WORKSHEET 2

CHAPTER 1 – MOTION

A. Tick (✓) the correct option.

1. A car moving on a straight road is said to have
   a. rectilinear motion. b. curvilinear motion. c. rotatory motion. d. vibratory motion.
2. SI unit of speed is
   a. m-s. b. km/h. c. km-h. d. m/s.
3. A person moves along a circular path of radius R and stops at the point from where he started. Displacement of the person is
   a. πR. b. $2\pi R$. c. zero. d. none of these.
4. A body falling freely under gravity has uniform
   a. velocity. b. speed. c. acceleration. d. none of these.
5. Area enclosed by velocity–time graph and the time axis is equal to magnitude of
   a. average speed. b. displacement. c. acceleration. d. none of these.

B. Fill in the blanks.

1. When a point object is moving on a circular path with constant speed, the motion of the object is said to be _____
2. The rate of change of velocity of a body with respect to time is called its _____
3. In SI system, unit of acceleration is _____
4. A body falling towards the earth has _____ acceleration.
5. The slope of distance–time graph is equal to the magnitude of the _____ of the moving body.

C. State whether the given statements are true or false.

1. A quantity which is described completely by its magnitude is called a vector quantity.
2. Displacement can be positive, negative or zero.
3. The magnitude of speed and velocity of a body is equal if the body moves in a circular path.
4. When velocity of a body increases with time, its acceleration is positive.
5. When a body starts from rest, its initial velocity is taken as zero.

D. Match the following.

1. Movement of hands of watches	scalar quantity
2. Velocity	odometer
3. Speed	non-uniform motion
4. Free fall under gravity	vector quantity
5. Distance travelled by a vehicle	uniform motion

Name: ..... Teacher's signature: .....

Class: IX Date: .....

E. Answer the following questions.

Very Short Answer Questions

1. What is a scalar quantity? Give an example.
2. Give the SI unit of velocity.

Short Answer Questions

1. A car is moving with the speed of 45 km/h. Calculate the distance covered in one minute?
2. Give two examples of uniform acceleration.

Long Answer Questions

1. A car is travelling at 36 km/h. If its velocity increases to 72 km/h in 10 s, then find its acceleration.
2. Draw a distance–time graph of a body moving with uniform speed.

ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

1. a 2. d 3. c 4. c 5. b

B. Fill in the blanks.

1. uniform circular motion
2. acceleration
3. metre per second square (m/s^2)
4. positive
5. speed

C. State whether the given statements are true or false.

1. F 2. T 3. F 4. T 5. T

D. Match the following.

1. Movement of hands of watches	uniform motion
2. Velocity	vector quantity
3. Speed	scalar quantity
4. Free fall under gravity	non-uniform motion
5. Distance travelled by a vehicle	odometer

E. Answer the following questions.

Very Short Answer Questions

1. A physical quantity which is described completely by its magnitude is called a scalar quantity. Density is a scalar quantity.
2. SI unit of velocity is m/s or m s^{-1}.

Short Answer Questions

1. Speed = 45 km/h

   Time = 1 min = $\frac{1}{60}$ h

   Distance = Speed × Time

   = $45 \times \frac{1}{60}$ = 0.75 km or 750 m

2. Two examples of uniform acceleration are:
   - A body falling freely under gravity has uniform acceleration.
   - A body moving down on inclined plane has uniform acceleration.

Long Answer Questions

1. $u = 36 \text{ km/h} = \frac{36 \times 1000}{60 \times 60} = 10 \text{ m/s}$

   $v = 72 \text{ km/h} = \frac{72 \times 1000}{60 \times 60} = 20 \text{ m/s}$

   $t = 10 \text{ s}$

   We know that,

   $$v = u + at$$
   $$20 = 10 + a\,(10)$$
   $$10\,a = 10$$
   $$a = 1 \text{ m/s}^2$$

2.