

Horizontal Projectile Motion

1. The maximum range of a gun on horizontal terrain is 16 km. If $g = 10\text{ m/s}^2$. What must be the muzzle velocity of the shell
 - (a) 200 m/s
 - (b) 400 m/s
 - (c) 100 m/s
 - (d) 50 m/s
2. A stone is just released from the window of a train moving along a horizontal straight track. The stone will hit the ground following
 - (a) Straight path
 - (b) Circular path
 - (c) Parabolic path
 - (d) Hyperbolic path
3. A bullet is dropped from the same height when another bullet is fired horizontally. They will hit the ground
 - (a) One after the other
 - (b) Simultaneously
 - (c) Depends on the observer
 - (d) None of the above
4. An aeroplane is flying at a constant horizontal velocity of 600 km/hr at an elevation of 6 km towards a point directly above the target on the earth's surface. At an appropriate time, the pilot releases a ball so that it strikes the target at the earth. The ball will appear to be falling
 - (a) On a parabolic path as seen by pilot in the plane
 - (b) Vertically along a straight path as seen by an observer on the ground near the target
 - (c) On a parabolic path as seen by an observer on the ground near the target
 - (d) On a zig-zag path as seen by pilot in the plane
5. A bomb is dropped from an aeroplane moving horizontally at constant speed. When air resistance is taken into consideration, the bomb
 - (a) Falls to earth exactly below the aeroplane
 - (b) Fall to earth behind the aeroplane
 - (c) Falls to earth ahead of the aeroplane
 - (d) Flies with the aeroplane



6. A man projects a coin upwards from the gate of a uniformly moving train. The path of coin for the man will be
(a) Parabolic
(b) Inclined straight line
(c) Vertical straight line
(d) Horizontal straight line
7. An aeroplane is flying horizontally with a velocity of 600 km/h at a height of 1960 m . When it is vertically at a point A on the ground, a bomb is released from it. The bomb strikes the ground at point B. The distance AB is
(a) 1200 m
(b) 0.33 km
(c) 3.33 km
(d) 33 km
8. A ball is rolled off the edge of a horizontal table at a speed of 4 m/second . It hits the ground after 0.4 second . Which statement given below is true
(a) It hits the ground at a horizontal distance 1.6 m from the edge of the table
(b) The speed with which it hits the ground is 4.0 m/second
(c) Height of the table is 0.8 m
(d) It hits the ground at an angle of 60° to the horizontal
9. An aeroplane flying 490 m above ground level at 100 m/s , releases a block. How far on ground will it strike
(a) 0.1 km
(b) 1 km
(c) 2 km
(d) None
10. A body is thrown horizontally from the top of a tower of height 5 m . It touches the ground at a distance of 10 m from the foot of the tower. The initial velocity of the body is ($g = 10 \text{ ms}^{-2}$)
(a) 2.5 ms^{-1}
(b) 5 ms^{-1}
(c) 10 ms^{-1}
(d) 20 ms^{-1}
11. An aeroplane moving horizontally with a speed of 720 km/h drops a food pocket, while flying at a height of 396.9 m . the time taken by a food pocket to reach the ground and its horizontal range is (Take $g = 9.8 \text{ m/sec}^2$)
(a) 3 sec and 2000 m
(b) 5 sec and 500 m
(c) 8 sec and 1500 m
(d) 9 sec and 1800 m





12. A particle (A) is dropped from a height and another particle (B) is thrown in horizontal direction with speed of 5 m/sec from the same height. The correct statement is
- Both particles will reach at ground simultaneously
 - Both particles will reach at ground with same speed
 - Particle (A) will reach at ground first with respect to particle (B)
 - Particle (B) will reach at ground first with respect to particle (A)
13. A particle moves in a plane with constant acceleration in a direction different from the initial velocity. The path of the particle will be
- A straight line
 - An arc of a circle
 - A parabola
 - An ellipse
14. At the height 80 m , an aeroplane is moving with 150 m/s . A bomb is dropped from it so as to hit a target. At what distance from the target should the bomb be dropped (given $g = 10 \text{ m/s}^2$)
- 605.3 m
 - 600 m
 - 80 m
 - 230 m
15. A bomber plane moves horizontally with a speed of 500 m/s and a bomb released from it, strikes the ground in 10 sec . Angle at which it strikes the ground will be ($g = 10 \text{ m/s}^2$)
- $\tan^{-1}\left(\frac{1}{5}\right)$
 - $\tan\left(\frac{1}{5}\right)$
 - $\tan^{-1}(1)$
 - $\tan^{-1}(5)$
16. A large number of bullets are fired in all directions with same speed v . What is the maximum area on the ground on which these bullets will spread
- $\pi \frac{v^2}{g}$
 - $\pi \frac{v^4}{g^2}$
 - $\pi^2 \frac{v^4}{g^2}$
 - $\pi^2 \frac{v^2}{g^2}$

