

Very Short Answer Questions

Q.1. Define measurement.

Ans. It is the comparison of an unknown quantity with some known quantity of the same kind.

Q.2. Define metre.

Ans. Metre is the standard unit for measuring length.

Q.3. If you are sitting in a moving car, are you at rest or in motion? Explain.

Ans. You are at rest because you are not moving with respect to the car.

Q.4. Kartik is measuring the length of a string. Which of the ways shown below is incorrect and why?



Ans. Both the ways are correct. But the first way is usually used when the scale is broken.

Q.5. Which invention lead to the development of railroads?

Ans. Steam engine.

Q.6. Write one multiple and submultiple units of lengths.

Ans. One multiple unit of length is kilometer (km). One submultiple unit of length is centimeter (cm).

Q.7. What is the full form of S.I. unit.

Ans. International system of units.

Short Answer Questions

Q.1. Correct the following.
Exemplar]

[NCERT

(i) The motion of a swing is an example of rectilinear motion.

Ans. The motion of a swing is an example of periodic motion.

(ii) 1 m = 1000 cm

Ans. 1 m = 100 cm

Q.2. Write one example for each of the following types of motion.
Exemplar]

[NCERT

(i) Rectilinear

Ans. Falling stone

(ii) Circular

Ans. Tips of the hands of a clock

(iii) Periodic

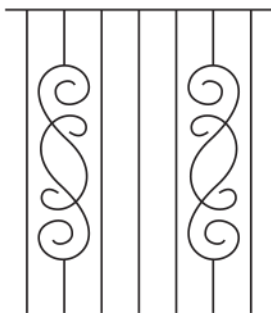
Ans. Motion of pendulum

(iv) Circular and periodic

Ans. Hands of a clock

Q.3. The photograph given alongside shows a section of a grille made up of straight and curved iron bars. How would you measure the length of the bars of this section, so that the payment could be made to the contractor?

[NCERT Exemplar]



Ans. The length can be measured using a thread which can be further measured with the help of a scale.

Q.4. Four children measured the length of a table which was about 2 m. Each of them used different ways to measure it.

- i. Sam measured it with a half metre long thread.
- ii. Gurmeet measured it with a 15 cm scale.
- iii. Reena measured it using her handspan.
- iv. Salim measured it using a 5 m long measuring tape.

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

[NCERT Exemplar]

Ans. Salim would get the most accurate length. The reason is that in this case the length of the table can be measured in one go because the measuring tape is longer than the table. In the other cases the chance of making an error is higher due to multiple measurements. In case of Sam, he can only measure the lengths which are exact multiples of a half metre.

Q.5. How can the thickness of a coin be measured?

Ans. Take ten coins and put them one above the other. Measure the thickness of the coins with a scale and divide the total thickness with number of coins.

Long Answer Questions

Q.1. While travelling in a train, it appears that the trees near the track are moving whereas co-passengers appear to be stationary. Explain the reason.

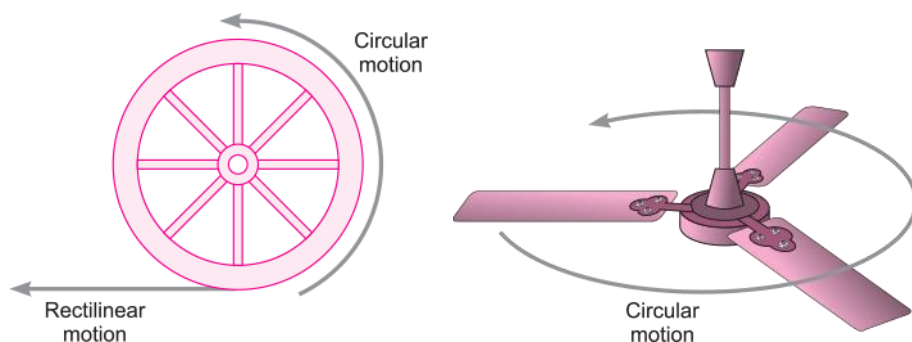
[NCERT Exemplar]

Ans. When we see the trees from a moving train, their position is changing with respect to us. Hence, they appear to be moving. On the other hand, the position of co-passengers is not changing with respect to us, hence they appear to be stationary.

Q.2. How are the motions of a wheel of a moving bicycle and a mark on the blade of a moving electric fan different? Explain.

[NCERT Exemplar]

Ans. The wheel of a moving bicycle depicts circular as well as rectilinear motion whereas a blade of a moving electric fan shows only circular motion.



Q.3. Three students measured the length of a corridor and reported their measurements. The values of their measurements were different. What could be the reason for difference in their measurements? (Mention any three.)

[NCERT Exemplar]

Ans. Some of the reasons for difference in their measurements could be:

- Different measuring devices were used.
- The smallest length that could be measured by different devices may be different.
- Measurement may not be along the shortest length in all three cases.
- The end of the corridor may not be easily accessible.
- The measuring devices may be faulty (not standardised).

Q.4. Boojho was riding in his bicycle along a straight road. He classified the motion of various parts of the bicycle as (i) rectilinear motion, (ii) circular motion and (iii) 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.

[NCERT Exemplar]

Ans.

- i. Handle bar or seat because handle or seat is moving along a straight road, not rolling.
- ii. Pedal because it is rolling around a fixed centre by the foot.
- iii. Wheel because it is rolling and also moving along a straight road.

Q.5. Distinguish between the following.

(i) Rectilinear motion and Circular motion

Ans.

S. No.	Rectilinear motion	Circular motion
i.	Movement along a straight line from one position to another. For example, a bus moving on a straight highway	Movement in a circular manner in relation to its own axis or around a fixed centre. For example, a spinning top.
ii.		

(ii) Rotational motion and Periodic motion

Ans.

S. No.	Rotational motion	Periodic motion
i.	Movement in a circular path in relation to its own fixed axis. For example, blades of a moving fan.	Oscillatory movement along the same path again and again with same speed. For example, pendulum of a clock.
ii.		

(iii) Rest and Motion

Ans.

S. No.	Rest	Motion
i.	The state in which an object does not change its position with time and with respect to its surroundings. For example, book placed on table.	The state in which an object keeps on changing with time and with respect to its surroundings. For example, butterfly flying in garden.
ii.		

Q.6. How can you measure the length of a curved line?

Ans. The length of a curved line is measured using a thread or a divider. Take a long thread. Let one end of the thread be placed at one end of the branch of the plant. Run the thread at straight distances on the branch from A to B, then from B to C and so on till the length of thread runs on full length of the branch. Shifting your hand from the previous to the next position, mark on the

thread when it reaches the end of the branch. The length of the thread you have run is equal to length of the branch.

Place this thread on the scale with its one end at '0'. Take the reading on the other end. You will get the length of the curved branch of the plant.

HOTS (Higher Order Thinking Skills)

Q.1. What kind of motions does a screw that is turned undergo?

Ans. A screw undergoes circular (rotation) and periodic motions.

Q.2. Why do we say that the distance of the stone (held with a string) from your hand is the same when we whirl it around?

Ans. The distance of the stone from one's hand is the same when we whirl it around, as it moves in circular motion.