Sample Paper – 2010
Class – IX
Subject – Science

Motion in a plane

(Section A)

5x1 = 5

1. What is the distance traveled by an object in nth sec.
2. What is represented by the area under acceleration – time graph?
3. The magnitude of a vector is always scalar. True or false.
4. write the formula of maximum height in the projectile motion.
5. Give the dimensions formulae of work, energy and density.

(Section B) **5x2 = 10**

6. What is the ratio of the distance traveled by a body falling freely from rest in the first, second and third second of it's falling.
7. A ball thrown vertically upwards with the speed of 19.6 m/s from the top of the tower returns to the earth in 6 sec. Find the height of the tower.
8. Displacement is given by

   $x = 1 + 2t + 3t^2$

   Find the value of instantaneous acceleration.

9. What are the angle of projection of a projectile projected with velocity 30 m/s, so that horizontal range is 45m and take g = 10 m/sec ^{2}.

10. Find the torque of a force 7**i**+3**j**-5**k** about the origin. The force acts on a particle Whose position vector is **i**-**j** +**k**?

(Section C) **2x5 =10**

11. Write the expression for the centripetal acceleration.

    A motor car traveling at 30 m/s on a circular road of radius 500 m. it is increasing its speed at the rate of 2 m/s ^{2}. What is the acceleration?

12. Express the formula of height and range in the projectile.

    Prove that the angle in the projection is 45^0 in the maximum range it got.