

DPP

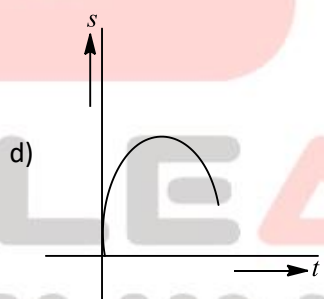
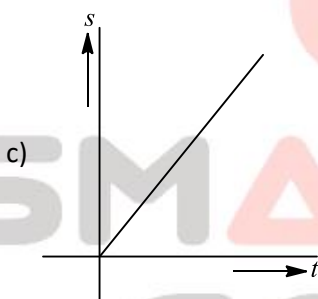
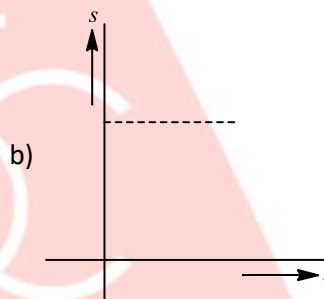
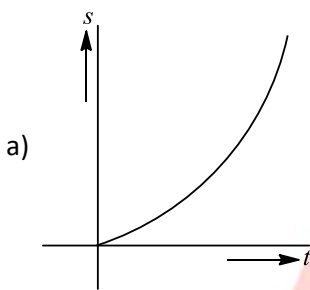
DAILY PRACTICE PROBLEMS

CLASS : XITH
DATE :

SUBJECT : PHYSICS
DPP NO. : 1

Topic :- MOTION IN A STRAIGHT LINE

- From the top of a tower two stones, whose masses are in the ratio 1: 2 are thrown one straight up with an initial speed u and the second straight down with the same speed u . Then, neglecting air resistance
 - The heavier stone hits the ground with a higher speed
 - The lighter stone hits the ground with a higher speed
 - Both the stones will have the same speed when they hit the ground
 - The speed can't be determined with the give data
- A body is travelling in a straight line with a uniformly increasing speed. Which one of the plot represents the change in distance (s) travelled with time (t)?



- A body is thrown vertically upwards. If air resistance is to be taken into account, then the time during which the body rises is
 - Equal to the time of fall
 - Less than the time of fall
 - Greater than the time of fall
 - Twice the time of fall
- A body of 5 kg is moving with a velocity of 20 m/s . If a force of 100 N is applied on it for 10 s in the same direction as its velocity, what will now be the velocity of the body
 - 200 m/s
 - 220 m/s
 - 240 m/s
 - 260 m/s
- A particle when thrown, moves such that it passes from same height at 2 and 10 s , the height is
 - g
 - $2g$
 - $5g$
 - $10g$
- Two trains one of 100 m and another of length 125 m , are moving in mutually opposite directions along parallel lines, meet each other, each with speed 10 m/s . If their acceleration are 0.3 m/s^2 and 0.2 m/s^2 respectively, then the time taken to pass each other will

be

- a) 5 s b) 10 s c) 15 s d) 20 s

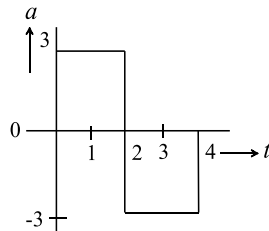
7. A ball is dropped downwards. After 1 second another ball is dropped downwards from the same point. What is the distance between them after 3 seconds

- a) 25 m b) 20 m c) 50 m d) 9.8 m

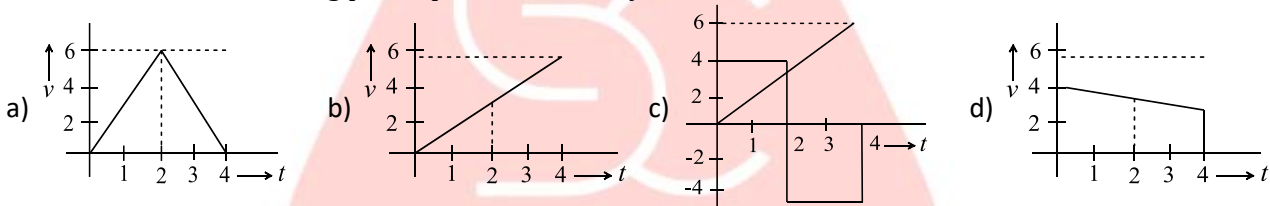
8. A balloon rises from rest with a constant acceleration $g/8$. A stone is released from it when it has risen to height h . The time taken by the stone to reach the ground is

- a) $4\sqrt{\frac{h}{g}}$ b) $2\sqrt{\frac{h}{g}}$ c) $\sqrt{\frac{2h}{g}}$ d) $\sqrt{\frac{g}{h}}$

9. A particle starts from rest at $t = 0$ and undergoes an acceleration a in ms^{-2} with time t in seconds which is as shown



Which one of the following plot represents velocity V in ms^{-1} versus time t in seconds



10. The acceleration due to gravity on the planet A is 9 times the acceleration due to gravity on the planet B . A man jumps to a height of $2m$ on the surface of A . What is the height of jump by the same person on the planet B

- a) 18 m b) 6 m c) $\frac{2}{3}m$ d) $\frac{2}{9}m$

11. A parachutist after bailing out falls $50m$ without friction. When parachute opens, it decelerates at $2m/s^2$. He reaches the ground with a speed of $3m/s$. At what height, did he bail out

- a) 293 m b) 111 m c) 91 m d) 182 m

12. Two spheres of same size, one of mass $2kg$ and another of mass $4kg$, are dropped simultaneously from the top of Qutub Minar (height = $72m$). When they are $1m$ above the ground, the two spheres have the same

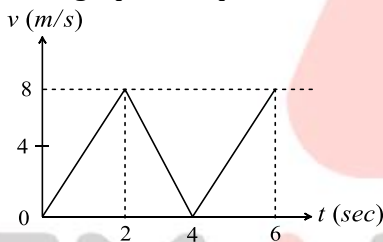
- a) Momentum b) Kinetic energy c) Potential energy d) Acceleration

13. A boy walks to his school at a distance of $6km$ with constant speed of $2.5km/hour$ and walks back with a constant speed of $4km/hr$. His average speed for round trip expressed in $km/hour$, is

- a) $24/13$ b) $40/13$ c) 3 d) $1/2$

14. A car moving with a velocity of 10 m/s can be stopped by the application of a constant force F in a distance of 20 m . If the velocity of the car is 30 m/s . It can be stopped by this force in
- a) $\frac{20}{3} \text{ m}$ b) 20 m c) 60 m d) 180 m
15. One car moving on a straight road covers one third of the distance with 20 km/hr and the rest with 60 km/hr . The average speed is
- a) 40 km/hr b) 80 km/hr c) $46\frac{2}{3} \text{ km/hr}$ d) 36 km/hr
16. A body starts from rest, with uniform acceleration. If its velocity after n seconds is v , then its displacement in the last two seconds is
- a) $\frac{2v(n+1)}{n}$ b) $\frac{v(n+1)}{n}$ c) $\frac{v(n-1)}{n}$ d) $\frac{2v(n-1)}{n}$
17. A packet is dropped from a balloon which is going upwards with the velocity 12 m/s , the velocity of the packet after 2 seconds will be
- a) -12 m/s b) 12 m/s c) -7.6 m/s d) 7.6 m/s

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



- a) 12m b) 16m c) 20m d) 24m
19. A body, thrown upwards with some velocity, reaches the maximum height of 20m . Another body with double the mass thrown up, with double initial velocity will reach a maximum height of
- a) 200 m b) 16 m c) 80 m d) 40 m
20. A body is falling freely under gravity. The distances covered by the body in first, second and third minute of its motion are in the ratio
- a) $1 : 4 : 9$ b) $1 : 2 : 3$ c) $1 : 3 : 5$ d) $1 : 5 : 6$