ARJUNA (NEET)

Kinematics

DPP-07

1. A body dropped from top of a tower fall through 40 m during the last two seconds of its fall. The height of tower is (g = 10 m/s^2)

(A) 60 m (B) 45 m

(C) 80 m (D) 50 m

2. What will be the ratio of the distance moved by a freely falling body from rest in 4th and 5th seconds of journey ?

(A) 4 : 5 (B) 7 : 9

(C) 16 : 25 (D) 1 : 1

3. A car is moving along a straight road with a uniform acceleration. It passes through two points P and Q separated by a distance with velocity 30 km/h and 40 km/h respectively. The velocity of the car midway between P and Q is

(A) 33.3 km/h (B) $20\sqrt{2}$ km/h

(C) $25\sqrt{2}$ km/h (D) 35 km/h

4. If a ball is thrown vertically upwards with speed u, the distance covered during the last t seconds of its ascent is

(A) ut (B) $\frac{1}{2}gt^2$

(C) $ut - \frac{1}{2}gt^2$ (D) $(u + gt)t$

5. A particle is thrown vertically upward. Its velocity at half of the height is 10 m/s, then the maximum height attained by it (g = 10 m/s^2)

(A) 8 m (B) 20 m

(C) 10 m (D) 16 m

6. If a car at rest accelerates uniformly to a speed of 144 km/h in 20 s, it covers a distance of

(A) 1440 cm (B) 2980 cm

(C) 20 m (D) 400 m

7. A car moving with a speed of 40 km/h can be stopped by applying brakes after atleast 2 m. If the same car is moving with a speed of 80 km/h, what is the minimum stopping distance ?

(A) 4 m (B) 6 m

(C) 8 m (D) 2 m

8. A body dropped from a height h with initial velocity zero, strikes the ground with a velocity 3 m/s. Another body of same mass dropped from the same height h with an initial velocity of 4 m/s. The final velocity of second mass, with which it strikes the ground is

(A) 5 m/s (B) 12 m/s

(C) 3 m/s (D) 4 m/s

9. The water drop falls at regular intervals from a tap 5 m above the ground. The third drop is leaving the tap at instant the first drop touches the ground. How far above the ground is the second drop at that instant ?

(A) 3.75 m (B) 4.00 m

(C) 1.25 m (D) 2.50 m

10. A car accelerates from rest at a constant rate α for some time after which it decelerates at a constant rate β and comes to rest. If total time elapsed is t, then maximum velocity acquired by car will be

(A) $\frac{(\alpha^2 - \beta^2)t}{\alpha\beta}$ (B) $\frac{(\alpha^2 + \beta^2)t}{\alpha\beta}$

(C) $\frac{(\alpha + \beta)t}{\alpha\beta}$ (D) $\frac{\alpha\beta t}{\alpha + \beta}$

11. A boy standing at the top of a tower of 20 m height drops a stone. Assuming g = 10 ms^{-2}, the velocity with which it hits the ground is

(A) 10.0 m/s (B) 20.0 m/s

(C) 40.0 m/s (D) 5.0 m/s

12. A ball is dropped from a high rise platform at $t = 0$ starting from rest. After 6 seconds another ball is thrown downwards from the same platform with a speed v. The two balls meet at $t = 18$ s. What is the value of v ?
(Take $g = 10\ m/s^2$)

(A) 75 m/s (B) 55 m/s
(C) 40 m/s (D) 60 m/s

13. A particle starts its motion from rest under the action of a constant force. If the distance covered in first 10 seconds is S_1 and that covered in the first 20 seconds is S_2, then

(A) $S_2 = 3S_1$ (B) $S_2 = 4S_1$
(C) $S_2 = S_1$ (D) $S_2 = 2S_1$

14. A particle moves in a straight line with a constant acceleration. It changes its velocity from 10 ms^{-1} to 20 ms^{-1} while passing through a distance 135 m in t second. The value of t is

(A) 12 (B) 9
(C) 10 (D) 1.8

15. Object is projected up with speed u it is at same height at 4 sec & 6 sec, then find velocity of projection

(A) 20 m/s (B) 30 m/s
(C) 50 m/s (D) 40 m/s

ANSWERS

1. **(B)**
2. **(B)**
3. **(C)**
4. **(B)**
5. **(C)**
6. **(D)**
7. **(C)**
8. **(A)**
9. **(A)**
10. **(B)**
11. **(B)**
12. **(A)**
13. **(B)**
14. **(B)**
15. **(C)**

Note - If you have any query/issue

Mail us at support@physicswallah.org