

Chapter 1 Motion in a Straight Line

Assignment 4

Class 11

Prerna Edu

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DPP

DAILY PRACTICE PROBLEMS

CLASS : XITH

DATE :

SUBJECT : PHYSICS

DPP NO. : 4

Topic :- MOTION IN A STRAIGHT LINE

- A truck and a car are moving with equal velocity. On applying the brakes both will stop after certain distance, then
 - Truck will cover less distance before rest
 - Car will cover less distance before rest
 - Both will cover equal distance
 - None
- A body freely falling from the rest has a velocity ' v ' after it falls through a height ' h '. The distance it has to fall down for its velocity to become double, is
 - $2h$
 - $4h$
 - $6h$
 - $8h$
- Two trains travelling on the same track are approaching each other with equal speeds of 40m/s . The drivers of the trains begin to decelerate simultaneously when they are just 2.0km apart. Assuming the decelerations to be uniform and equal, the value of the deceleration to barely avoid collision should be
 - 11.8 m/s^2
 - 11.0 m/s^2
 - 2.1 m/s^2
 - 0.8 m/s^2
- The numerical ratio of displacement to the distance covered is always
 - Less than one
 - Equal to one
 - Equal to or less than one
 - Equal to or greater than one
- A student is standing at a distance of 50 m from the bus. As soon as the bus begins its motion with an acceleration of 1 ms^{-2} , the student starts running towards the bus with a uniform velocity u . Assuming the motion to be along a straight road, the minimum value of u , so that the

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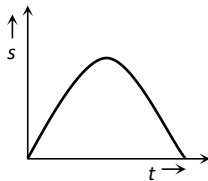
student is able to catch the bus is

- a) 8 ms^{-1} b) 5 ms^{-1} c) 12 ms^{-1} d) 10 ms^{-1}

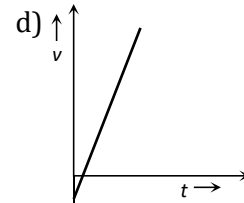
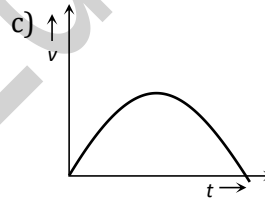
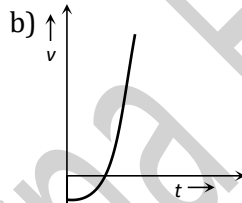
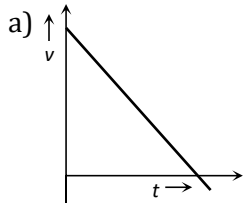
6. A cat moves from X to Y with a uniform speed v_u and returns to X with a uniform speed v_d . The average speed for this ground trip is

- a) $\frac{2v_d v_u}{v_d + v_u}$ b) $\sqrt{v_u v_d}$ c) $\frac{v_d v_u}{v_d + v_u}$ d) $\frac{v_u + v_d}{2}$

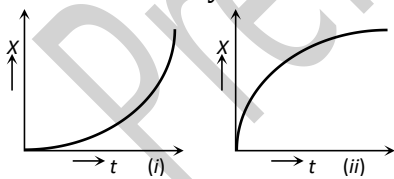
7. The graph of displacement v/s time is



Its corresponding velocity-time graph will be



8. Figures (i) and (ii) below show the displacement-time graphs of two particles moving along the x -axis. We can say that

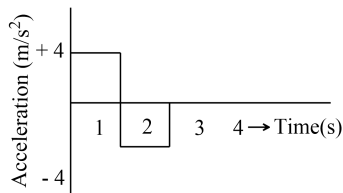


- a) Both the particles are having a uniformly accelerated motion
 b) Both the particles are having a uniformly retarded motion
 c) Particle (i) is having a uniformly accelerated motion while particle (ii) is having a uniformly retarded motion
 d) Particle (i) is having a uniformly retarded motion while particle (ii) is having a uniformly accelerated motion

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16. A ball is thrown vertically upwards with an initial velocity 1.4 ms^{-1} returns in 2 s. The total displacement of the ball will be
- a) 22.4 m b) Zero c) 33.6 d) 44.8 m

17. A particle starts from rest at $t = 0$ and moves in a straight line with an acceleration as shown below. The velocity of the particle at $t = 3 \text{ s}$ is



- a) 2 ms^{-1} b) 4 ms^{-1} c) 6 ms^{-1} d) 8 ms^{-1}
18. A bus begins to move with an acceleration of 1 ms^{-2} . A man who is 48 m behind the bus starts running at 10 ms^{-1} to catch the bus. The man will be able to catch the bus after
- a) 6 s b) 5 s c) 3 s d) 8 s
19. A truck and a car are moving with equal velocity. On applying the brakes both will stop after certain distance, then
- a) Truck will cover less distance before rest b) Car will cover less distance before rest
- c) Both will cover equal distance d) None
20. Velocity of a body on reaching the point from which it was projected upwards, is
- a) $v = 0$ b) $v = 2u$ c) $v = 0.5u$ d) $v = u$