Measurement and Motion

Test

Time - 30 Minutes **Maximum Marks - 20**

Important Instructions

- This test contains 20 questions.
- Each questions has FOUR options (1), (2), (3) and (4). ONLY ONE of these four options are correct.
- For each question, marks will be awarded in one of the following categories.

  Full Marks : +1 : If only correct answer is given.

  Zero Marks : 0 : If no answer is given.

  Negative Marks : There is no negative marking

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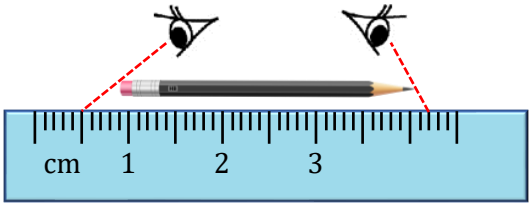
1. Few one rupees coins are arranged one above the other. The total height is 4.1 cm. What is the total height in mm only ?

(1) 40 mm (2) 0.41 mm (3) 41 mm (4) 4.1 mm

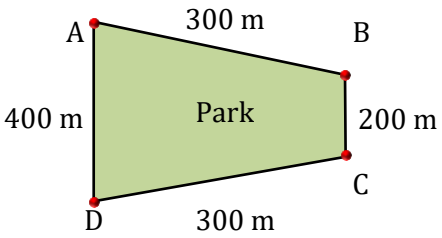
2. The length of a pencil is measured using a ruler as shown in the given figure. What is the apparent length of the pencil seen by the observer and the actual length of the pencil ?



	Apparent length	Actual length
(1)	42 mm	40 mm
(2)	5 mm	10 mm
(3)	37 mm	30 mm
(4)	37 mm	40 mm

(1) 1 (2) 2 (3) 3 (4) 4

3. What is the total distance (in kilometer) covered by Ravi if he goes one round around the park starting from point A and ending there, as shown below ?



(1) .12 km (2) 2.1 km

(3) 12 km (4) 1.2 km

4. The distance between Kritika's home and her school is 5431 m. This distance into km is

(1) 0.543 km (2) 5.431 km

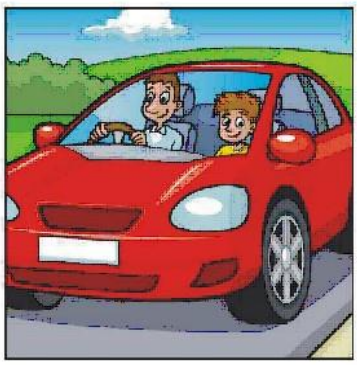
(3) 54.31 km (4) 543.1 km

5. A boy dropping a ball is an example of

(1) Circular motion (2) Curved motion

(3) Rectilinear motion (4) None of these

6. What kind of motion is observed in a car moving on a straight road ?



(1) Rectilinear (2) Circular

(3) Rotatary (4) Periodic

7. Match the column

Column-I		Column-II	
(A)	Distance between Mumbai and Kolkata	(p)	20 cm
(B)	Length of a geometric box	(q)	8000 m
(C)	Width of a little finger	(r)	400 km
(D)	Height of a mountain	(s)	1 cm

(1) (A → r); (B → p; (C → s); (D → q)
(2) (A → q); (B → p); (C → s); (D → r)
(3) (A → p); (B → q; (C → r); (D → s)
(4) (A → r); (B → s); (C → p); (D → q)

8. Which among the following shows circular motion?

(1) Outer part of merry-go-round.
(2) Blades of a moving fan.
(3) Pendulum of a wall clock.
(4) Both [1] and [2]

9. The height of a person is 1.69 m. Express it into cm and mm.

(1) 169 cm, 16900 mm
(2) 1690 cm, 16900 mm
(3) 16.9 cm, 1690 mm
(4) 169 cm, 1690 mm

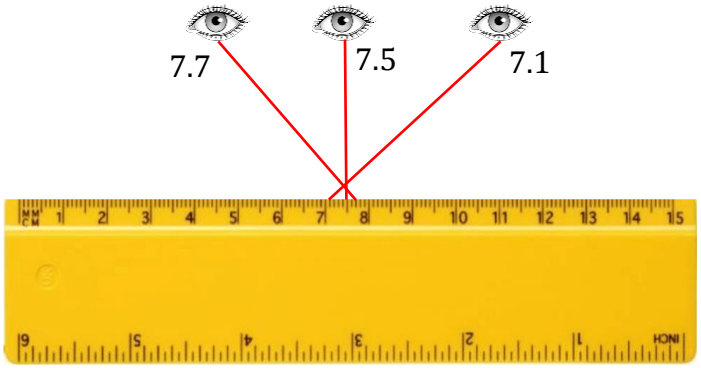
10. A girl uses a worn out ruler to measure the length of a table in her room. She placed the ruler such that the mark 3.0 cm coincides with one end and the other end coincides with the mark 33.5 cm. The length of the table is _____ cm.

(1) 33.5
(2) 36.5
(3) 33.8
(4) 30.5

11. Motion of a plucked guitar string is an example of _____ motion.

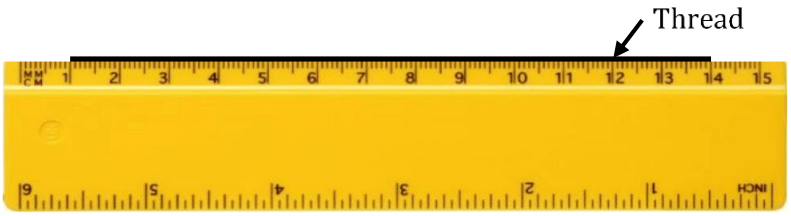
(1) Translatory
(2) Rotatory
(3) Oscillatory
(4) Circular

12. The correct length is :-



(1) 7.7 cm
(2) 7.5 cm
(3) 7.1 cm
(4) 7.6 cm

13. A piece of thread folded 6 times is placed along a 15cm long measuring scale as shown in the figure. The length of the thread is



(1) 68 cm (2) 78 cm (3) 58 cm (4) 84 cm

14. A simple method for measuring diameter of the sphere

(1) Place the sphere between two balloons. Keep the scale across and read the distance between the two balloons on the ruler accurately.

(2) Place the sphere between two blocks in contact with the ruler. Read the distance between the two block on the ruler accurately.

(3) Take a string and wind it closely around a sphere. Then measure the length of the string.

(4) We cannot measure the diameter of the sphere

15. If a body does not change its position with respect to its surrounding, it is said to be at

(1) distance (2) position (3) rest (4) motion

16. Four children A,B,C and D measure the length of a table which was about 5 m. Each of them used different ways to measure it. Which one of them would get the most accurate length?

(1) A measured it using a 7 m long measuring tape.

(2) B measured it with a 70 cm scale from her geometry box.

(3) C measured it using her hand span.

(4) D measured it with a 50 metre long thread.

17. Read the following sentences carefully, and choose the incorrect one:

(1) When an object moves along a straight-line path it is called rectilinear motion.

(2) The movement of a bullet fired from a gun is an example of rectilinear motion.

(3) The motion of a sprinter (or short distance runner) running on a straight track is also rectilinear motion.

(4) Rectilinear motion may not take place in a fixed direction.

18. A bicycle is moving on a straight road. Which of the following types of motion are exhibited by it?

(1) Periodic motion and Rotational motion

(2) Rotational motion and Rectilinear motion

(3) Rectilinear motion and Circular motion

(4) Periodic motion and Circular motion

19. The distance between Neha's home and Devika's home is 2495 m. This distance is equal to:

(1) 24.95 km (2) 249.5 km

(3) 2.495 km (4) 0.2495 km

20. Which of the following statements are correct ?

I. A merry-go-round has both rotational and circular motions.

II. The movement of second's hand of a watch is an example of rotational motion.

III. The movement of second's hand of a watch is an example of periodic motion.

VI. The swinging of pendulum of a clock is a circular motion.

(1) I, II and III only (2) IV and III only

(3) I, III and IV only (4) I and IV only

Answer Key

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	3	3	4	2	3	1	1	4	4	4	3	2	2	2	3	1	4	2	3	1

Test Solutions

1. Option (3)

1 cm = 10 mm

4.1 cm = 4.1 × 10 = 41 mm

2. Option (3)

Apparent length = 4.2 cm - 0.5 cm = 3.7 cm

1 cm = 10 mm

3.7 cm = 37 mm

Actual length = 4 cm – 1 cm = 3 cm

1 cm = 10 mm

3 cm = 3 × 10 = 30 mm

3. Option (4)

Distance = AB + BC + CD + DA

Distance = 300 + 200 + 300 + 400

Distance = 1200 m = 1.2 km

4. Option (2)

Distance = 5431 m

Distance = 5431 m = $\frac{5431}{1000}$ km = 5.431 km

5. Option (3)

A boy dropping a ball is an example of rectilinear motion because ball is moving in a straight line.

6. Option (1)

Motion of car is in straight line so, it's motion is rectilinear motion.

7. Option (1)

(A → r); (B → p; (C → s); (D → q)

8. Option (4)

Outer part of merry-go round and blades of a moving fan shows circular motion.

9. Option (4)

1 m = 100 cm

1.69 m = 1.69 x 100 = 169 cm

1 m = 1000 mm

1.69 m = 1.69 x 1000 = 1690 cm

10. Option (4)

Length of table = reading of second end of the scale – reading of first end of the scale
= 33.5cm – 3 cm = 30.5cm

11. Option (3)

Motion of a plucked guitar string is to and fro motion and this kind of motion is called oscillatory motion.

12. Option (2)

Your eye must be exactly in front of the point where the measurement is to be taken.

13. Option (2)

Length of thread = 6 × reading of scale
= 6 × (14-1) cm
= 6 × 13 = 78 cm

14. Option (2)

When we place the sphere between two blocks the distance between the blocks is equal to the diameter of the sphere. Now read the distance between the two blocks on the ruler accurately it is the magnitude of the diameter of the sphere.

15. Option (3)

If a body does not change its position with respect to its surrounding, it is said to be at rest.

16. Option (1)

A would get the most accurate length because the length of the table can be measured in one go as the measuring tape is longer than the table. In the other cases the chance of making an error is higher due to multiple measurements.

17. Option (4)

Motion in a straight line is called rectilinear motion. Rectilinear motion takes place in a fixed direction.

18. Option (2)

When an object turns or spins about a fixed axis, it is called rotational motion. When an object moves along a straight-line path it is called rectilinear motion. When a bicycle moves on a straight road, turning of bicycle wheel shows the rotational motion. And as it goes in a straight road, it exhibits the rectilinear motion.

19. Option (3)

$1\text{m} = \frac{1}{1000}\text{km}$

$2495\text{m} = \frac{2495}{1000}\text{ km} = 2.495\text{km}$

20. Option (1)

Only I, II and III statements are correct.