ARJUNA (NEET)

Kinematics

1. A body is moving along circular track of radius R then find the ratio of average velocity and average speed when it cover angle 90° in 5 sec.

(A) $\dfrac{2\sqrt{2}}{\pi}$

(B) $\dfrac{\pi}{2\sqrt{2}}$

(C) $\dfrac{\sqrt{2}}{\pi}$

(D) $\dfrac{\pi}{\sqrt{4}}$

2. A body is moving along square track ABCD of arm 10 m then find average velocity and average speed when body moves form $A \rightarrow B \rightarrow C$ in 10 sec.

(A) –2 m/sec; $\sqrt{2}$ m/sec

(B) –4 m/sec; $\sqrt{3}$ m/sec

(C) $\sqrt{2}$ m/sec; 2 m/sec

(D) $-\sqrt{2}$ m/sec; $\sqrt{3}$ m/sec

3. A particle moves in straight line in same direction for 20 seconds with velocity 3 m/s and then moves with velocity 4 m/s for another 20 sec and finally moves with velocity 5 m/s for next 20 seconds. What is the average velocity of the particle ?

(A) 3 m/s   (B) 4 m/s

(C) 5 m/s   (D) zero

4. One car moving on a straight road covers one-third of the distance with 20 km/hr and the rest with 60 km/hr. The average speed is:

(A) 40 km/hr   (B) 80 km/hr

(C) $46\dfrac{2}{3}$ km/hr   (D) 36 km/hr

5. A monkey walks 40 m east, 30 m south & finally climbs up on a pole of height 120 m. What is the displacement of monkey ?

(A) 190 m   (B) 130 m

(C) 150 m   (D) 170 m

6. A person moves northwards 20 m, eastward 30 m & finally towards west 40 m. What is his distance & displacement ?

(A) 90 m, $10\sqrt{5}$ m   (B) 90 m, $20\sqrt{2}$ m

(C) 90 m, $10\sqrt{13}$ m   (D) 90 m, 70 m

7. A particle moving with acceleration 4 m/s² along x-axis covers 20 m in 4th second. Find the distance covered by the particle in the 3rd and 5th seconds :

(A) 16 m, 20 m   (B) 20 m, 24 m

(C) 16 m, 24 m   (D) 20 m, 25 m

8. A body starts from rest with an acceleration 2 m/s² till it attains the maximum velocity then retards to rest with 3 m/s². If total time taken is 10 seconds, then maximum speed attained is

(A) 12 m/s   (B) 8 m/s

(C) 6 m/s   (D) 4 m/s

9. The velocity of a bullet is reduced by 200 m/s while travelling through a wooden block in 10 sec. The retardation, assuming it to be uniform, will be :

(A) 10 m/s²   (B) 12 m/s²

(C) 20 m/s²   (D) 15 m/s²

10. A body starts from rest and is uniformly accelerated for 30 s. The distance travelled in the first 10s is x_1, next 10s is x_2 and the last 10 s is x_3. Then $x_1 : x_2 : x_3$ is the same as

(A) 1 : 2 : 4   (B) 1 : 2 : 5

(C) 1 : 3 : 5   (D) 1 : 3 : 9

11. A car accelerates from 36 km/h to 90 km/h in 5s. How far did it travel in this time ? Assume constant acceleration.

(A) 87.5 cm   (B) 82.5 cm

(C) 90.5 m   (D) 80.5 m

ANSWERS KEY

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

Note – If you have any query/issue

Mail us at support@physicswallah.org

support@physicswallah.org