

Class-11-Physics

Chapter-3

Motion in a Plane

1. A car is moving with a speed of 30 m/s on a circular path of radius 500 m. Its speed is increasing at the rate of 2 m/s². The acceleration of the car is
 - (a) 2 m/s²
 - (b) 9.8 m/s²
 - (c) 1.8 m/2
 - (d) 2.7 m/s²
2. The path of a particle is given by the expression $y = at + bt^2$, where a and b are constants . Y is the displacement at time t. Its velocity at any instant is given by
 - (a) $a + 2bt$
 - (b) zero
 - (c) $2bt$
 - (d) at
3. A can filled with water is revolved in a vertical circle of radius 4 metre and the water does not fall down. The time period of revolution will be
 - (a) 4 sec
 - (b) 10 sec
 - (c) 8 sec
 - (d) 1 sec
4. A cyclist goes round a circular path of circumference 343 m in s. The angle made by him, with the vertical is
 - (a) 440
 - (b) 420
 - (c) 430
 - (d) 450
5. A body makes a displacement of 4 m due East from a point O and then makes displacement of 3 m due North. Its resultant displacement from O
 - (a) 7 m
 - (b) 1 m
 - (c) 5 m
 - (d) 1 . 2 m
6. The angular velocity depends upon the rate of change of the?
 - (a) Angular acceleration
 - (b) Angular Distance.
 - (c) Angular Displacement.
 - (d) torque
7. For a projectile launched from the ground, the time taken to reach its maximum height is:
 - a) Half the total time of flight
 - b) Equal to the total time of flight
 - c) Less than half the total time of flight
 - d) More than the total time of flight

8. An airplane is flying north at 200 km/h and there is a wind blowing east at 50 km/h. What is the resultant velocity of the airplane with respect to the ground?
- 206 km/h, northeast
 - 250 km/h, north
 - 250 km/h, east
 - 210 km/h, northeast
9. If two vectors are represented in magnitude and direction by the two adjacent sides of a rectangle taken in the same order, then their resultant is represented in magnitude and direction by:
- The diagonal starting from the common point
 - The longer side of the rectangle
 - The shorter side of the rectangle
 - The diagonal opposite to the common point
10. In a projectile motion, which component of velocity remains unchanged?
- Vertical
 - Horizontal
 - Both vertical and horizontal
 - Neither vertical nor horizontal
11. A particle moves such that
- $$x = (18.0)t$$
- $$\text{and } y = 4t - 4.90t^2$$
- Write a vector expression for the particle position as a function of time, using the unit vectors \mathbf{i} and \mathbf{j}
 - Obtain the expression for the velocity vector as a function of time
 - Obtain the expression for the acceleration vector \mathbf{a} as a function of time.
 - Find the the position, the velocity, and the acceleration of the particle at $t = 1.00$ s.
12. A bullet is fired from a gun at a speed of 5000 m/s. At what height should the gun be aimed above a goal if it has to strike the goal at a distance of 500 m? Take $g = 10 \text{ m/s}^2$