

# VISWABHARATHI WISEWOODS

## MOTION - PRACTICE SHEET

GRADE : VI – VII

SUBJECT : PHYSICS

**I. Answer the following questions :**

### **DISTANCE AND DISPLACEMENT :**

1. A particle is moving in a circle of radius  $R$ . What is its displacement when it covers  
(I) Half the circle (II) Full circle ?
2. A particle is moving in a circle of radius  $r$ , what is its distance when it covers  
(I) half the circle (II) Full circle
3. A particle is moving in a circle of radius  $7\text{m}$ . What is its displacement when it covers  
(I) half the circle (II) Full circle
4. A particle is moving in a circle of radius  $14\text{m}$  What is its distance when it covers  
(I) half the circle (II) Full circle
5. An old person moves on a semi-circular track of radius  $40\text{m}$  during a morning walk.  
If he starts at one end of the track and reaches at other end, find the distance covered and the displacement of the person.
6. A car travels along a straight road  $100\text{m}$  east then  $50\text{m}$  west. Find distance and displacement
7. A person walks  $4\text{m}$  east and then walks  $3\text{m}$  north. Find distance and displacement.
8. A runner travels around rectangle track with length  $50\text{m}$  and width  $20\text{m}$  then find distance and displacement.
9. A cyclist is practicing for a competition in a circular ground. He starts from the main gate and reaches the other end of the ground that is  $4\text{km}$  away. Calculate the displacement of the cyclist.
10. A ship is asked to drop a package to the neighbouring harbor in a given period of time. The ship travels  $20\text{km}$  north first then taken a right and travels  $50\text{km}$  and reaches the desired harbor before the allotted time calculate the distance travelled by the ship.

### **SPEED AND VELOCITY :**

11. A car travelled the first third of a distance  $d$  at a speed of  $10\text{ kmph}$ , the second third at a speed of  $20\text{ kmph}$ , the second third at a speed of  $20\text{ kmph}$ , and the last third at a speed of  $60\text{ kmph}$   
Determine the average speed of the car.
12. A ship moves due east at  $12\text{ kmph}$  for  $1\text{hr}$  and then turns exactly towards south to move for an hour at  $5\text{ kmph}$ . Calculate its average speed and average velocity for the given motion.
13. A car takes  $20\text{ s}$  to move around about of radius  $14\text{ m}$  calculate average speed and average velocity
14. A train travels from city A to city B with a constant speed of  $10\text{m/s}$  and returns back to city A with a constant speed of  $20\text{m/s}$ . Find its average speed during its entire journey.

15. Find the average velocity of a bicycle that starts 150 m north of town and is 1200 m north of town after 30 min
16. Polar bears are extremely good swimmers. If a polar bear is swimming with an average speed of 2.6 m/s how far will it have travelled after 120 s.
17. What is the velocity of a car that travelled a total for 75 km north in 15 hr?
18. What is the velocity of a plane that travelled 3000 km from New York to California in 5 hr ?
19. How long would it take for a car to travel a distance of 200 km if it is travelling at a speed of 55 kmph?
20. John took 45 min to bicycle to his grandmother's house a total of four kilometers .What was his speed in kmph?
21. A plane travelled for about 2.5 hr at a speed of 1200kmph.What distance did it travel?
22. A car travelling at 10 kmph. How many hours will it take to cover a distance of 750 km?
23. A girl is pedaling her bicycle at a speed of 0.1 km/min. How far will she travel in two hours?
24. It took 3.5 hr for a train to travel the distance between two cities at a speed of 120 m/hr. How many meters lie between the two cities?
25. Calculate the velocity of a car that travels 556km north east in 3.4 hr. Leave your answer in kmph?
26. What is the speed of a train that goes 1000km in 5 hours?
27. How far does a car move when it travels 60kmph for four hours?
28. A car goes 52 min 13 s .what is speed?
29. I got 540 km at speed of 100 kmph. How long does it take?
30. How far did Anusha travel if it took 5 hours for her to go at a speed of 80 kmph?

### **ACCELERATION :**

31. Change in speed is 14m/s time taken is 2 seconds. Calculate the acceleration.
32. A car acceleration from rest (zero speed )up to a speed of 30 m/s in 12 seconds .Calculate the acceleration.
33. A cyclist in the tour de France acceleration down a hill from 22 m/s to a speed of 37 m/s . This acceleration takes him 3 seconds. Calculate acceleration.
34. A rocket launching in the Vikraine accelerates upwards from rest to a speed of 12 km/s in 8 seconds. Calculate the acceleration.
35. A cyclist accelerates from 0 m/s to 8 m/s in 2 sec what is his acceleration?
36. Acceleration higher than that of a car which acceleration from 0 to 30 m/s in 5 seconds.
37. A car advertisement states that a certain car can accelerate from rest to 70 kmph in 7 hr. Find the cars average acceleration.
38. A lizard accelerates from 2 m/s to 10 m/s in 4 sec. What is the lizard's average acceleration?
39. If a Ferrari with the initial velocity to 10 m/s accelerates at a rate of  $50 \text{ m/s}^2$  for 3 seconds, what will its final velocity be?
40. A uniformly accelerated body in a straight line has velocity 2 m/s at any time. After some time, its velocity becomes 4 m/s find the average velocity.

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