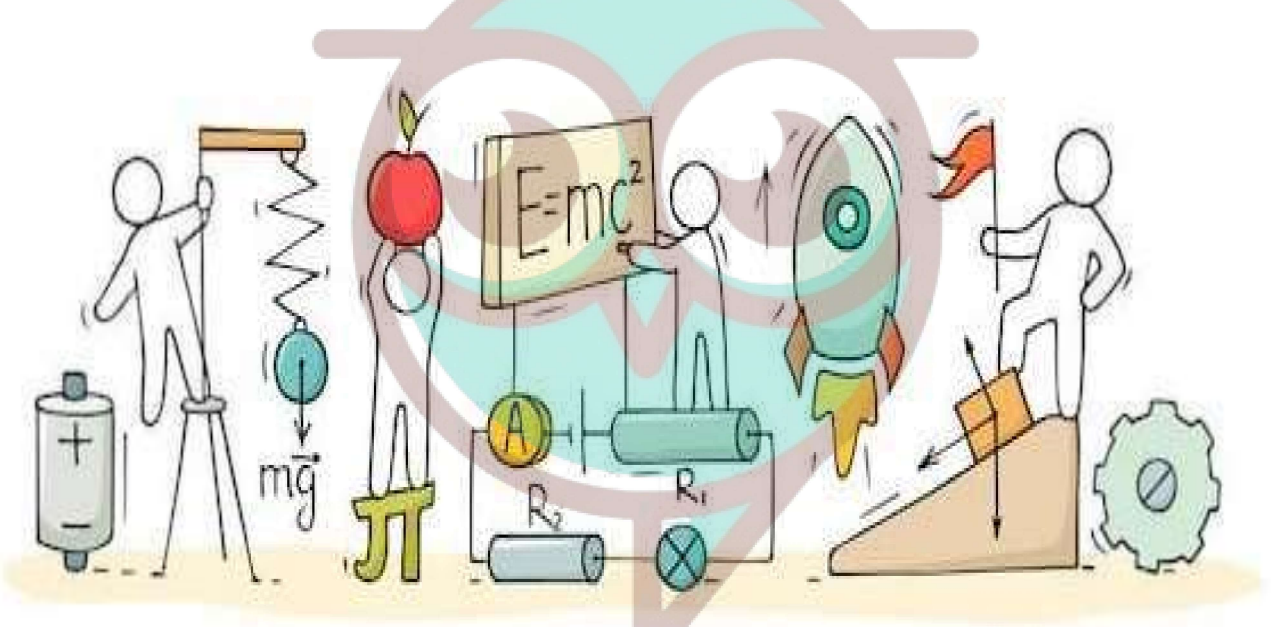
SCIENCE

CHAPTER 13: MOTION AND TIME



Important Questions

➢ Multiple Choice Questions:

Question 1. A bus travels 54 km in 90 minutes. The speed of the bus is

(a) 0.6 m/s

(b) 10 m/s

(c) 5.4 m/s

(d) 3.6 m/s

Question 2. The formula for distance is

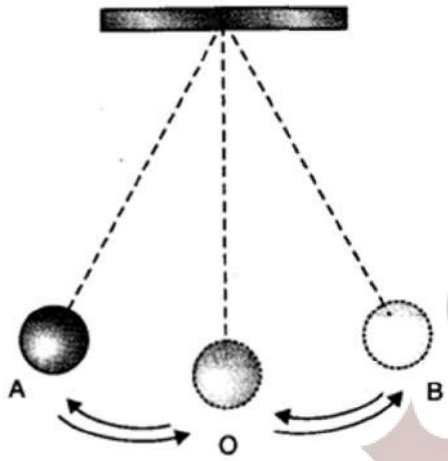
(a) time = $\frac{Speed}{Distance}$

(b) Speed = $\frac{Time}{Distance}$

(c) Speed = $\frac{1}{Time}$ × Distance

(d) Speed = distance × time

Question 3. Observe the figure given below:



The time period of a simple pendulum is the time taken by it to travel from

(a) A to B and back to A

(b) O to A, A to B and B to A

(c) B to A, A to B and B to O

(d) A to B

Question 4. Nearly all the clocks make use of

(a) straight line motion

(b) periodic motion

(c) random motion

(d) circular motion

Question 5. A simple pendulum takes 42 sec. to complete 20 oscillations. What is its time period?

(a) 2.1 s

(b) 4.2 s

(c) 21 s

(d) 8.40 s

Question 6. Time period of a simple pendulum depends upon its

(a) weight of bob

(b) length

(c) both (a) and (b)

(d) None of these

Question 7. Which of the following cannot be used for measurement of time?

(a) A leaking tap

(b) Simple pendulum

(c) Shadow of an object during the day

(d) Blinking of eyes

Question 8. On which axis is dependent variable represented?

(a) x-axis

(b) y-axis

(c) On any axis

(d) Depends on the data

Question 9. The correct symbol to represent the speed of an object is:

(a) 5 m/s

(b) 5 mp

(c) 5 m/s-1

(d) 5 s/m

Question 10. Boojho walks to his school which is at a distance of 3 km from his home in 30 minutes. On reaching he finds that the school is closed and comes back by a bicycle with his

friend and reaches home in 20 minutes. His average speed in km/h is

(a) 8.3

(b) 7.2

(c) 5

(d) 3.6

➢ Fill In the Blanks:

1. The time taken by the pendulum to complete one oscillation is called its ……..
2. ……. is the SI unit of time.
3. The distance moved by an object in a unit time is called its ……..
4. Speed of the vehicle is shown by the instrument ……. fitted on the vehicle.
5. Distance time-graph representing a non-uniform motion of an object is of ……. shape.
6. The distance-time graph for the motion of an object moving with a constant speed is a ……..

➢ True or False:

1. Each and every object in this universe moves with a constant speed.
2. The motion of a spinning top is rotational motion.
3. The motion of earth around the sun is called rectilinear motion.
4. The smallest time interval which can be measured with commonly available clocks and watches is one second.
5. A sundial measures time by the position of the shadow cast by the sun.
6. Vehicles which covers more distance in small interval of time have slow speed.

➢ Very Short Question:

1. What is the SI unit of distance?
2. Name an object that shows oscillatory motion.
3. What is the motion of our hands while running?
4. What is the motion of a child in a merry-go-round?
5. What is motion?
6. What is circular motion?
7. Give an example of vibratory motion.
8. Name the device on vehicles to track the distance covered.

9. Define average speed.

10. What do you mean by the statement; “car is moving with the speed of 50 Km per hour”?

➢ Short Questions:

1. What do you mean by non-uniform speed?

2. A child is on see-saw, what kind of motion he have and why? Explain.

3. Explain how in ancient time a day, a month and a year were measured.

4. Define velocity along with its unit.

5. What are quartz clocks?

6. How do we know an object is moving faster compared to the speed of another object?

7. If a car is moving with a speed of 5Km/h on highway then find the distance travelled by the car in 4 hours?

8. How can you say that motion and rest are relative?

➢ Long Questions:

1. What is the function of RBCs?

2. Does transpiration serve any useful function in the plants? Explain.

3. Explain stomata and its function in plants.

✓ Answer Key-

➢ Multiple Choice Answers:

1. (b) 10 m/s
2. (c) Speed = $\frac{1}{Time}$ × Distance
3. (a) A to B and back to A
4. (b) periodic motion
5. (a) 2.1 s
6. (b) length
7. (d) Blinking of eyes
8. (b) y-axis
9. (d) 5 s/m
10. (b) 7.2

➢ Fill In the Blanks:

1. time period
2. Second
3. speed
4. speedometer
5. any
6. straight line

➢ True or False:

1. False
2. True
3. False
4. True
5. True
6. False

➢ Very Short Answers:

1. Answer: Meter
2. Answer: Pendulum
3. Answer: oscillatory motion
4. Answer: straight line motion
5. Answer: Motion is a change in the position of an object with time.
6. Answer: Motion of an object in a circular path is called circular motion e.g., Motion of the hands of a clock.
7. Answer: Simple Pendulum
8. Answer: An odometer
9. Answer: The average speed of a moving object is defined as the total distance covered by it divided by the total time taken.
10. Answer: Car is moving with the speed of 50 Km per hour it means it will cover a distance of 50 Km in one hour.

➢ Short Answers:

1. Answer: An object is said to be moving with variable speed or non-uniform speed if it covers equal distances in unequal intervals of time or vice-versa.
2. Answer: On a see-saw child goes up and comes down from mean position and repeats itself.

So there is oscillatory motion.

3. Answer: In ancient time the time between one sunrise and the next was called a day. A month was measured from one new moon to the next and a year was fixed as the time taken by the earth to complete one revolution of the sun.
4. Answer: Velocity can be defined as the rate of change of displacement.SI unit of velocity is m/s (meter/second Velocity is a vector quantity.
5. Answer: It is a special type of clock or watch which have an electric circuit with one or more cells are called quartz clocks.
6. Answer: By finding the distance travel by a moving body in unit time 1 hr. or 1 sec we know the speed of an object that help us to know which one is moving faster i.e. having greater speed.
7. Answer: We know distance travelled by a body = speed × time

   So, distance travelled by the car = 5 × 4 = 20 km
8. Answer: We have observed that the position of stars and planets change while you remain stationary. In reality the earth is moving too. Thus, an object which appears to be at rest, may actually be in motion. Therefore, motion and rest are relative terms.

➢ Long Answers:

1. Answer: An object is said to be moving with uniform speed if it covers equal distances in equal intervals of time. But when we travel in a vehicle the speed of the vehicle changes from time to time depending upon the conditions existing on the road. In such a situation, the speed is calculated by taking the ratio of the total distance travelled by the vehicle to the total time taken for the journey. This is called the average speed.
2. Answer: When we say that the car travels at an average speed of 60 km/h it does not mean that the car would be moving with the speed of 60 km/h throughout the journey. The actual speed of the car may be less than or greater than the average speed at a particular instant of time. The speed of a moving body at any particular instant of time is called instantaneous speed.
3. Answer: Following are different types of motion:
   - Translatory Motion: In Translatory motion the particle moves from one point in space to another. This motion may be along a straight line or along a curved path.
   - Rectilinear motion: Motion along a straight line is called rectilinear motion. Example: A car moving on a straight road
   - Curvilinear motion: Motion along a curved path is called curvilinear motion. Example: A car negotiating a curve
   - Rotatory Motion: In rotatory motion, the particles of the body describe concentric circles

about the axis of motion

- Vibratory Motion: In vibratory motion the particles move to and from about a fixed point.