Yakeen NEET 2.0 2026

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Motion in a Straight Line

DPP: 10

Q1 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) $\frac{7}{5}$
(B) $\frac{5}{7}$
(C) $\frac{7}{3}$
(D) $\frac{3}{7}$

Q2 A particle travels $10\ \text{m}$ in first 5sec and $10\ \text{m}$ in next 3sec. Assuming constant acceleration what is the distance travelled in next 2sec
(A) $8.3\ \text{m}$
(B) $9.3\ \text{m}$
(C) $10.3\ \text{m}$
(D) None of the above

Q3 If a body starts from rest and travels $120\ \text{cm}$ in the 6^{th} second, then what is the acceleration
(A) $0.20\ \text{m/s}^2$
(B) $0.027\ \text{m/s}^2$
(C) $0.218\ \text{m/s}^2$
(D) $0.03\ \text{m/s}^2$

Q4 Initially a body is at rest. If its acceleration is $5\ \text{ms}^{-2}$, then the distance travelled in the 18^{th} second is:
(A) $86.6\ \text{m}$
(B) $87.5\ \text{m}$
(C) $88\ \text{m}$
(D) $89\ \text{m}$

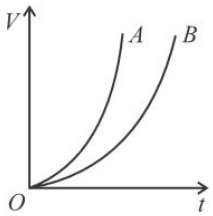
Q5 A particle moving along a straight line with a constant acceleration of –4 m/s^2 passes through a point A on the line with a velocity of +8 m/s at some moment. Find the distance travelled by the particle in 5 seconds after that moment.
(A) 10 m (B) 26 m
(C) 40 m (D) 8 m

Q6 A car starts from rest and moves with uniform acceleration α on a straight road from time $t = 0$ to $t = T$. After that, a constant deceleration brings it to rest. In this process the average speed of the car is
(A) $\frac{aT}{4}$ (B) $\frac{3aT}{2}$
(C) $\frac{aT}{2}$ (D) aT

Q7 A car moving with a velocity of $10\ \text{m/s}$ can be stopped by the application of a constant force F in a distance of $20\ \text{m}$. If the velocity of the car is $30\ \text{m/s}$ it can be stopped by this force in:
(A) $100m$ (B) $90m$
(C) $180m$ (D) $160m$

Q8 The acceleration of a particle is increasing linearly with time t as bt. The particle starts from the origin with an initial velocity v_0. The distance travelled by the particle in time t will be
(A) $v_0 t + \frac{1}{3}bt^2$ (B) $v_0 t + \frac{1}{3}bt^3$
(C) $v_0 t + \frac{1}{6}bt^3$ (D) $v_0 t + \frac{1}{2}bt^2$

Q9 A time–velocity graph of two vehicles A and B starting from rest at the same time is given in the figure. The statement that can be deduced correctly from the graph is :



(A) Acceleration of A is greater than that of B
(B) Acceleration of B is greater than that of A
(C) Acceleration of A is increasing at a slower rate than that of B
(D) Velocity of B is greater than that of A.

Q10 Mark the correct statement.

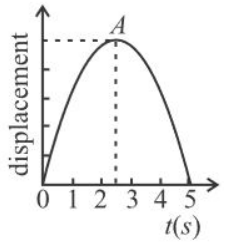
(A) The magnitude of the instantaneous velocity of a particle is equal to the instantaneous speed.

(B) The magnitude of average velocity in an interval is equal to its average speed in that interval.

(C) It is possible to have a situation in which the speed of a particle is always zero but the average speed is not zero.

(D) It is possible to have a situation in which the speed of a particle is never zero but the average speed in an interval is zero.

Q11 The figure shows the displacement–time graph of a body subject only to the force of gravity. The graph indicates that :



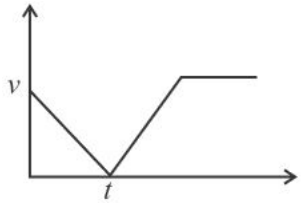
(A) At *A*, the acceleration is zero

(B) At *A*, the velocity is maximum

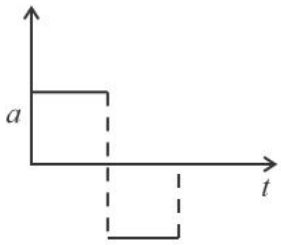
(C) At *A*, the displacement is zero

(D) The acceleration is constant for all times shown

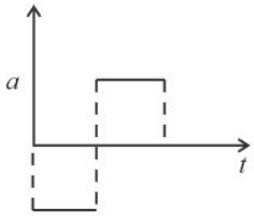
Q12 The velocity of a particle moving in straight line is given by the graph shown here. Then its acceleration is best represented by :



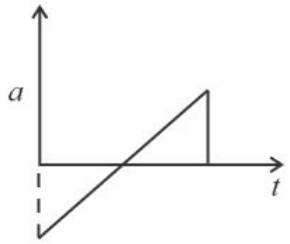
(A)



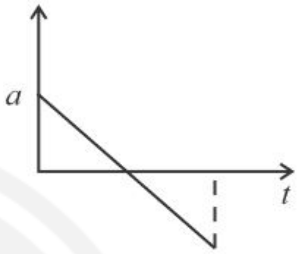
(B)



(C)



(D)



Q13 A body starts from rest and moves for *n* seconds with uniform acceleration *a*, its velocity after *n* seconds is *v*. The displacement of the body in last 3 seconds is:

(A) $\frac{v(6n-9)}{2n}$ (B) $\frac{2v(6n-9)}{n}$

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

Answer Key

Q1	(A)
Q2	(A)
Q3	(C)
Q4	(B)
Q5	(B)
Q6	(C)
Q7	(C)
Q8	(C)
Q9	(B)
Q10	(A)
Q11	(D)
Q12	(B)
Q13	(A)