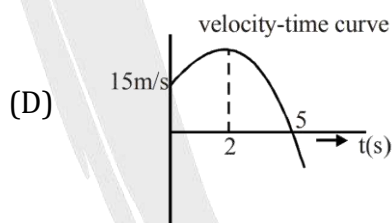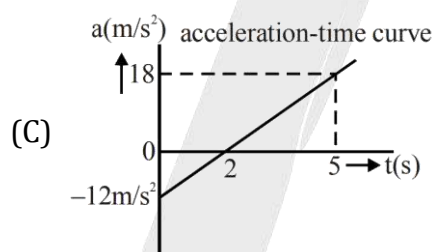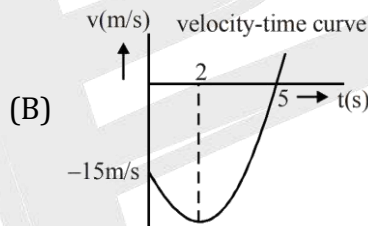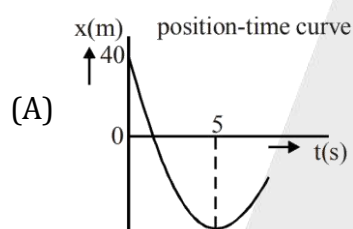## DPP – 4

1. Graph of $(1/v)$ vs x for a particle under rectilinear motion is as shown, where v is velocity and x is position. The time taken by particle to move from $x = 4$ m to x $= 12$ m is
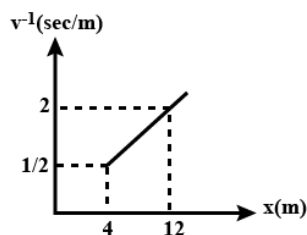

(A) 16/3sec

(B) 10sec

(C) 8sec

(D) 12sec

2. The position of a particle which moves along a straight line is defined by the relation $x = t^3 - 6t^2 - 15t + 40$, where x is expressed in meters and t in seconds. Which of the graph does not represent the motion of the particle?

(A)

position-time curve

(B)

velocity-time curve

(C)

acceleration-time curve

(D)

velocity-time curve

3. A graph between the square of the velocity of a particle and the distance s moved by the particle is shown in the figure. The acceleration of the particle in kilometer per hour square is:
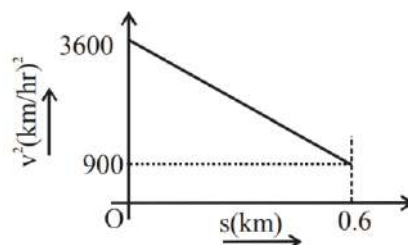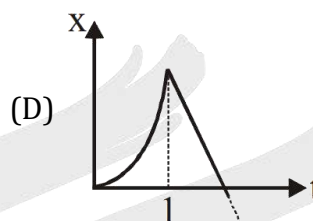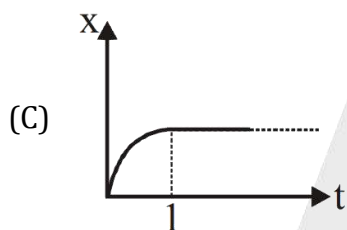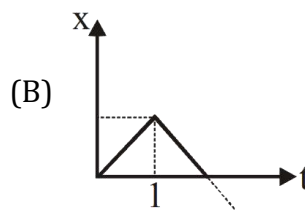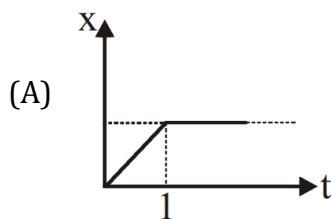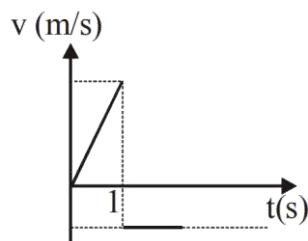

(A) 2250

(B) 225

(C) -2250

(D) -225

4. The velocity time graph for a particle moving along x-axis is shown in the figure. The corresponding displacement time graph is correctly shown by

(A)

(B)

(C)

(D)

5. The position time graph for a particle moving on x-axis is shown here. Choose correct statement.

(A) at $t = t_2$ particle is at rest.

(B) at $t = t_2$ particle is at origin.

(C) at $t = t_3$ particle is moving in positive x-direction

(D) at t = t_1 particle is moving in positive x-direction.

6. Velocity time graph of a particle is in shape of a semicircle of radius R as shown in figure. Its average acceleration from $T = 0$ to $T = R$ is:
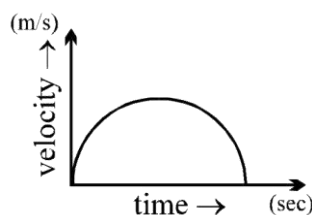

(A) 0 m/s²   (B) 1 m/s²   (C) Rm/s²   (D) 2Rm/sec²

7. A particle starts moving from rest in a straight line. Its acceleration vs time $(a - t)$ graph is shown in figure. The speed of particle is maximum at .
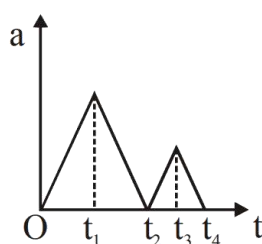
(A) t_1 (B) t_2 (C) t_3 (D) t_4

8. A ball dropped from a height h, hits the ground and rises to height $h/2$. The variation of the instantaneous velocity v with time t(v − t graph) (assuming the vertically upward direction as positive) for the ball from the instant it is dropped to the instant it comes to instaneous rest again is correctly shown by
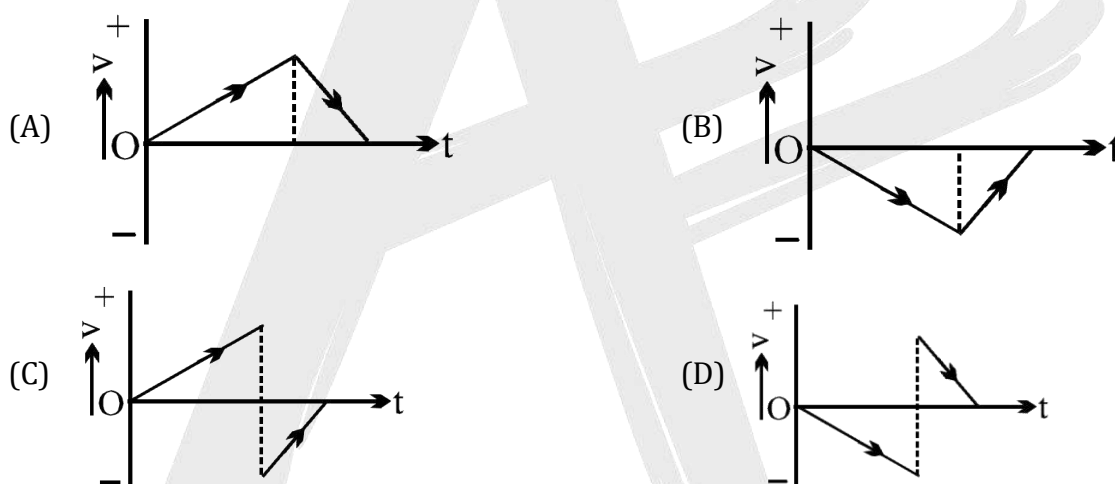
9. The velocity versus time graph for a particle moving along a straight line is shown below. Select the correct option(s).
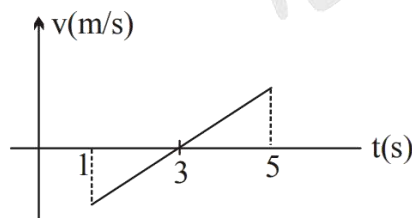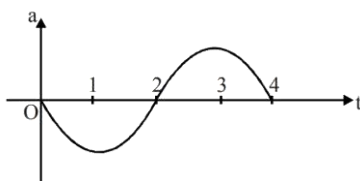

(A) speed of particle is same at 2sec and 4sec

(B) velocity of particle at $t = 2$sec will be 1 m/s

(C) $\int_{t=1}^{t=5} v\, dt$ is zero.

(D) velocity of particle is zero at $t = 2$sec

10. Acceleration(a) - time(t) graph for a particle starting from rest at t = 0 is as given below. The particle has maximum speed at:

(A) 1 s   (B) 2s (C) 3 s   (D) 4 s

ANSWER KEY

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