**Chapter 8**

**Motion**

1. Under what condition will the distance covered and displacement of moving object will have the same magnitude?
2. When Ram was sitting in a train which is not moving he suddenly feels that his train appears to move, explain.
3. If a person takes a round trip and travels 5km and then arrives back home. Calculate his displacement after completing the trip.
4. What is the physical quantity that essentially varies as a body moves?
5. Define the following terms
6. Uniform acceleration
7. Uniform motion
8. Velocity
9. What is the direction of velocity of an object moving along a circular path?
10. What happens to a) velocity b) speed of an object when it is moving in uniform circular motion?

distance distance

time time

What kind of motion of an object is represented by the two graphs given above?

1. Geeta moves 3 Km towards east, then 2 Km towards south and than 3.5 Km towards east. Calculate a) distance covered by Geeta. b) the displacem’ent of the motion?
2. A boy was riding a bicycle and was moving with speed of 12 km/ hr for 2 hours and with speed of 15 km/hr for the next 3hours. Find the total distance covered by him and his average speed.
3. An object can have zero average velocity but cannot have zero average speed, justify.
4. Ravi swims in a swimming pool which is 60 m long. He covers a distance of 120 m in one minute by swimming from one end to other and back along the same straight path. Find the average speed and velocity of Ravi.
5. The minute hand of a wall clock is 10cm long. Find its displacement and the distance covered when it moves from 10.00 am to 10.30am.
6. A train is 150m long, is to cross a bridge of length 800m. What time will it take to cross the bridge if the train moves at constant velocity of 54km/ h.
7. A cyclist goes around a circular track of diameter 105m in 5 minutes. Calculate his speed.
8. Distinguish between displacement and distance covered.
9. Starting from a stationary position Paheli paddles her bicycle to attain velocity of 15 m/sec in 30 seconds. Then she applies brakes such that she again comes to rest after next 60 seconds. Calculate the acceleration of the bicycle in both the cases. Also find the total distance covered by Paheli.
10. Identify in the situation given below when is the object making a uniform circular motion
11. A car turning around a curve with a uniform speed or a car going uphill
12. Motion given to a discuss by an athlete before releasing or motion of discuss when an athlete releases it.
13. Draw a velocity- time graph for a body that has initial velocity ‘u’ and is moving with uniform acceleration ‘a’. Use it to derive position- time relation s= ut+ ½ at2 for the body.
14. A marble rolling on a smooth floor has an initial velocity of .4m/s. If the floor offers a retardation of .02 m/s2. Calculate the time it will take to come to rest.
15. Multiple choice questions
16. The acceleration of an object is
17. Rate at which velocity changes b) rate at which speed changes c) rate at which position changes d) none of the above
18. The SI unit of speed is
19. m/s b) km/h c) m/s2 d) m
20. Which physical quantity is vector quantity?
21. Acceleration b) speed c) distance d) none of the above
22. Magnitude of velocity is constant but the velocity is continuously changing due to change in
23. Direction b) distance c) time d) none of the above
24. Acceleration is said to be non-uniform when

a)velocity changes by equal amount in equal interval of time b) velocity changes by unequal amount in equal interval of time c) velocity changes by unequal amount in unequal interval of time.

22. When does the acceleration of an object become negative?

23. The given displacement –time graphs shows the position of an object at different times.

5 -

Displacement4

3- - B C

2—

1—

0 -- 1 A 2 3 4 5 6 7 8 9 D10 Time

Calculate the velocity of object as it moves from a) A to B b) B TO C c) C to D

24. Draw velocity-time graphs for the following cases

a) when an object is in uniform motion

b) when an object is thrown vertically upward