	INDIAN SCHOOL AL WADI AL KABIR	
CLASS: VI	**DEPARTMENT: SCIENCE 2020 -21**	**DATE: 15.11.2020**
WORKSHEET NO.: 11 WITH ANSWERS	**TOPIC: Motion and measurement of distances**	**NOTE: A4 FILE FORMAT**
NAME OF THE STUDENT:	**CLASS & SEC:**	**ROLL NO.**

I. OBJECTIVE TYPE QUESTIONS:

1. **Which of the following is correct?**

   a] 10 mm = 1 m   **b] 10 mm = 1 cm**

   c] 100 m = 1 km   d] 100 cm = 10 m

2. **The most convenient unit for measuring the thickness of a coin is -**

   a] centimetre   b] kilometre

   c] metre   **d] millimetre**

3. **Which of the following types of motion are possessed by a football rolling on the ground?**

   i] Rotational motion   ii] Rectilinear motion

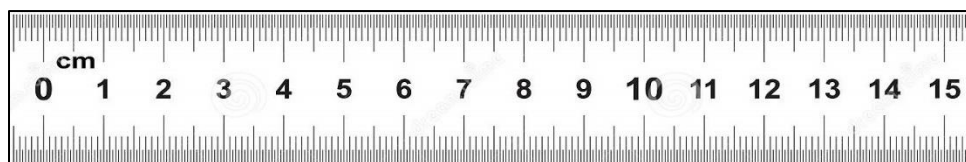   iii] Circular motion   iv] Periodic motion

   a] (i) and (ii)   b] (ii) and (iii)

   c] (i) and (iii)   d] (i) and (iv)

4. **The given figure shows a measuring scale which is usually supplied with a geometry box. Which of the following distances cannot be measured with this scale by using it only once?**

   a] 0.1 m   b] 0.15 m

   c] 0.2 m   d] 0.05 m

5. **Which of the following statements is incorrect?**

   a] March-past of soldiers in a parade is not rectilinear motion

   b] Motion of honeybees is the example of random motion

   c] The length from the elbow till the tip of the middle finger was a cubit

   d] Hand-span cannot be used as a standard unit of length

6. **The system of units now used is known as-**

   a] Indian system of units   b] American system of units

   c] U.K. system of units   **d] International system of units**

7. **Which of the following modes of transport is not based on the invention of wheel?**

   a] Bullock cart   **b] Boat**

   c] Bicycle   d] Bus

   For question numbers 8 to 10, 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

8. **Assertion (A):** In international system of units, the unit of length is centimetre.

   Reason (R): If a centimetre is divided into ten equal parts is equal to a millimetre

   iv) A is false but R is true

9. **Assertion (A):** Motion of stone falling from a certain height is an example rectilinear motion.

   Reason (R): When a body moves in a straight line it is said to be in rectilinear motion.

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

10. **Assertion (A):** In ancient times, people used length of a foot as a unit of measurement.

    Reason (R): Our body parts are not reliable for accurate measurement.

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

II. BASIC CONCEPTS LEVEL:

1. Define the following terms:
   a) <u>Measurement:</u> [Hint: The process of comparing an unknown quantity with a known quantity of the same kind.]
   b) <u>Unit</u> [Hint: The known fixed quantity used in measurement is called a unit.]
   c) <u>Rectilinear motion:</u> [Hint: When a body moves in a straight line it is said to be in linear or rectilinear motion.]
   d) <u>Periodic motion:</u> [Hint: Any motion which repeats itself at equal intervals of time.]

2. Identify the type of motion exhibited by each of the following-

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

3. Which invention led to a great change in modes of transport? [Hint: Invention of wheel]

4. Give two examples of each of the following mode of transport by human –
   a) Land,   b) Water,   c) Air
   [Hint: a) Land – motorcycle, car. b) Water – Boat, ship . c) Air – Aeroplane, helicopter]

5. Give the unit for measuring the following:
   a) Thickness of a coin. [Hint: millimetre]
   b) Distance between Mumbai and Pune. [Hint: kilometre]
   c) Length of your classroom. [Hint: metre]
   d) Length of your notebook. [Hint: centimetre]

III. INTERMEDIATE LEVEL:

1. What is the need for measurement? [Hint: Measurement is needed because it is required to find out accurate length, area, volume or mass of different objects for various purposes.]

2. 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.]

3. What is the need for a standard unit for measurements? [Hint: To overcome the inconsistencies of measurement and for the sake of uniformity.]

4. What is meant by (a) circular motion and (b) rotational motion? Give two examples of circular motion and two examples of rotational motion.

(a) <u>Circular motion:</u> When a body moves along a circular path, it is said to be in circular motion. Eg. (i) The movement of moon around the earth, (ii) The movement of earth around the sun.

(b) <u>Rotational motion:</u> A motion in which the body moves about an axis is called rotational motion. Eg. (i) The motion of a giant wheel, (ii) The spinning of earth on its axis.

5. 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.]

6. Define rest and motion. [<u>Rest:</u> An object that does not change its position with time, relative to its surroundings, is said to be at rest. <u>Motion:</u> An object that changes its position with time, relative to its surroundings, is said to be in motion.]

7. Observe the pictures given below and write down the type of motion exhibited by each.
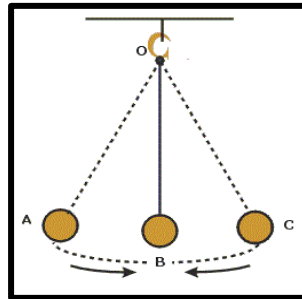
| **[A]** | **[B]** | **[C]** |

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

8. Convert the following :

a) 82 km = _____m   b) 63 m = _____ cm   c) 153 cm = _____ mm

[Hint: a) 1 km=1000 m, Thus 82 km = 82 x1000 = <u>82000 m.</u>

b) 1m = 100 cm, Thus 63 m = 63 x 100 cm = <u>6300 cm</u>

c) 1 cm = 10 mm, Thus 153 cm = 153 x 10 mm = <u>1530 mm</u>]

9. The height of a person is 1.45m. Express it in cm and mm.

[Hint:1 m =100 cm, Thus 1.45 m = <u>145 cm.</u>

1 cm = 10 mm, Thus 145 cm = 145 x 10 mm = <u>1450 mm</u>]

10. While measuring the length of a knitting needle, the reading of the scale at one end is 4.0 cm and at the other end is 36.5 cm. What is the length of the needle?

[Hint: Reading on the first end of the scale = 4.0 cm

Reading on the last end of the scale = 36.5 cm

= 36.5 cm − 4.0 cm

Length of the knitting needle = 32.5 cm]

11. The distance between Kaizad's house and school is 3516m. Express it in km.

[Hint: 1km= 1000m. 3516m ÷ 1000 = 3.516 km.]

12. The distance between two stations of Mumbai metro is 4.32 km. Express this distance in

i) metre   ii) centimetre

[Hint: 1 km=1000 m, Thus 4.32 km = 4.32 x1000 = 4320 m.

1m = 100 cm, Thus 4320 m = 4320 x 100 cm = 432000 cm]

IV. ADVANCED LEVEL:

1. Would the distance of the stone from your hand will be same when you whirl it around? Give reason. [Hint: Yes, because the length of the string with which we have hold the stone is not changing.]

2. 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]

3. If you are given a woollen thread and a cotton thread and asked to measure the length of a curved line which thread will you prefer? [Hint: Cotton thread will be preferred over woollen thread as it neither shrinks nor extends and will give comparatively accurate result.]

4. 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]

V. EXEMPLAR QUESTIONS:

1. 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.]

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. Rohan has a piece of cloth that measures 3.5 metres. How many smaller pieces can he make of each measuring 50 cm in length?

   [Hint: Cloth Length = 3.5 m

   1m = 100 cm

   3.5 m = 3.5 × 100 = 350 cm

   Each Smaller piece measure = 50 cm

   Number of Smaller pieces can be made = Total Cloth Length ÷ Smaller piece length

   = 350 ÷ 50 = 7

   7 Smaller pieces can be made of 50 cm in length from 3.5 m Length]

4. Farzin was asked by her teacher to measure the length of the line drawn on the blackboard. She immediately took out her scale to measure the line. But she noticed that the end of her scale is broken. She felt very sad and said to the teacher that she would not be able to measure the length of the line. Teacher consoled her and taught her a new method of measuring line using the same scale.

   a) Name other devices that can be used to measure length.

   b) What new method of measuring line by using a broken scale was taught by Farzin's teacher? [Hint: a) Measuring tape and ruler. b) If the end of a scale is broken, one can use any full mark of the scale and then subtract the reading of this mark from the reading at the other end.]

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