MAHESH PUBLIC SCHOOL, JODHPUR

WORKSHEET - 3

CLASS IX **subject – SCIENCE**

Chapter : Motion

MCQ's:

1. If a body is moving at constant speed in a circular path, its

(a) Velocity is constant and its acceleration is zero

(b) Velocity and acceleration are both changing direction only

(c) Velocity and acceleration are both increasing

(d) Velocity is constant and acceleration is changing direction

2. A graph is plotted showing the velocity of a car as a function of time. If the graph is a straight line, it means that

(a) the car started at rest

(b) acceleration was constant

(c) acceleration was increasing

(d) velocity was constant

3. If a car is traveling north on a straight road and its brakes are applied, it will

(a) have no acceleration

(b) accelerate to the south

(c) accelerate to the north

(d) accelerate either east or west

4. The acceleration of a car that speeds up from 12 meters per second to 30 meters per second in 15 seconds-

(a) 2.4 m/s^2

(b) 1.2 m/s^2

(c) $2m/s^2$

(d) $5.2\ m/s^2$

5. Which of the following can sometimes be 'zero' for a moving body?

a. Average velocity

b. Distance travelled

c. Average speed

d. Displacement

FILL IN THE BLANKS:

1. If a car starts at rest and accelerates uniformly, the distance it travels is proportional to the ……. of the time it travels.
2. The speedometer of a car measures its……. speed.
3. The slope of *x-t* graph gives the……. of motion.
4. Area below v-t graph is a measure of……
5. If a car is going northward and the driver jams on its brakes, the direction of its acceleration is……

SHORT QUESTIONS:

1 (a) Differentiate between uniform linear and uniform circular motion

(b) Write any four examples of uniform circular motion.

(c) Is uniform circular motion accelerated motion?

2. (a) Define average speed.

(b) A bus travels a distance of 120 km with a speed of 40 km/h and returns with a speed of 30 km/h.

Calculate the average speed for the entire journey.

3. Define uniform and non-uniform motion. Write one example for each.

4. What does the odometer of an automobile measure? Which of the following is moving faster? Justify your answer.

(i) A scooter moving with a speed of 300 m per I minute.

(ii) A car moving with a speed of 36 km per hour.

5. (a) Differentiate between speed and velocity.

(b) When is a body said to have uniform velocity?

(c) How can we describe the position of an object?

Illustrate with suitable example.

6. Velocity-time graph for the motion of an object in a straight path is a straight line parallel to the time axis.

(a) Identify the nature of motion of the body.

(b) Find the acceleration of the body.

(c) Draw the shape of distance-time graph for this type of motion.

7. What does the path of an object look like when it is in uniform motion?

8. (a) Define uniform acceleration. What is the acceleration of a body moving with uniform velocity?

(b) A particle moves over two quarters of a circle of radius r. What is the magnitude of its displacement?

9. Which of the following is true for displacement?

(a) It cannot be zero.

(b) Its magnitude is greater than the distance travelled by the object.

10. An object has moved through a distance. Can it have zero displacement? If yes, support your answer with an example.