CBSE

MOTION IN A STRAIGHT LINE WS 4

Class 11 - Physics

Section A

1. A body sliding down on a smooth inclined plane slides down $\frac{1}{4}$th distance in 2s. It will slide down the complete plane in: **[1]**

   a) 3 s b) 5 s

   c) 2 s d) 4s

2. **State True or False:** **[1]**

   (a) A body having a non-zero acceleration can have a constant velocity. **[1]**

3. Can a particle with zero acceleration speed up? **[1]**
4. Is it possible that your cycle has a northward velocity but southward acceleration? If yes, how? **[1]**
5. Is it possible for a body to be accelerated without speeding up or slowing down? If so, give an example. **[1]**
6. Can a body subjected to a uniform acceleration always move in the straight line? **[1]**
7. Can a body have a constant velocity and still have a varying speed? **[1]**

Section B

8. **Fill in the blanks:** **[2]**

   (a) The motion in which a particle moves in a circular path is called _____. **[1]**

   (b) The motion of the stone in circular motion comes under _____ dimensional motion. **[1]**

9. From the given example, find if the motion is one or two or three-dimensional. **[2]**

   i. A kite flying in the sky

   ii. A cricket ball hit by a player

   iii. Moon revolving around the earth and

   iv. The motion of a stone in a circle

Section C

10. Draw the following graphs (expected nature only) representing motion of an object under free fall. Neglect air resistance. **[3]**

    i. Variation of position with respect to time.

    ii. Variation of velocity with respect to time.

    iii. Variation of acceleration with respect to time.

11. State which of the following situations are possible and give an example for each of these. **[3]**

    i. An object with a constant acceleration but with zero velocity.

    ii. An object moving in a certain direction with acceleration in the perpendicular direction.

Section D

12. Prove Galileo's Law of Odd Numbers. **[5]**