

# **Grade 06 : Science** Exam Important Questions







Topic : Exam Important Questions

- 1. Four children measure the length of a table which is about 2 m. Each of them uses different ways to measure it.
  - 1. Sam measures it with a half metre long thread.
  - 2. Gurmeet measures it with a 15 cm scale from her geometry box.
  - 3. Reena measures it using her hand span.
  - 4. Salim measures it using a 5 m long measuring tape.

Which one of them will get the most accurate length? Give reason for your answer. (3 marks)

- The length measured by Salim will be the most accurate because he is using a 5 m long measuring tape which is longer than the table. So, he can measure the length of the table in one go accurately. (1 mark)
- While in the other cases the chance of making an error is higher due to multiple measurements.
- Reena is using her hand span which is not a standard unit of measurement and leads to inaccurate measurement of length. (1 mark)
- In case of Sam, only those lengths can be measured which are exact multiples of half a metre. Also, using a half-metre thread alone to measure the table might give inaccurate results as it cannot be used in one go. (1 mark)
- 2. Why could you not use an elastic measuring tape to measure distance? What would be some of the problems you would meet in telling someone about a distance you measured with an elastic tape? [3 marks]

Elastic tapes are stretchable. So, the length of an elastic measuring tape can be changed each time during measurement due to stretching. Thus, it will not give correct measurement of a distance. Therefore, we cannot use an elastic measuring tape to measure distance. [1.5 marks]

Some problems which come across while taking measurements using an elastic tape:

1. While measuring a distance, we need to tell someone how much tape has been stretched which is difficult to measure. It leads to incorrect measurements.

 We cannot measure manually how much the tape has been stretched.
 If you measure the length of an object twice using an elastic tape, then you may get different values of the same length each time. This is because elastic tapes are stretchable.
 [1.5 marks]

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3. Define measurement. What is the SI unit of length? [2 marks]

Measurement is the comparison of an unknown quantity with a known quantity. (1 mark) The SI unit of length is metre. It is represented by 'm'. (1 mark)

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

[3 marks]

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Solution:
We know that,
1 m = 100 cm = 1,000 mm
[1 mark]
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So,
1.65 m = 1.65 × 100 cm = 165 cm
[1 mark]
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And,
1.65 m = 1.65 × 1000 mm = 1650 mm
[1 mark]
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5. The distance between Radha's home and her school is 3250 m. Express this distance into km.

[3 marks]

Solution: Given: Distance between Radha's home and her school = 3250 m [0.5 marks]

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We know that:

1 km = 1000 m

So,

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

[1 mark]

\Rightarrow 3250 \text{ m} = \frac{1}{1000} \times 3250 \text{ km} = 3.25 \text{ km}

[1 mark]

Hence, the distance between Padba's
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Hence, the distance between Radha's home and her school is 3.25 km. [0.5 marks]



6. Give two examples of periodic motion. [2 marks]

The motion of an object which repeats at regular intervals of time is called periodic motion. (1 mark)

The needle of a running sewing machine and the motion of the pendulum repeats its motion after a regular interval of time. (1 mark) Therefore, these two objects have periodic motion.

7. Write the similarities and differences between the motion of a bicycle and a ceiling fan that has been switched on. [3 marks]

The similarity between the motion of a bicycle and a ceiling fan is that both the wheels of the bicycle and the fan are moving around a fixed point and possess circular motion. (1 mark)



(1 mark for diagram)

Differences between the motion of a bicycle and a ceiling fan are that a bicycle has linear motion as well when it moves forward, whereas the ceiling fan does not possess linear motion. (1 mark)



8. a) What do you mean by circular motion? Give two examples.

b) Can a body in circular motion also be in periodic motion? Explain with an example.

[5 marks]

Solution:

a) When an object moves along a circle, its motion is called a circular motion. The distance of the object from the centre of the circle remains constant.



[2 marks]

Examples:

- Motion of the tip of hour hand of a clock
- Motion of a cabin of a Ferris wheel

[0.5 marks for each]

b) Yes, a body in circular motion can also be in periodic motion. [1 mark]

For example, the motion of a car moving on a circular track can be classified as periodic if the car is going at a constant speed. [1 mark]



9. Which of the following statements are correct?

I. Wheels of a car moving at a constant speed undergo linear, rotational as well as periodic motion.

II. A hockey player running after the ball during a match undergoes linear and periodic motion.

III. The pendulum of a clock undergoes periodic and oscillatory motion. [1 Mark]





c. I and III only

**x D.** I, II and III

Wheels of a car moving at a constant speed undergoes:

- 1. Linear motion: When the car moves forward in a straight line
- 2. Rotational motion: As it rotates about an axis
- 3. Periodic motion: When the car moves at a constant speed, tyres rotate at a constant speed too.

The motion of the hockey player is very random. Therefore we can't finalise a specific type of motion unless we do it for a very small interval of time.

The pendulum of a clock undergoes

- 1. Periodic motion: Since it repeats the same motion after every constant time period
- 2. Oscillatory motion: Since it's a to and fro motion.

Hence, only statements I and III are correct. Therefore, option C is the correct answer. [1 Mark]



10. A person takes three measurements from different angles as shown in the figure. Which of the following readings is correct? [ 1 Mark ]



- **× A.** 19.82 ml
- **B.** 19.70 ml
- **× C.** 19.62 ml



Solution: Option (b) [ 1 Mark ]

Parallax error is apparent change in position of the reading as viewed from different angles. The correct way of taking a measurement is when the observer's eye is directly in front of the scale. Hence, the correct reading is 19.70 ml.

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