ARJUNA (NEET)

Kinematics

DPP-06

1. An iron ball and a wooden ball of the same radius are released from a height H in vacuum. The times taken by both of them to reach the ground are
(A) roughly equal
(B) unequal
(C) exactly equal
(D) in the inverse ratio of their diameters

2. To estimate the height of a bridge over a river, a stone is dropped freely on the river from the bridge. The stone takes 2 s to touch the water surface of the river. Calculate the height of the bridge from the water level. [Take $g = 9.8$ m/s^2]
(A) 19.6 m (B) 9.8 m
(C) 21.4 m (D) 4.9 m

3. A stone is dropped from the top of the tower. Its speed after it has fallen 20 m is [Take $g = 10$ ms^{-2}]
(A) –10 ms^{-1} (B) 10 ms^{-1}
(C) –20 ms^{-1} (D) 20 ms^{-1}

4. Two bodies of different masses m_a and m_b and dropped from two different heights, namely a and b. The ratio of times taken by the two to drop through these distance is
(A) $a : b$ (B) $\frac{m_a}{m_b} : \frac{b}{a}$
(C) $\sqrt{a} : \sqrt{b}$ (D) $a^2 : b^2$

5. A body is falling from height 'h' it takes t_1 time to reach the ground. The time taken to cover the first half of height is
(A) $t_2 = \frac{t_1}{\sqrt{2}}$ (B) $t_1 = \frac{t_2}{\sqrt{2}}$
(C) $t_2 = \sqrt{3}t_1$ (D) None of these

6. A body projected vertically upwards with a velocity u returns to the starting point in 4 seconds. If $g = 10$ m/sec^2, the value of u is:
(A) 5 m/sec (B) 10 m/sec
(C) 15 m/sec (D) 20 m/sec

7. A train accelerates from rest at a constant rate α for distance x_1 and time t_1. After that is retards at constant rate β for distance x_2 and time t_2 and comes to the rest. Which of the following relation is correct :-
(A) $\frac{x_1}{x_2} = \frac{\alpha}{\beta} = \frac{t_1}{t_2}$ (B) $\frac{x_1}{x_2} = \frac{\beta}{\alpha} = \frac{t_1}{t_2}$
(C) $\frac{x_1}{x_2} = \frac{\alpha}{\beta} = \frac{t_2}{t_1}$ (D) $\frac{x_1}{x_2} = \frac{\beta}{\alpha} = \frac{t_2}{t_1}$

8. A car accelerates from rest at a constant rate of 2 m/s^2 for some time. Then, it retards at a constant rate of 4 m/s^2 and comes to rest. If it remains in motion for 3 second, then the maximum speed attained by the car is :-
(A) 2 m/s (B) 3 m/s
(C) 4 m/s (D) 6 m/s

9. Object is dropped then find velocity after 5 sec.
(A) 50 m/s (B) 30 m/s
(C) 60 m/s (D) 10 m/s

10. Object is dropped then find displacement of object in 4th sec
(A) 25 m (B) 80 m
(C) 25 m (D) 35 m

11. Object is dropped from a height 80 m from ground then find time of flight.
(A) 4 sec (B) 5 sec
(C) 3.5 sec (D) 8 sec

12. The water drops fall at regular from a tap 5m above the ground. The third drop is leaving the top at the instant the first drop touches the ground. How far above the ground is the second drop at the instant ?

(A) 1.25 m (B) 2.50 m

(C) 3.75 m (D) 4.00 m

ANSWERS

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

Note - If you have any query/issue

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