THE INDIAN SCHOOL, KINGDOM OF BAHRAIN
SUBJECT: PHYSICS (2013-2014)

STD: IX   CH-7 MOTION   ASSIGNMENT NO: 1

1. Give an example of motion in which a body has covered a certain distance but there is no displacement.

2. Name the physical quantity that i) varies ii) remains constant, in uniform circular motion.

3. Can a body have zero velocity, still it is accelerated. Give one example.

4. Why uniform circular motion is an example of accelerated motion?

5. A body moving with a constant speed on a frictionless surface has uniform motion, while a freely falling object has non-uniform motion. Give reason.

6. Derive the equations by graphical method a) $v = u + at$ b) $s = ut + \frac{1}{2}at^2$ c) $v^2 = u^2 + 2as$

7. A body moves in a circle of radius 2R. What is the distance covered and displacement of the body after 2 complete rounds?

8. A car travels $1/4^{th}$ of circle with radius R. Find the ratio of the distance to its displacement.

9. If a car attains a speed of 36 km/h from rest in 12 minutes, what is the distance covered?

10. A car moves with a speed of 30 km/h for half an hour, 25 km/h for one hour, and 40 km/h for two hours. Calculate the average speed of the car.

11. A train travels from **A** to **B** with a speed of 36 km/h and returns to **A** with a speed of 54 km/h. What is the average velocity and average speed of travel?

12. A cyclist is riding a circular path of radius 5m with a speed of 10 m/s. what is the change in velocity when he has travelled through a semicircle.

13. A bus starts from rest and picks up a velocity of 90 km/h in ½ minute. Calculate the uniform acceleration of the bus in m/s².

14. The brakes of a car can produce an acceleration of -12 m/s².If the car is brought to rest in 3 s, calculate the initial velocity of the car in i) m/s   ii) km/h

15. A hockey ball, initially moving at 25 m/s is acted upon by a constant retardation of 2.5 m/s². For how long will the ball roll before coming to rest?

16. A vehicle initially at rest, covers a distance of 128 m in 8 s. Calculate
i) Acceleration of the vehicle   ii) Final velocity of the vehicle

17. A truck is running at 108 km/h. In the next second, its speed drops to 72 km/h. Calculate the retardation acting on the truck and the distance covered by it in 1 s.

18. A body moves from rest from a point A. It moves to another point B in 10 s, and achieves a velocity of 60 m/s at B. it then moves on to C with a uniform velocity for 20 s and comes to rest at D in 10 s. Draw the graph showing the complete motion and calculate the distance travelled.

19. An aeroplane lands at a speed of 180 km/h and stops after covering a runway of I km. Calculate
i) Retardation   ii) The time in which the plane comes to rest

20. Interpret the following graphs