1. The slope of v-t graph of a uniform motion represents ____________.
   A. Instantaneous Velocity
   B. Acceleration
   C. Velocity
   D. Speed

2. What is the magnitude of the gravitational acceleration in ms⁻²?
   A. 7.8
   B. 8.9
   C. 9.8
   D. 10.9

3. The difference between distance and displacement is______.
   A. distance has no direction
   B. distance is the total travelling
   C. distance does not care of the starting and ending
   D. distance has direction but displacement not

4. The definition of acceleration is ________________.
   A. the rate of change in distance
   B. the rate of change in displacement
   C. the rate of change in velocity
   D. the rate of change in speed

5. Of the equation \( v = u + at \), \( v \) represents ________________.
   A. the initial velocity
   B. the final velocity
   C. the acceleration
   D. the time interval

6. In mechanics, 'a' represents ________________.
   A. speed
   B. velocity
   C. displacement
   D. acceleration

7. The area under a v-t graph represents ________________.
   A. the total speed
   B. the average speed
   C. the total displacement travelled
   D. the total acceleration

8. Displacement cares of ________________.
   A. the path between two places
   B. the position of the initial place and the final place
   C. the time of travelling from the initial place to the final place
   D. the time of travelling and the position change from the initial place to the final place

9. Speed is expressed in the unit of ________________.
   A. m
   B. m/s
   C. m s
   D. s

10. Which of the following description about speed, velocity and acceleration is incorrect?
    A. Velocity and acceleration are vectors.
    B. An object can have zero acceleration but non-zero speed.
    C. If an object with non-zero acceleration, its velocity must not be zero.
    D. If an object with zero acceleration, its average speed is equal to the instantaneous speed.

The graph shows the variation of the velocity of a moving object with time. Which of the following statements is/are correct?
(1) The average velocity of the first 20 seconds is 15 m s⁻¹.
(2) The total distance travelled during the first 10 seconds is 112.5 m.
(3) The acceleration of the first 5 seconds is 3 m s⁻².

A. (1) only  
B. (3) only  
C. (2) and (3) only  
D. (1), (2) and (3)

12  
Suppose a car can accelerate from rest to 200 km h⁻¹ in 10 s. What is its acceleration?
A. 2 m s⁻²  
B. 2.78 m s⁻²  
C. 4.57 m s⁻²  
D. 5.56 m s⁻²

13  
In the figure, Tommy stands at a cliff and throws a stone vertically upwards at 15 m s⁻¹. The stone rises to the highest point and then falls into the sea. If Tommy is 50 m above the sea, what is the time interval for the stone moving in air? Take g = 10 m s⁻².
A. 4 s  
B. 4.5 s  
C. 5 s  
D. 5.7 s

14  
In the figure, Tommy stands at a cliff and throws a stone vertically upwards at 15 m s⁻¹. The stone rises to the highest point and then falls into the sea. Which of the v-t graphs best represents the variation of the velocity v of the stone with time t after it leaves the hand of Tommy and before it reaches the sea bed?
A.  
B.  
C.  
D.  


The above graph shows that quantity $X$ is directly proportional to time $t$. Which of the following can be the quantity $X$?

1. Velocity of a freely falling object with negligible air resistance
2. Displacement of an object moving at constant velocity
3. Distance travelled by an object moving with constant acceleration

A. (1) and (2) only  
B. (1) and (3) only  
C. (2) and (3) only  
D. (1), (2) and (3)

A driver driving at 100 km h$^{-1}$ on a straight highway sees a road-block 100 m in front of him. If he wants to stop in front of it, what is the minimum deceleration of the car? Assume the reaction time of the driver is 0.5 s.

A. 3.38 m s$^{-2}$  
B. 3.86 m s$^{-2}$  
C. 4.29 m s$^{-2}$  
D. 4.48 m s$^{-2}$