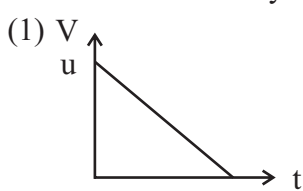
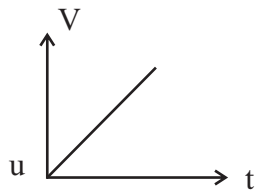
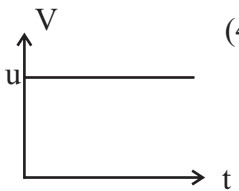
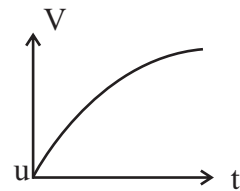
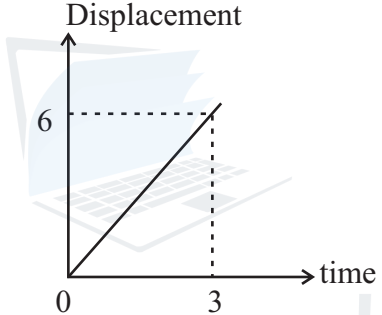
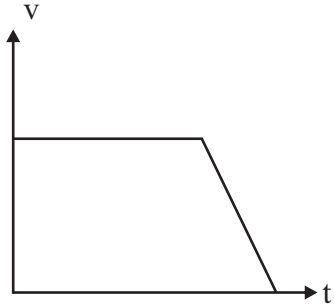

**Nalanda College - Colombo 10**  
 Unit Evaluation  
 Grade 10 Science Unit 2 - Motion in straight line (Physics)

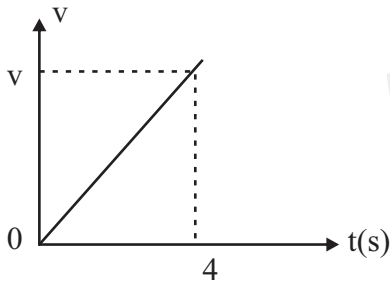
- 01 Which of the following is the correct SI unit of the velocity?  
 (1)  $\text{ms}^{-2}$  (2)  $\text{ms}^{-1}$  (3)  $\text{m}^{-1}\text{S}$  (4)  $\text{m}^{-2}\text{S}$
- 02 Which is the correct velocity time graph for the motion of an object thrown vertically down words with an initial velocity of  $U$ ?
- (1)  (2)  (3)  (4) 
- 03 Displacement time graph relevant to the motion of a ball is shown below.  
 What is the velocity of the ball?
- (1)  $0.5\text{ms}^{-1}$   
 (2)  $18\text{ms}^{-1}$   
 (3)  $9\text{ms}^{-1}$   
 (4)  $2\text{ms}^{-1}$
- 
- 04 What is the time taken by a stone to reach the velocity of  $36\text{ms}^{-1}$  which is made to fall down vertically with an initial velocity of  $6\text{ms}^{-1}$  ( $g = 10\text{ms}^{-2}$ )  
 (1) 3S (2) 3.6S (3) 3.5S (4) 10S
- 05 The velocity time graph given here is relevant to which motion given below.
- A Starting from rest moving with a uniform velocity and coming to rest.  
 B Coming to rest after moving with a uniform acceleration.  
 C Starting from uniform velocity, then moving with a uniform acceleration.  
 D Coming to rest after moving with uniform acceleration
- The time statements from the above are,  
 (1) only B and C (2) only B, C, and D (3) only A, B and C (4) only A and B
- 
- 06 A ball is thrown vertically up with a velocity of  $40\text{ms}^{-1}$ . The total time taken by it to fall on the ground are.  
 (1) 4S (2) 8S (3) 2S (4) 16S

- 07 A velocity of  $20\text{ms}^{-1}$ , when represented in  $\text{kmh}^{-1}$  is equal to,  
 (1)  $\frac{20 \times 1000}{60 \times 60}$       (2)  $\frac{20 \times 60}{1000}$       (3)  $\frac{20 \times 1000}{60}$       (4)  $\frac{20 \times 60 \times 60}{1000}$
- 08 Both are vector quantities from the following is,  
 (1) Speed and velocity      (2) Velocity and acceleration  
 (3) acceleration and mass      (4) Pressure and time
- 09 Which is the correctly written SI unit for meters per square seconds?  
 (1)  $\text{ms}^{-1}$       (2)  $\text{ms}^{-2}$       (3)  $\text{ms}^{-3}$       (4)  $\text{m}^{-2}\text{S}$
- 10 Which is the scalar quantity?  
 (1) Force      (2) Displacement      (3) time      (4) Acceleration

**Structured Essay Questions**

01 The velocity time graph for the motion of a fruit is given below.

(i)



(a) Find the velocity V, using the graph

.....  
 .....

(b) Calculate the height from the ground to the branch.

.....  
 .....

(c) If the mass of the fruit is 60g what was the potential energy of the fruit, when it was on the branch?

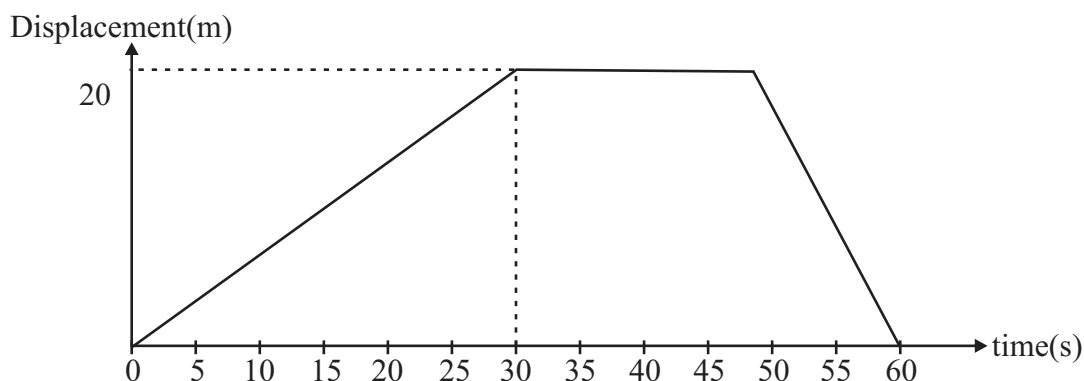
.....  
 .....

(d) Give the final velocity of the fruit in kilometers per hour?

.....  
 .....

(e) Sketch the displacement - time graph for the motion mentioned above.

- 02 The displacement - time graph of an object moving along a straight line is shown in the diagram below.



- (i) How far has the object moved after starting from rest?  
.....  
.....
- (ii) How long has it taken to travel the above distance.  
.....  
.....
- (iii) Find the maximum velocity of that object during that period?  
.....  
.....
- (iv) What can you say about the motion during the interval from 30S to 50S?  
.....  
.....
- (v) Comment on the motion during the interval from 50S to 60S?  
.....  
.....

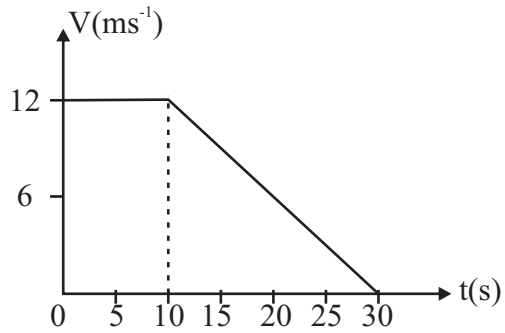
### Essay Questions

- 01 Consider the following data relevant to the motion of a bicycle rider in a straight line path from a certain point.

Time (S)	0	1	2	3	4	5	6	7	8	9	10	11
Displacement(m)	0	2	4	6	6	6	8	8	7	4	2	0

- (i) Sketch the displacement - time graph for the motion of the bicycle rider  
 (ii) Describe in brief the motion of the above bicycle.  
 (iii) What is the displacement of the bicycle during the first 6S?  
 (iv) Calculate the rate of change of the displacement during last 4S?

02 A car was moving in a straight road. The driver suddenly applied the brake to stop the vehicle.



- (i) Describe in brief the motion of the above bicycle.
- (ii) What is the distance the vehicle traveled from  $t = 0$  until the brake is applied?
- (iii) What is the deceleration of the vehicle occurred by applying break?
- (iv) What is the displacement of the object after 10S?
- (v) Sketch the displacement - tome graph for the motion of the object until the brake is applied.



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