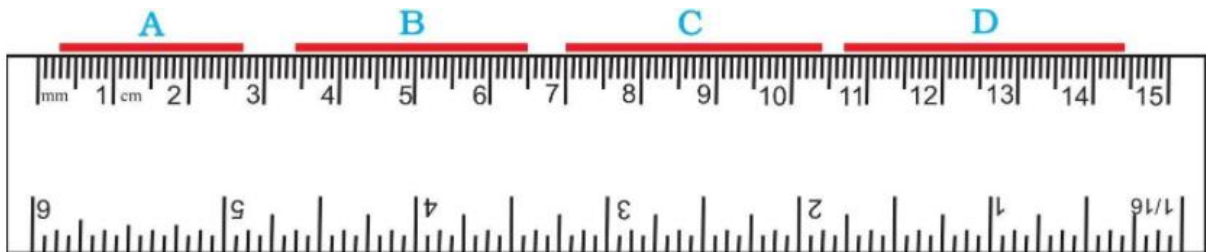
b] 17.2 cm

c] 15.2 cm

d] 1.52 cm

III. CASE STUDY BASED QUESTIONS:

1. Four pieces of wooden sticks A, B, C and D are placed along the length of 30 cm long scale as shown in Fig. 10.4. Which one of them is 3.4 cm in length?



a) A

b) B

c) C

d) D

2. Bholu and Golu are playing in a ground. They start running from the same point A in the ground and reach point B at the same time by following the paths marked 1 and 2 respectively as shown in Fig. Which of the following is/are true for the given situation?

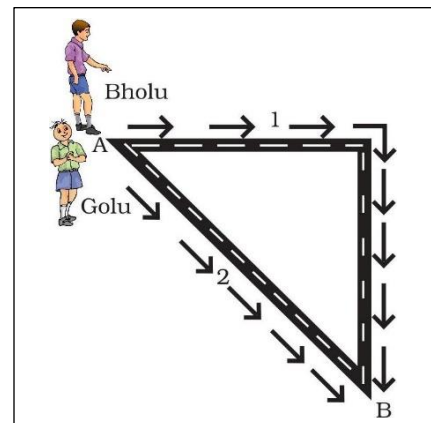
As compared to Golu, Bholu covers a -

a) longer distance but with a lower speed.

b) longer distance with a higher speed.

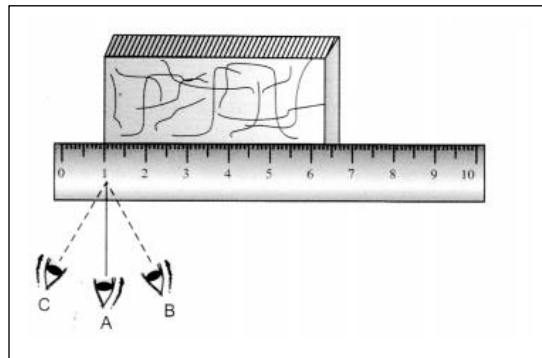
c) shorter distance with a lower speed.

d) shorter distance with a higher speed.



3. In the following figure, the proper way of reading scale is –

- a) C
- b) B
- c) A
- d) Both (a) and (b)



4. Farzin wants to measure her new study table but she found that zero mark is missing in her scale. In such a case, how will she measure her table? [Hint: (a) Avoid taking measurements from zero mark. (b) Use any other full mark of the scale, say 1cm. (c) Subtract the reading of this mark from the reading at the other end.]

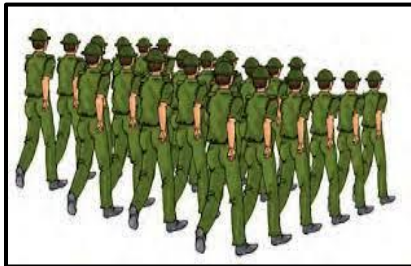
IV. a) SHORT ANSWER TYPE QUESTIONS: (2M)

1. Why can't we use a finger or a fist as standard unit of measurement of length? [Hint: Sizes of body parts of different people are different. So, it creates confusion]
2. Identify the type of motion exhibited by each of the following-

| | |
|------------------------------------|---------------------|
| 1. A spinning top | - Rotational motion |
| 2. Motion of a pendulum | - Periodic motion |
| 3. A stone tied to a string | - Circular motion |
| 4. The plucked strings of a guitar | - Periodic motion |

3. State any two precautions to be observed while measuring the length with the help of a metre scale. [Hint: Place the scale in contact with the object along its length, our eye must be exactly in front of the point where the measurement is to be taken]
4. Define rest and motion. [Rest: An object that does not change its position with time, relative to its surroundings, is said to be at rest. Motion: An object that changes its position with time, relative to its surroundings, is said to be in motion]
5. Is it possible for a body to undergo both rotational motion and rectilinear motion at the same time? Justify? [Hint: motion of a ball on the ground. Rolling of ball- rotational, ball moving forward on ground- rectilinear]
6. A carpenter is fixing a curtain rod on the wall by tightening a screw. How many different kinds of motion is the screw undergoing? [Hint: rotational and rectilinear motion]

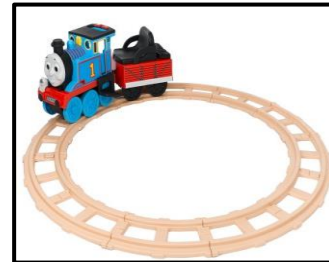
7. How can a measured length be expressed? [Hint: Each measurement has – i) A number describing the numerical value. ii) The unit in which that quantity is measured.]
8. Observe the pictures given below and write down the type of motion exhibited by each.



A



B



C

[Hint: A – Rectilinear motion, B – Rotational motion, C – Circular motion]

9. A tailor does not use a scale to take our body measurements, he uses a measuring tape, why? [Hint: Some parts of our body are not straight like chest, waist. Measuring tape is convenient as it can bend easily and give correct measurements of such body parts.]
10. You do not use an elastic measuring tape to measure distance. Why? [Hint: length of the tape may change on stretching, may get different values on measuring each time]

IV. b) SHORT ANSWER TYPE QUESTIONS: (3M)

1. Define the following terms -
 - a) Measurement - [Hint: The process of comparing an unknown quantity with a known quantity of the same kind.]
 - b) Unit: [Hint: The known fixed quantity used in measurement is called a unit.]
 - c) Rectilinear motion: [Hint: When a body moves in a straight line it is said to be in linear or rectilinear motion.]
 - d) Periodic motion: [Hint: Any motion which repeats itself at equal intervals of time.]
2. (a) Two trains A and B pass each other at the same speed in opposite directions.
 - (b) Two trains A and B at the same speed are moving together on different tracks in the same directions. To an observer sitting in one of the trains, when do the trains appear to be
 - i] Stationary - [Hint: When two trains A and B at the same speed are moving together on different tracks in the same directions.]
 - ii] Moving very fast - [Hint: Two trains A and B pass each other at the same speed in opposite directions.]

3. Four children measure the length of a table which was about 4m. Each of them used different ways to measure it -
- (a) Nathan measured it with a half metre long thread.
 - (b) Gurmeet measured it with a 15cm scale from his geometry box.
 - (c) Sameer measured it using a 5m long measuring tape.
 - (d) Salim measured it using his handspan.

Which one of them would get the most accurate length? Give reason for your answer.

[Hint: Sameer would get most accurate results because measuring tape is much longer than the table. While in other cases the chances of making an error is more due to multiple measurements]

4. Convert the following :

a) $68 \text{ km} = \underline{\hspace{2cm}} \text{ m}$ b) $83 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$ c) $172 \text{ cm} = \underline{\hspace{2cm}} \text{ mm}$

[Hint: a) $1 \text{ km} = 1000 \text{ m}$, Thus $68 \text{ km} = 68 \times 1000 = \underline{68000 \text{ m}}$.

b) $1 \text{ m} = 100 \text{ cm}$, Thus $83 \text{ m} = 83 \times 100 \text{ cm} = \underline{8300 \text{ cm}}$

c) $1 \text{ cm} = 10 \text{ mm}$, Thus $172 \text{ cm} = 172 \times 10 \text{ mm} = \underline{1720 \text{ mm}}$]

5. The height of a person is 1.65m. Express it in cm and mm.

[Hint: $1 \text{ m} = 100 \text{ cm}$, Thus $1.65 \text{ m} = \underline{165 \text{ cm}}$.

$1 \text{ cm} = 10 \text{ mm}$, Thus $165 \text{ cm} = 165 \times 10 \text{ mm} = \underline{1650 \text{ mm}}$]

6. The distance between Kaizad's house and school is 4182m. Express it in km.

[Hint: $1 \text{ km} = 1000 \text{ m}$. $4182 \text{ m} \div 1000$

$= 4.182 \text{ km}$.]

7. While measuring the length of a knitting needle, the reading of the scale at one end is 3.0 cm and at the other end is 42.5 cm. What is the length of the needle?

[Hint: Reading on the first end of the scale = 3.0 cm

Reading on the last end of the scale = 42.5 cm

$= 42.5 \text{ cm} - 3.0 \text{ cm}$

Length of the knitting needle = 39.5 cm]

8. The distance between two stations of Mumbai metro is 5.34 km. Express this distance in

i) metre

ii) centimetre

[Hint: $1 \text{ km} = 1000 \text{ m}$, Thus $5.34 \text{ km} = 5.34 \times 1000 = 5340 \text{ m}$.

$1 \text{ m} = 100 \text{ cm}$, Thus, $5340 \text{ m} = 5340 \times 100 \text{ cm} = 534000 \text{ cm}$]

V. LONG ANSWER TYPE QUESTIONS. (5M)

1. Kaizad was riding on his bicycle along a straight road. He classified the motion of various parts of the bicycle as-

a) Rectilinear motion b) circular motion c) both rectilinear as well as circular motion.

Can you list one part of the bicycle for each type of motion? Support your answer with reason.

[Hint: (a) Rectilinear motion- handle bar or seat of the bicycle. It moves in a straight line as the wheels of the bicycle move forward. (b) Circular motion- pedal of the bicycle which moves in circular path. (c) Rectilinear as well as circular- wheels of the bicycle. Any point on the wheel moves in circular path as well as move forward on the road.]

2. Amar has a piece of cloth that measures 4.5 metres. How many smaller pieces can he make of each measuring 50 cm in length?

[Hint: Cloth Length = 4.5 m

1m = 100 cm, 3.5 m = $4.5 \times 100 = 450$ cm

Each Smaller piece measure = 50 cm

Number of Smaller pieces can be made = Total Cloth Length \div Smaller piece length
= $450 \div 50 = 9$

9 Smaller pieces can be made of 50 cm in length from 4.5 m Length]

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