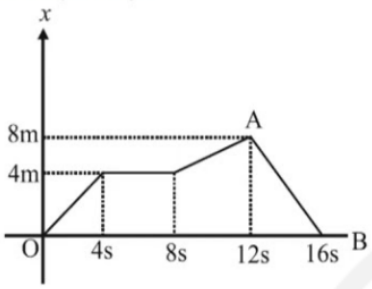
Yakeen NEET 2.0 2026

Physics by Saleem Sir

DPP: 09

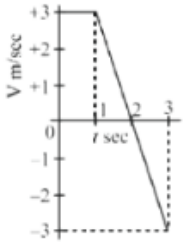
Motion in a Straight Line

Q1 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 $t = 12.5\ \text{s}(\text{ in m/s})$



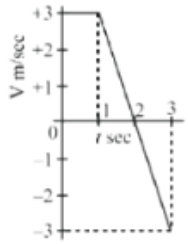
(A) $2\ \text{m/s}$
(B) $8\ \text{m/s}$.
(C) $4\ \text{m/s}$.
(D) $6\ \text{m/s}$.

Q2 A particle moves along a straight line, x. At time $t = 0$, its position is at $x = 0$. The velocity, V, of the object changes as a function of time t, as indicated in the figure; t is in seconds, V in m/sec and x in meters



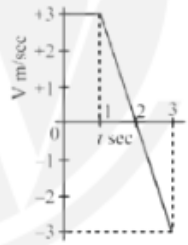
What is x at $t = 3\text{sec}$?
(A) 4.5 m (B) 3.0 m
(C) 1.5 m (D) 0 m

Q3 A particle moves along a straight line, x. At time $t = 0$, its position is at $x = 0$. The velocity, V, of the object changes as a function of time t, as indicated in the figure; t is in seconds, V in m/sec and x in meters



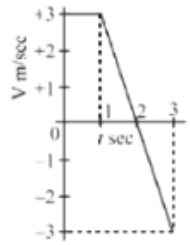
What is the instantaneous acceleration (in m/sec^2) at $t = 2\text{sec}$?
(A) 0 m/s^2 (B) 3 m/s^2
(C) –3 m/s^2 (D) –6 m/s^2

Q4 A particle moves along a straight line, x. At time $t = 0$, its position is at $x = 0$. The velocity, V, of the object changes as a function of time t, as indicated in the figure; t is in seconds, V in m/sec and x in meters



What is the average velocity (in m/sec) between $t = 0$ and $t = 3\text{sec}$?
(A) 3 m/s (B) 1.5 m/s
(C) 1 m/s (D) 0 m/s

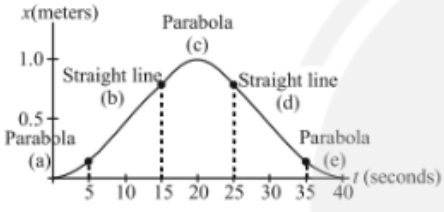
Q5 A particle moves along a straight line, x. At time $t = 0$, its position is at $x = 0$. The velocity, V, of the object changes as a function of time t, as indicated in the figure; t is in seconds, V in m/sec and x in meters



What is the average speed (in $\mathrm{m/sec}$) between $t = 1$ and $t = 3\mathrm{sec}$?

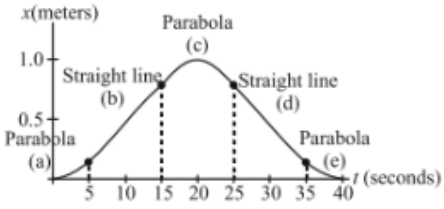
(A) 0 m/s (B) 2 m/s
(C) 1.5 m/s (D) 3 m/s

Q6 The figure below is a displacement vs time plot for the motion of an object, answer questions (i) and (ii) with the letter of appropriate section of the graph.
Which section represents motion in the forward direction with positive acceleration?



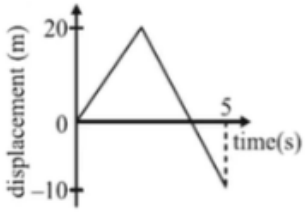
(A) Section (a) (B) Section (b)
(C) Section (c) (D) Section (d)

Q7 The figure below is a displacement vs time plot for the motion of an object, answer questions (i) and (ii) with the letter of appropriate section of the graph.
Which section represents uniform motion backwards (x-direction)?



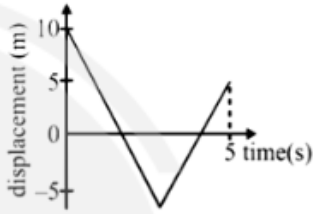
(A) section (b) (B) section (c)
(C) section (d) (D) section (e)

Q8 The diagram shows the displacement-time graph for a particle moving in a straight line. Find the average velocity for the interval from $t = 0$ to $t = 5$.



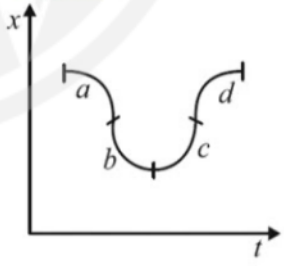
(A) 8 m/s (B) -8 m/s
(C) 2 m/s (D) -2 m/s

Q9 The diagram shows the displacement-time graph for a particle moving in a straight line. Find the average speed for the interval from $t = 0$ to $t = 5$.



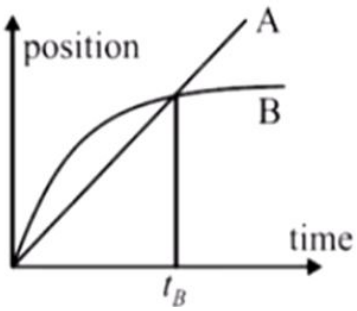
(A) 4 m/s (B) 5 m/s
(C) 6 m/s (D) 10 m/s

Q10 The graph shown is a plot of position versus time. For which labelled region is the velocity positive and the acceleration negative?



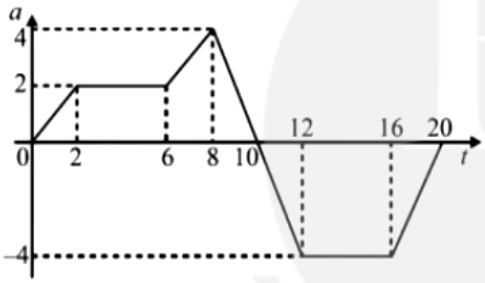
(A) a (B) b
(C) c (D) d

Q11 The graph shows position as a function of time for two trains running on parallel tracks. Which statement is true?



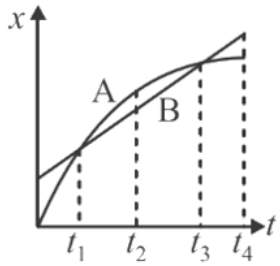
(A) A t time t_B, both trains have the same velocity.
(B) Both trains have the same velocity at some time after t_B
(C) Both trains have the same velocity at some time before t_B
(D) Somewhere on the graph, both trains have the same acceleration.

Q12 If initial velocity of particle is $2\ \mathrm{m/s}$, the maximum velocity of particle from $t = 0$ to $t = 20\mathrm{sec}$ is:



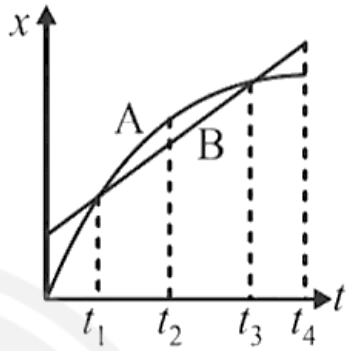
(A) $20\ \mathrm{m/s}$
(B) $18\ \mathrm{m/s}$
(C) $22\ \mathrm{m/s}$
(D) $24\ \mathrm{m/s}$

Q13 The graph given shows the POSITION of two cars, A and B, as a function of time. The cars move along the x-axis on parallel but separate tracks, so that they can pass each others position without colliding. At which instant in time is car-A overtaking the car-B?



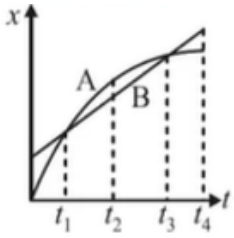
(A) t_1 (B) t_2
(C) t_3 (D) t_4

Q14 The graph given shows the POSITION of two cars, A and B, as a function of time. The cars move along the x-axis on parallel but separate tracks, so that they can pass each others position without colliding.
At time t_3, which car is moving faster?



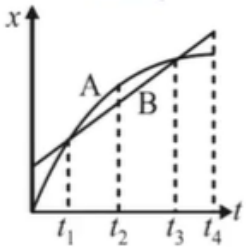
(A) car A (B) car B
(C) same speed (D) None of these

Q15 The graph given shows the POSITION of two cars, A and B, as a function of time. The cars move along the x-axis on parallel but separate tracks, so that they can pass each others position without colliding. At which instant do the two cars have the same velocity?



(A) t_1 (B) t_2
(C) t_3 (D) t_4

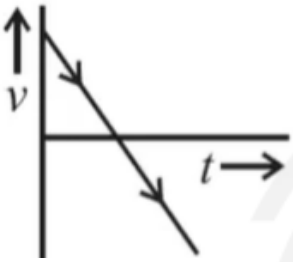
Q16 The graph given shows the POSITION of two cars, A and B, as a function of time. The cars move along the x-axis on parallel but separate tracks, so that they can pass each others position without colliding. Which one of the following best describes the motion of car A as shown on the graphs?



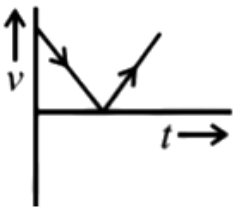
(A) speeding up
(B) constant velocity
(C) slowing down
(D) first speeding up, then slowing down

Q17 A body is thrown vertically upwards. Which one of the following graphs correctly represent the velocity vs time?

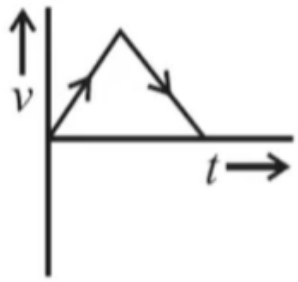
(A)



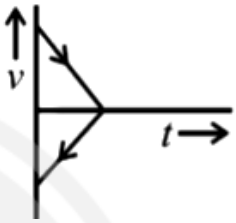
(B)



(C)



(D)



Answer Key

Q1	(A)
Q2	(B)
Q3	(C)
Q4	(C)
Q5	(C)
Q6	(A)
Q7	(C)
Q8	(D)
Q9	(B)
Q10	(D)
Q11	(C)
Q12	(C)
Q13	(A)
Q14	(B)
Q15	(B)
Q16	(C)
Q17	(A)