ARJUNA (NEET)

Kinematics

DPP-05

1. A particle starts from rest and moves with uniform acceleration. Then the ratio of distance covered in nth second to n second is

(A) $\frac{n^2}{2n-1}$ (B) $\frac{2}{n}-\frac{1}{n^2}$

(C) $\frac{n^2}{n+1}$ (D) $\frac{2n+1}{n^2}$

2. A body A starts from rest with an acceleration a_1. After 2 s. another body B starts from rest with an acceleration a_2. If they travel equal distances in the fifth second, after the start of A. then ratio $a_1 : a_2$ is equal to

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

(C) 9 : 5 (D) 9 : 7

3. A body travels a distance x in first two seconds and a distance y in next two seconds. The relation between x and y is

(A) $y = 4x$ (B) $y = x$

(C) $y = 3x$ (D) $y = 2x$

4. The velocity-time relationship is described by equation $v = P + Qt^2$. The body is travelling with

(A) zero acceleration

(B) uniform acceleration

(C) uniform retardation

(D) non-uniform acceleration

5. A body moving with uniform acceleration 8 ms^{-2} starts from rest. The distance covered by it in fifth second will be

(A) 8 m (B) 64 m

(C) 4 m (D) 36 m

6. A body starts from rest. What is the ratio of the distance travelled by the body during the 4^{th} and 3^{rd} second :

(A) 7/5 (B) 5/7

(C) 7/3 (D) 3/7

7. A body travels for 15 sec starting from rest with constant acceleration. If it travels distance S_1, S_2 and S_3 in the first five seconds, second five seconds and next five seconds respectively the relation between S_1, S_2 and S_3 is :

(A) $S_1 = S_2 = S_3$

(B) $5S_1 = 3S_2 = S_3$

(C) $S_1 = \frac{1}{3}S_2 = \frac{1}{5}S_3$

(D) $S_1 = \frac{1}{5}S_2 = \frac{1}{3}S_3$

8. A car moving with a speed of 50 km/hr, can be stopped by brakes after at least 6 m. It the same car is moving at a speed of 100 km/hr. the minimum stopping distance is :

(A) 6 m (B) 12 m

(C) 18 m (D) 24 m

9. A particle experiences a constant acceleration for 20 sec after starting from rest. If it travels a distance S_1 in the first 10 sec and a distance S_2 in the next 10 sec, then :

(A) $S_1 = S_2$ (B) $S_1 = S_2/3$

(C) $S_1 = S_2/2$ (D) $S_1 = S_2/4$

10. Speed of two identical cars are u and $4u$ at a specific instant. The ratio of the respective distances in which the two cards are stopped from that instant is :

(A) 1 : 1 (B) 1 : 4

(C) 1 : 8 (D) 1 : 16

11. A particle moves along a straight line OX. At a time t (in seconds) the distance x (in metres) of the particle from O is given by $x = 40 + 12t - t^3$. How long would the particle travel before coming to rest:-

(A) 24 m (B) 16 m

(C) 56 m (D) 40 m

12. The displacement of a particle is represented by the following equation : $s = 3t^3 + 7t^2 + 5t + 8$ where s is in metre and t in second. The acceleration of the particle at $t = 1$ is :

(A) 14 m/s^2 (B) 18 m/s^2

(C) 32 m/s^2 (D) Zero

13. A body starts from rest is moving under a constant acceleration up to 20 sec. If it moves S_1 distance in first 10 sec., and S_2 distance in next 10 sec. then S_2 will be equal to

(A) S_1 (B) $2S_1$

(C) $4S_1$ (D) $3S_1$

14. If velocity of object V = $\sqrt{25 - 4x}$ then find acceleration of object.

(A) 4 m/s^2 (B) 2 m/s^2

(C) 5 m/s^2 (D) 8 m/s^2

ANSWERS

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

Note - If you have any query/issue

Mail us at support@physicswallah.org