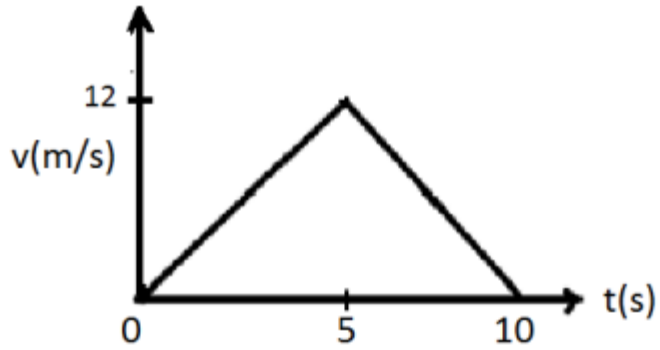




GRADE - XI Date:29-07-2024	PHYSICS	Max Marks - 20 TIME - 50 min
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Section A		
1	The dimensions of Kinetic Energy is (a) $M^1L^1T^{-2}$ (b) $M^2L^2T^1$ (c) $M^1L^1T^2$ (d) $M^1L^2T^{-2}$	1
2	How many significant numbers in 8005000 (a) 1 (b) 6 (c) 5 (d) 4	1
3	A particle is projected making an angle 90 with the horizontal, with k amount of kinetic energy. The kinetic Energy of the particle at the highest position is (a) 0 (b) $k/2$ (c) $k/4$ (d) k	1
4	Assertion and Reasoning: These questions consist of two statements, each printed as Assertion and Reason. While answering these questions, you are required to choose any one of the following four responses. Assertion: Displacement of a body may be zero when distance travelled by it is not zero. Reason: The displacement is the longest distance between initial and final position. A) If both assertion and reason are true and the reason is the correct explanation of the assertion. B) If both assertion and reason are true but reason is not the correct explanation of the assertion. C) If assertion is true but reason is false. D) If the assertion and reason both are false	1
Section B		

5	Check the correctness of the equation $F=ma$, by using dimensional analysis. Where F is the force is the mass the body and a is the acceleration acquired by the object due to this force.	2
6	Draw velocity -time graphs for an object at rest and moving with positive acceleration.	2
	Section C	
7	A particle is projected with a velocity of 40 m/s at an angle of 45 with the horizontal. Calculate maximum height, Time of flight and range covered by the particle.	3
	Section D	
8	Write the conditions to obtain a projectile motion. For an angular projection given to a projectile, draw a neat diagram and derive the expression for (1) maximum height (2) Time of flight (3) Horizontal range	5
	Section E	
9	<p>Case Study Based Question: Read the Case Study given below and answer the question that follow:</p> <p>The time rate of change of position of the object in any direction is called speed of the object If an object covers equal distances in equal intervals of time, then its speed is called uniform speed and it covers unequal distances in equal intervals of time, then its speed is called nonuniform or variable speed. The ratio of the total distance travelled by the object to the total time taken is called average speed of the object. The speed may be positive or zero but never negative. The speed-time graph of a particle moving along a fixed direction is shown in following Fig</p>	1X4=4



(i) Distance travelled by the particle between 0 to 10 seconds

(a) 60 m (b) 50 m (c) 120 m (d) zero

(ii) Average speed between time interval 0 to 10 s

(a) 12 m/s (b) 6 m/s (c) 10 m/s (d) 60 m/s

(iii) (iii) The time when the speed was minimum

(a) at $t = 0$ s and $t = 5$ s (b) at $t = 5$ s and $t = 20$ s (c) at $t = 5$ s and $t = 10$ s (d) at $t = 0$ s and $t = 10$ s

(iv) The time when speed was maximum

(a) $t = 0$ s (b) $t = 5$ s (c) $t = 10$ s (d) $t = 12$ s