

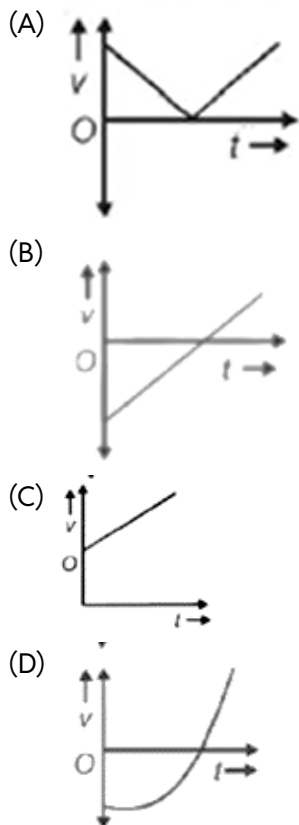
Yakeen NEET 2.0 2026

Physics by MR Sir

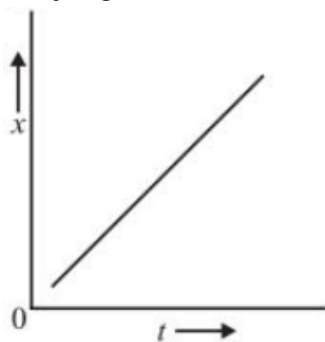
DPP: 7

Motion in a Straight Line

Q1 A particle moves along x -axis in such a way that its x -co-ordinate varies with time according to the equation $x = 4 - 2t + t^2$. The speed of the particle will vary with time as



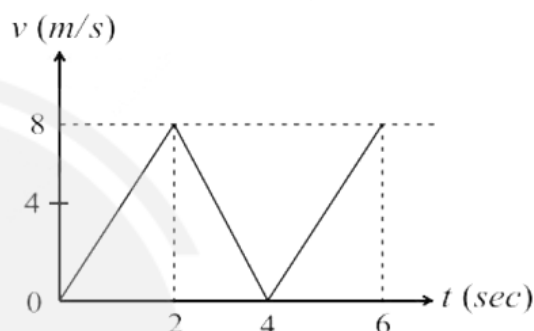
Q2 The position-time (x - t) graph for motion of a body is given below;



Which one among the following is depicted by the above graph?

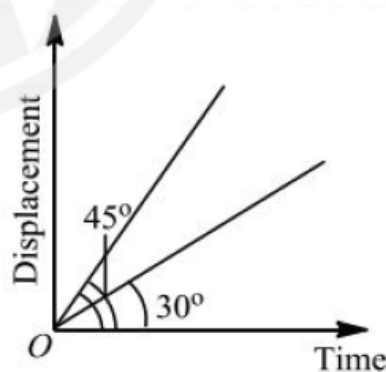
- (A) Positive acceleration
(B) Negative acceleration
(C) Zero acceleration
(D) None of the above

Q3 v - t graph for a particle is as shown. The distance travelled in the first 4 s is;



- (A) 12 m
(B) 16 m
(C) 20 m
(D) 24 m

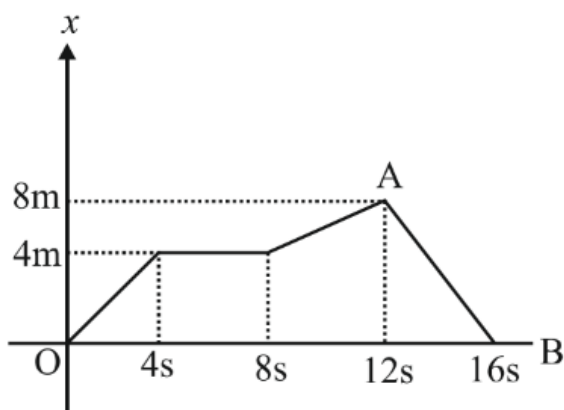
Q4 The displacement-time graphs of two moving particles make angles of 30° and 45° with the x -axis. The ratio of their velocities is;



- (A) $1 : \sqrt{3}$
(B) $1 : 2$
(C) $1 : 1$
(D) $\sqrt{3} : 2$

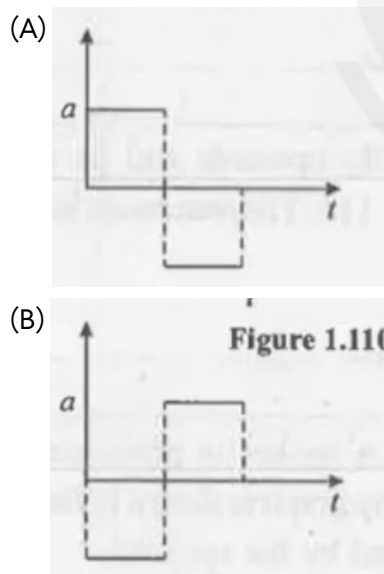
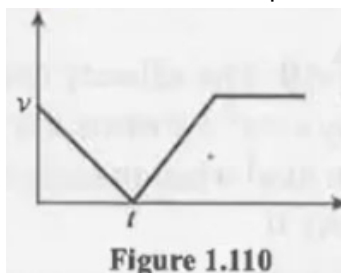
Q5 Figure shows the graph of the x -co-ordinate of a particle going along the x -axis as function of time. Find the instantaneous speed of particle at $t=12.5$ s (in m/s)



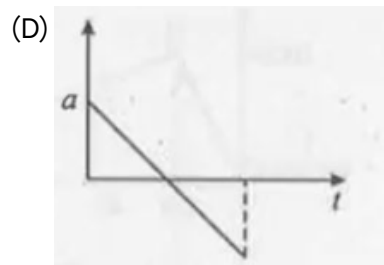
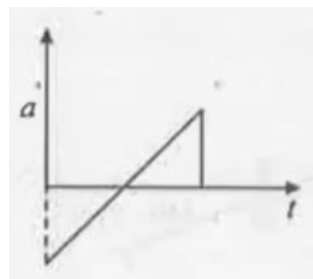


- (A) 2 m/s
(B) 8 m/s.
(C) 4 m/s.
(D) 6 m/s.

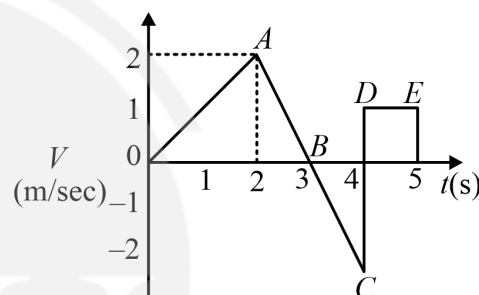
Q6 The velocity of a particle moving in straight line is given by the graph shown here. Then its acceleration is best represented by:-



(C)



Q7 In the above question, which portion of the curve will have zero acceleration :



- (A) OA
(B) AB
(C) CD
(D) DE

Q8 The relation between time t and distance x is given by $t = Ax^2 + Bx$, where A and B are constants. Then the

- (A) velocity is given by $v = 2Ax + B$
(B) velocity is given by $v = (2Ax + B)^{-1}$
(C) retardation is given by $2Av^3$
(D) retardation is given by $2Bv^3$

- (A) Only (C)
(B) Only (D)
(C) Only (B) & (C)
(D) Only (B) & (D)

Q9 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) $32m/s^2$ (D) Zero

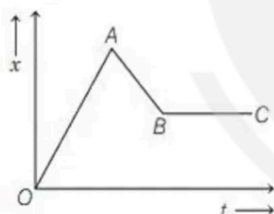
Q10 The velocity-time relationship is described by equation $v = P + Qt^2$. The body is travelling with

- (A) Zero acceleration
(B) Uniform acceleration
(C) Uniform retardation
(D) Non-uniform acceleration

Q11 A particle of unit mass undergoes one dimensional motion such that its velocity varies according to $v(x) = \beta x^{-2n}$ where β and n are constants and x is the position of the particle. The acceleration of the particle as a function of x , is given by:

- (A) $-2n\beta^2 x^{-4n-1}$
(B) $-2\beta^2 x^{-2n+1}$
(C) $-2n\beta^2 x^{-4n+1}$
(D) $-2n\beta^2 x^{-2n-1}$

Q12 Given $x - t$ graph represent the motion of an object. Match the Column I (parts of graph) with Column II (representation) and select the correct answer from the codes given below.

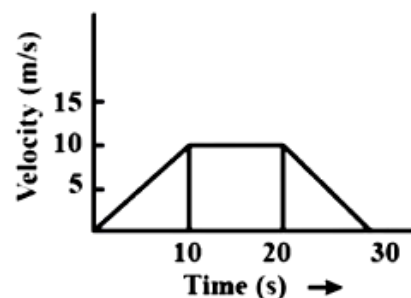


Column I	Column II
A. Part OA of graph	1. Positive velocity
B. Part AB of graph	2. Object at rest
C. Part BC of graph	3. Negative velocity
D. Point A in the graph	4. Change in direction of motion

A	B	C	D	A	B	C	D
(a) 1	2	3	4	(b) 1	3	2	4
(c) 2	1	3	4	(d) 4	3	2	1

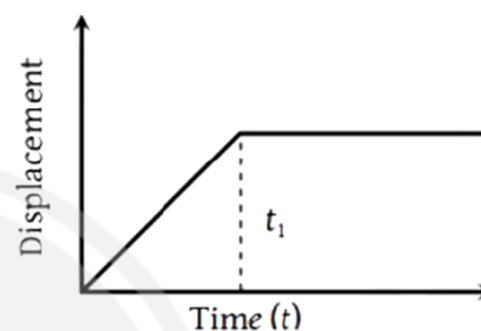
- (A) a (B) b
(C) c (D) d

Q13 In the following graph, distance travelled by the body in metres is



- (A) 200 (B) 250
(C) 300 (D) 400

Q14 The $x - t$ graph shown in figure represents



- (A) Constant velocity
(B) Velocity of the body is continuously changing
(C) Instantaneous velocity
(D) The body travels with constant speed upto time t_1 and then stops



Answer Key

Q1 (B)

Q2 (C)

Q3 (B)

Q4 (A)

Q5 (A)

Q6 (B)

Q7 (D)

Q8 (C)

Q9 (C)

Q10 (D)

Q11 (A)

Q12 (B)

Q13 (A)

Q14 (D)



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