

**Dr. M.K.K. ARYA MODEL SCHOOL, MODEL TOWN, PANIPAT**

**CLASS 9 (2018-19)**

**ASSIGNMENT**

**MOTION NUMERICALS**

Q1. A body thrown vertically upwards reaches a maximum height  $h$ . It then return to ground. Calculate the distance travelled and displacement.

Ans.  $(2h, \text{zero})$

Q2. A body travels a distance of 15m from a to b and then moves a distance of 20m at right angles to ab. Calculate the total distance travelled and displacement.

Ans. 35m, 25m

Q3. A particle is moving in a circle of diameter 5m. Calculate the distance covered and the displacement when it completes 3 revolutions.

Ans.  $15\pi$  meter, zero

Q4. An object travels 16m in 4sec and then another 16m in 2 sec. What is the average speed of the object?

Ans. 5.33m/s

Q5. Usha swims in a 90m long pool. She covers 180m in one minute by swimming from one end to other and back along the same straight path. Find the average speed and average velocity of usha.

Ans. 3m/s, zero

Q6. Ahmed is moving in his car with a velocity of 45km/h. How much distance will he cover (a)in one minute and (b) in one second?

Ans. 750m, 12.5m

Q7. A body is moving with a velocity of 15m/s. If the motion is uniform, what will be the velocity after 10sec?

Ans. 15m/s

Q8. A train 100m long moving on a straight level track passes a pole in 5 sec. Find (a) speed of the train (b) the time it will take to cross a bridge 500m long.

Ans. (a) 20m/s (b) 30s

Q9. A body starts rolling over a horizontal surface with an initial velocity of  $0.5\text{m/s}^2$ . Due to friction its velocity decreases at the rate of  $0.05\text{m/s}^2$ . How much time will it take for the body to stop?

Ans. 10sec

Q10. A scooter acquires a velocity of 36km/h in 10sec just after the start. Calculate the acceleration of the scooter.

Ans. 1 meter/sec<sup>2</sup>

Q11. A bus was moving with a speed of 54km/h . on applying brakes, it stopped in 8sec. Calculate the acceleration and the distance travelled before stooping.

Ans.  $-1.87\text{m/s}^2$ , 60m

Q12. The brakes applied to a car produce an acceleration of  $6\text{m/s}^2$  in the opposite direction to the motion. If the car takes 2sec to stop after the application of brakes, calculate the distance it travels during this time.

Ans. 12m

Q13. A car accelerates uniformly from 18km/h to 36km/h in 5sec. Calculate(a) the acceleration (b) the distance covered by the car in that time.

Ans.  $1\text{ m/s}^2$ , 37.5m

Q14. Calculate the speed of the tip of second's hand of a watch of length 1.5cm.

Ans. 0.16cm/s

Q15. The length of minutes hand of a clock is 5cm. Calculate the speed.

Ans.  $8.7 \times 10^{-3}\text{cm/s}$