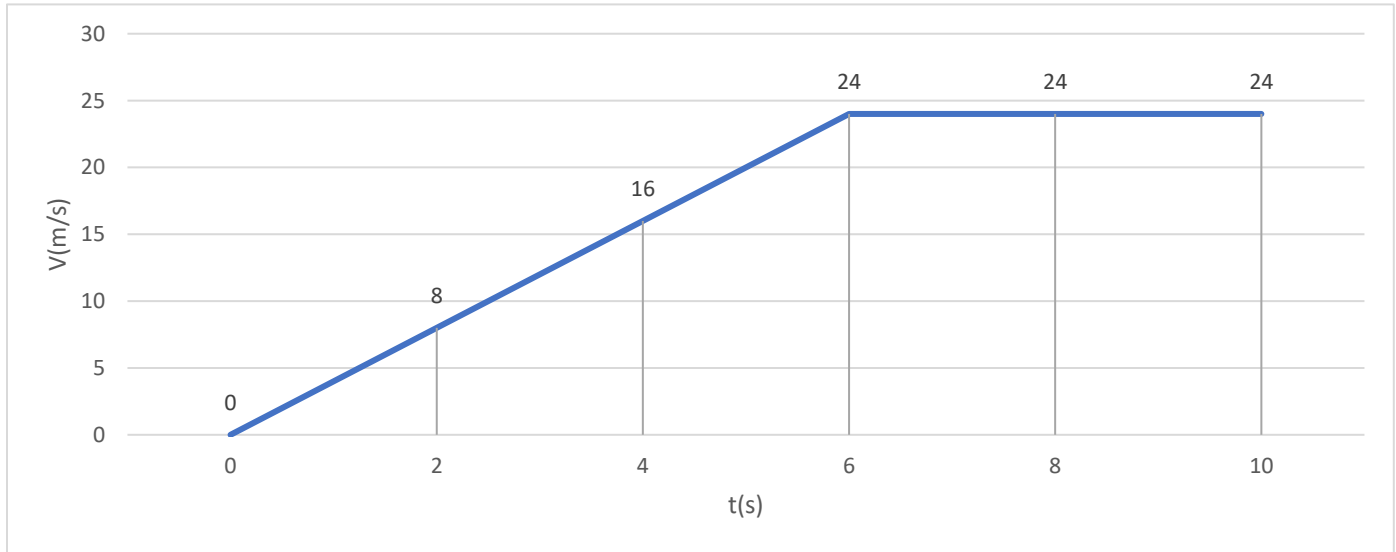


Questions From Motions in Straight Line

1. Which of the following statements **DOES NOT** describe a property of uniform rectilinear motion ? (Matric 2010)
 - A. The slope of distance-time graph has the same value at all times.
 - B. Distance is proportional to the square of time.
 - C. The average speed is equal to the speed at any instant of time.
 - D. The velocity doesn't vary with time.
2. A body moves along the x-axis with acceleration of -20m/s^2 . This means the (Matric 2010)
 - A. Speed of the body increased by 20m/s during each second.
 - B. Body moves 20m during each second.
 - C. Acceleration of the body decreases by 20m/s^2 during each second.
 - D. Speed of the body decreases by 20m/s during each second.
3. A boat is able to move through still water at 20m/s . If the boat moves up stream in a river that flows at 5m/s , what is the speed of the boat relative to the ground? (Matric 2010)
 - A. 25 m/s
 - B. 100 m/s
 - C. 15 m/s
 - D. 20 m/s
4. Which of the following is correct about a ball which is projected at angle of $\theta = 60^\circ$ above the horizontal? (Matric 2009)
 - A. At the maximum height, the directions of the velocity and acceleration are parallel.
 - B. At the maximum height, the velocity of the ball is equal to zero.
 - C. The horizontal component of the velocity is constant throughout its motion.
 - D. The vertical component of the velocity is maximum at the maximum height.
5. If a ball is dropped freely from the top of a tall building reaches the ground after 3s , what should be the height of the building ($g = 10\text{m/s}^2$) (Matric 2009)
 - A. 45m
 - B. 30m
 - C. 90m
 - D. 60m
6. Two bodies A and B are moving with speed $V_a = V$ and $V_b = 2V$ relative to the ground, respectively. If they are moving in the same direction, what will be the velocity of B with relative to A? (Matric 2009)
 - A. $2V$
 - B. V
 - C. $\sqrt{5} V$
 - D. $3V$

7. The diagram shown below is a velocity-time graph for a car moving in a straight line. What is the displacement of the car after 10s? (Matric 2008)



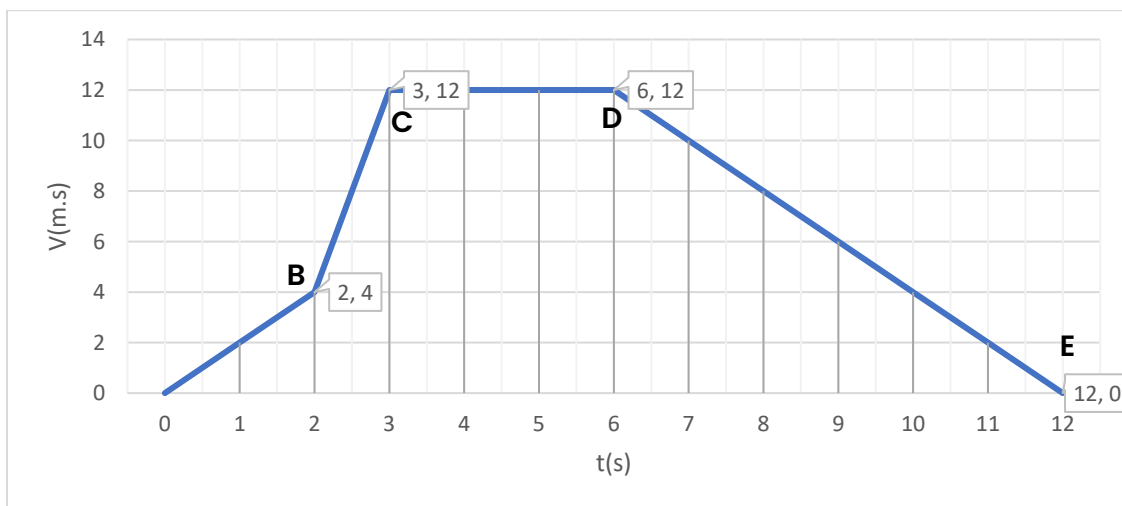
- A. 96m
B. 72m
C. 240m
D. 168m
8. If a stone is thrown directly downward from the top of a 40m tall building with an initial speed of 10m/s. what will be the speed of the stone when it reaches the ground? ($g=10\text{m/s}^2$) (Matric 2008)
- A. 40m/s
B. 30m/s
C. 90m/s
D. 50m/s
9. Which of the following statement is correct? (Matric 2008)
- A. It is not necessary to consider a reference frame to measure velocity.
B. There is a universal reference frame.
C. Velocity is always measured relative to a reference frame
D. Velocity is independent of a reference frame.
10. For an object moving in a straight line, (UEE 2014/15)
- A. If the velocity increases by equal amount in equal time interval, the velocity time graph is straight line with positive slope and the acceleration-time graph is horizontal.
B. The slope of displacement-time graph and the area of the region under acceleration-time graph are, respectively, the acceleration and velocity of the object.
C. If the displacement changes by equal amount in equal time interval, the displacement-time graph is horizontal line.
D. The area of the region under the displacement-time graph and the slope of velocity-time graph are, respectively, the acceleration and displacement of the object.

11. Instantaneous velocity is different from average velocity in that, instantaneous velocity is (UEE 2013/14)
- In opposite direction to the displacement of the moving object.
 - The velocity at a particular instant of time.
 - The average velocity during the time of acceleration.
 - The total displacement to the time taken.
12. A car travelling at 20m/s starts to speedup. After 5 minutes its speed is 144m/s. what is the acceleration of the car? (UEE 2013/14)
- 0.41 m/s
 - 28.8 m/s
 - 0.55 m/s
 - 24.8 m/s
13. In an experiment to measure the velocity of a ball rolling along x-axis, a student recorded the distance traveled and time taken by the ball. Which of the following data represent the constant velocity of the ball? (UEE 2012/13)
- A.
- | | | | | | | |
|------|---|---|---|---|---|----|
| X(m) | 0 | 2 | 4 | 6 | 8 | 10 |
| t(s) | 0 | 1 | 2 | 3 | 4 | 5 |
- B.
- | | | | | | | |
|------|---|---|---|---|---|----|
| X(m) | 0 | 4 | 5 | 6 | 7 | 10 |
| t(s) | 0 | 1 | 2 | 3 | 4 | 4 |
- C.
- | | | | | | | |
|------|---|---|---|-----|---|---|
| X(m) | 0 | 2 | 3 | 4 | 6 | 7 |
| t(s) | 0 | 1 | 2 | 2.5 | 3 | 4 |
- D.
- | | | | | | | |
|------|---|---|---|---|---|---|
| X(m) | 0 | 3 | 5 | 6 | 7 | 9 |
| t(s) | 0 | 1 | 2 | 3 | 4 | 5 |
14. While going to school, a student travels 3km, East and then 4km, North in 2 hrs. the magnitude of student's average velocity and average speed are, respectively (UEE 2012/13)
- 2km/hr and 7km/hr.
 - 2.5km/hr and 3.5km/hr
 - 3.5km/hr and 2.5km/hr
 - 5km/hr and 7km/hr
15. A boy throws a ball vertically upward with an initial speed of 20m/s. Neglecting air resistance, which of the following is true about the motion of the ball? (UEE 2012/13)
- Its velocity after 3s is 50m/s, downward
 - The time taken to reach the maximum height is 4s
 - Its velocity after 1s is 30m/s, upward
 - Its maximum height is 20m

16. A driver of an automobile travelling at a constant speed of 20m/s suddenly applies a brake and the automobile comes to rest in 2.0 seconds after skidding for a certain distance. What is the length of the skid distance? (UEE 2011)

- A. 400m
- B. 10m
- C. 40m
- D. 20m

17. Which of the following is correct about the motion shown in the velocity-time graph below? (UEE 2011)



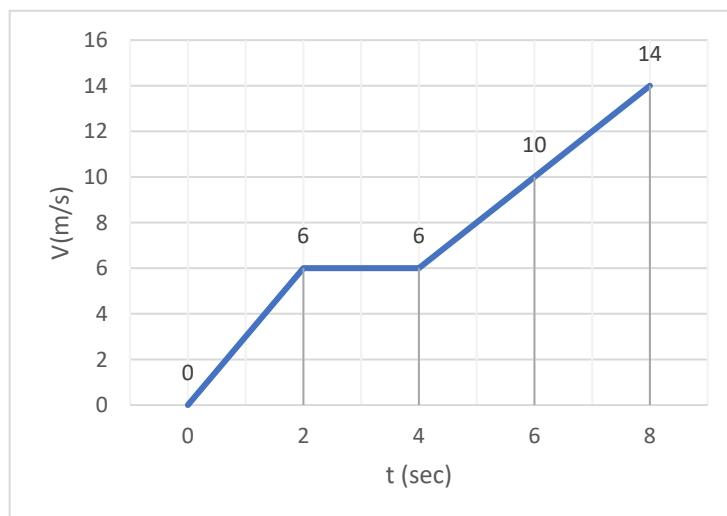
- A. Between C and D, the motion is with constant acceleration
- B. Between B and C, the acceleration is 4m/s^2
- C. Between D and E, the motion is with constant positive acceleration
- D. Total displacement is 84m

18. A race car is moving at a constant speed of 35m/s. A security car was moving at a speed of 5m/s as the race car passes by it and was accelerating at constant rate of 5m/s^2 . What was the speed of the security car when it took over the race car? (UEE 2010)

- A. 35m/s
- B. 50m/s
- C. 5m/s
- D. 65m/s

19. A car starts moving from rest and its motion on a straight line is shown in the figure below. What is the average velocity of the car within the first 6 seconds? (UEE 2010)

- A. 5.67 m/s
- B. 1.67 m/s
- C. 5 m/s
- D. 6 m/s

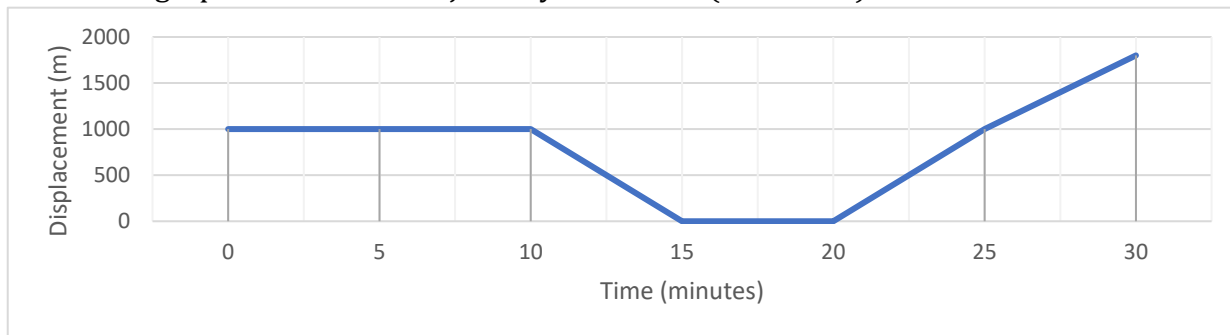


20. A cricketer throws a ball vertically upwards with initial speed of 20m/s . how long is it in the air before it returns to the cricketer's hands? (UEE 2009)

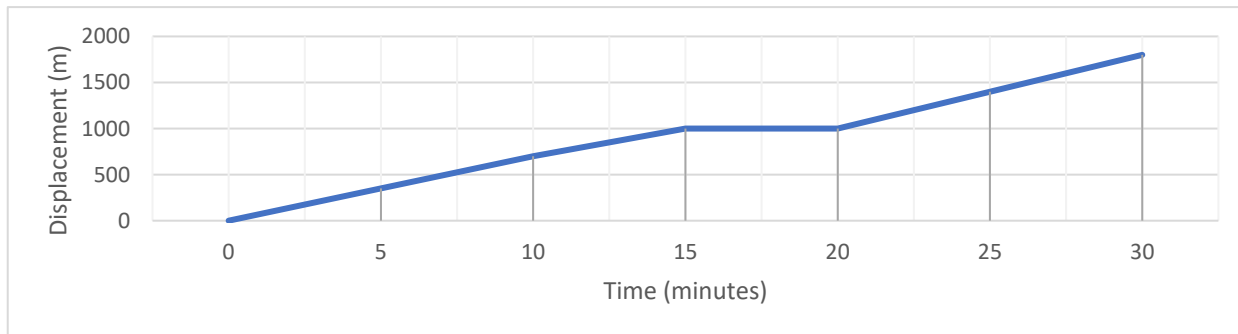
- A. 2s
- B. 10s
- C. 1.5s
- D. 4s

21. Abeba walks to school. She walks 1Km in 15 minutes. She meets her friend Makeda – they talk for 5 minutes and then carry-on walking to school. They walk 800m in 10 minutes. Which of the following displacement-time graph shows Abeba's journey to school? (UEE 2009)

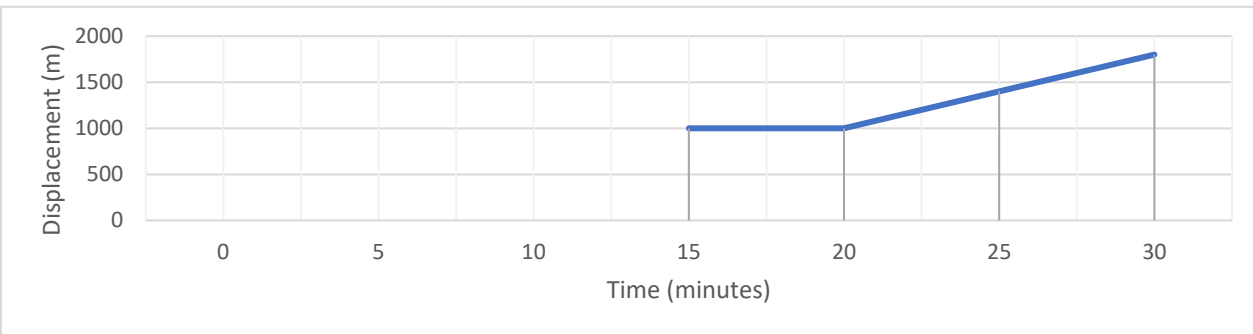
A.



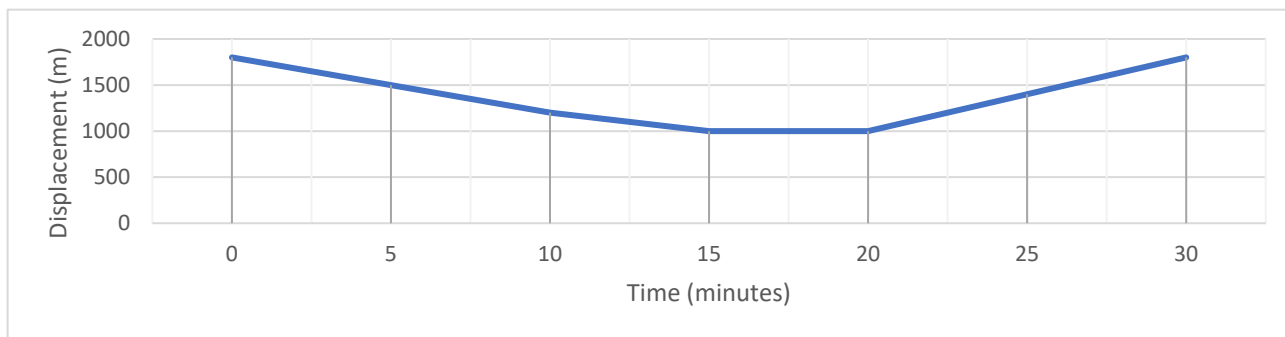
B.



C.



D.



22. An airplane travelled from Addis Ababa to Mekele, 780km, in 45 minutes. What was it's average speed? (UEE 2008)
- 0.28m/s
 - 1040km/hr
 - 17.3m/min
 - 585km/hr
23. An example of a body moving with constant speed but still accelerating is: (UEE 2008)
- A body moving in a straight road
 - A body moving on a straight railway track
 - A body moving in a circular path
 - A body falling in a viscous fluid
24. A student moves along the boundary of a square field of side 10m in 40sec. if he started from one of the corners of the square, what will be the magnitude of displacement of student at the end of 2 minutes and 20 seconds from his initial position? (UEE 2008)
- 10m
 - $10\sqrt{2}$
 - 40m
 - 30m

Answer Key

1. B	13. A
2. D	14. B
3. A	15. D
4. C	16. D
5. A	17. D
6. B	18. D
7. D	19. A
8. B	20. B
9. C	21. B
10. A	22. B
11. B	23. C
12. A	24. 5m