

# **Chapter 1 Motion in a Straight Line**

**Assignment 4** 

Class 11



**SUBJECT: PHYSICS CLASS: XITH DPP NO.: 4** DATE:

	Topic:-MOTION IN A STRAIGHT LINE						
1.	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				
2.	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						
	a) $_{2h}$ b) $_{4h}$		c) 6h	d) $_{8h}$			
3.	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						
	a) $_{11.8  m/s^2}$ b) $_{11.0}$	$m/s^2$	c) $2.1  m/s^2$	d) $_{0.8 \ m/s^2}$			
4.	The numerical ratio of displacement to the distance covered is always						
	a) Less than one		b) Equal to one				
	c) Equal to or less than one		d) Equal to or greater than one				
5.	A student is standing at a distar with an acceleration of 1 ms <sup>-2</sup> , velocity <i>u</i> . Assuming the motion	the students s	tarts running tow				

student is able to catch the bus is

a) 
$$_{8 \text{ ms}^{-1}}$$

b) 
$$_{5} \, \text{ms}^{-1}$$

c) 
$$_{12} \, \text{ms}^{-1}$$

$$^{\rm d)}10~{\rm ms}^{-1}$$

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

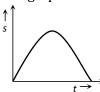
a) 
$$-\frac{2v_dv_u}{v_d+v_u}$$

b)
$$\sqrt{v_u v_d}$$

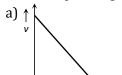
c) 
$$\frac{v_d v_u}{v_d + v_u}$$

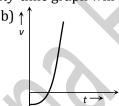
d) 
$$\frac{v_u + v_d}{2}$$

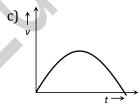
7. The graph of displacement v/s time is

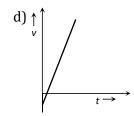


Its corresponding velocity-time graph will be

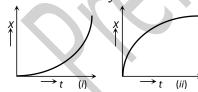








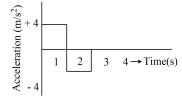
8. Figures (i) and (ii) below show the displacement-time graphs of two particles moving along the x-axis. We can say that



- 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

9.	Consider the acceleration, velocity and displace bounces back. Directions of which of these chan a) Velocity only  c) Acceleration, velocity and displacement		ement of a tennis ball as it falls to the ground and nges in the process b) Displacement and velocity			
			d) Displacement and acceleration			
10.	A lift in which a man is so coin from a height of 4.9 time a) $\sqrt{2}s$		-	•		
11.	Two balls are dropped to the ground from different heights. One ball is dropped $2s$ after the other but they both strike the ground at the same time. If the first ball takes $5s$ to reach the ground, then the difference in initial heights is $(g = 10 ms^{-2})$ a) $20m$ b) $80m$ c) $170m$ d) $40m$					
12.	The displacement of a paseconds at which the pas	article starting from re	st $(at t = 0)$ is given by	d) <sub>40m</sub> $s = 6t^2 - t^3$ . The time in d)8		
13.		ody falls from rest in the gravitational field of the earth. The distance travelled in the fifth and of its motion is $(g = 10 \ m/s^2)$				
		b) <sub>45m</sub>	c) <sub>90m</sub>	d) <sub>125m</sub>		
14.	A body is moving with uniform acceleration covers 200 m in the first 2 s and 220 m in the next 4 s. find the velocity in $ms^{-1}$ after 7 s.					
	a) 10	b) 15	c) 20	d)30		
15.	A ball is dropped on the floor from a height of 10m. It rebounds to a height of 2.5m. If the ball is in contact with the floor for 0.01 s, the average acceleration during contact is nearly [Take $g=10 \text{ms}^{-2}$ ]					
	a) $500\sqrt{2}$ ms <sup>-2</sup> upwards c) $1500\sqrt{5}$ ms <sup>-2</sup> upwards		$^{\rm b)}1800~{\rm ms^{-2}}$ downwards			
			$^{\mathrm{d})}1500\sqrt{2}~\mathrm{ms^{-2}}$ downwards			

- 16. A ball is thrown vertically upwards with an initial velocity  $1.4~\rm ms^{-1}$  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 = 3s 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  $1ms^{-2}$ . A man who is 48m behind the bus starts running at  $10 ms^{-1}$  to catch the bus. The man will be able to catch the bus after
  - a)<sub>6s</sub>

b)<sub>5s</sub>

c) <sub>3s</sub>

- d)<sub>8s</sub>
- 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
- dv = u