

RAM



(RECALL ALL MEMORY)

14

2023
THEORY

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கல்விப் பொதுத் தராதரப் பத்திர(உயர் தர)ப் பரீட்சை, 2023 ஓகஸ்த்
General Certificate of Education (Adv. Level) Examination, August 2023

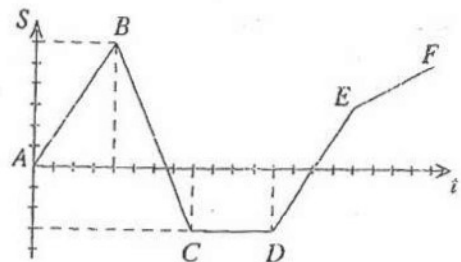
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பௌதிகவியல் I
Physics I

Multiple Choice Questions

1. One of the following units measures a physical quantity that is different from the physical quantity measured by the others. This unit is
(1) eV. (2) $J s^{-1}$. (3) W s. (4) kW hours. (5) MeV.

2. The dimensions of power are
(1) ML^2T^3 . (2) ML^2T^{-2} . (3) MLT^{-3} . (4) ML^2T^{-3} . (5) $ML^{-2}T^{-3}$.

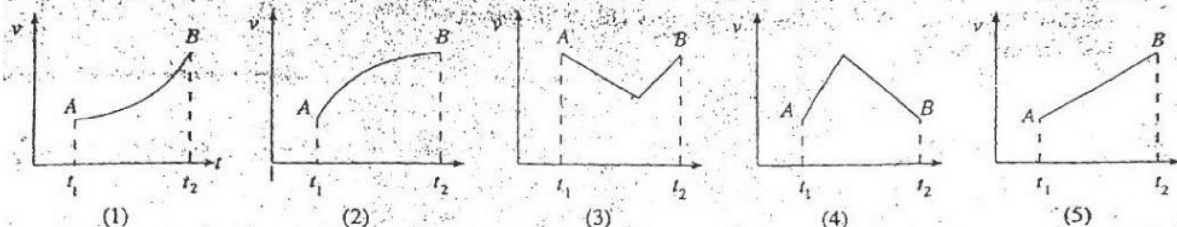
3. Displacement (S) of a particle measured along the x -axis with time (t) is shown in the figure. The magnitude of the velocity of the particle is largest when it travels from
(1) A to B.
(2) B to C.
(3) C to D.
(4) D to E.
(5) E to F.



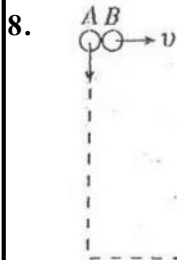
4. In the equation $v^i = ka^j s$, v represents the velocity, a represents the acceleration and s represents the displacement. k is a constant and i and j are integers. What should be the values of i and j in order to make the equation dimensionally correct?
(1) 1, 1 (2) 1, 2 (3) 2, 1 (4) 2, 2 (5) 2, 3

5. Dimensions of kilowatt-hour is
(1) $[M][L]^2[T]^{-2}$ (2) $[M][L][T]^{-1}$ (3) $[M][L]^2[T]^{-3}$ (4) $[T]$ (5) $[T]^{-1}$

6. In which of velocity (v)-time (t) graphs shown below would the average velocity over the entire period between t_1 and t_2 be equal to the average of the two velocities at the ends A and B of the interval?



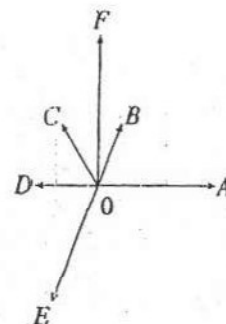
7. The distances travelled by an object falling freely from rest during first, second and third seconds are in the ratio
 (1) 1 : 2 : 3. (2) 1 : 4 : 9. (3) 1 : 2 : 9. (4) 1 : 1 : 1. (5) 1 : 3 : 5.



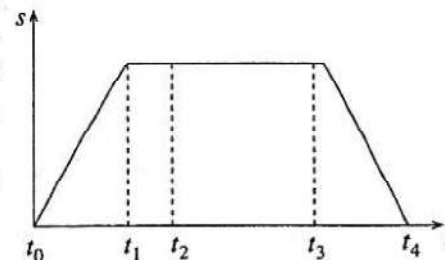
A ball B is projected horizontally with speed v and a ball A is dropped vertically from rest at the same instant as shown in the figure. Which of the following statements is true? (Neglect air resistance)

- (1) A reaches the ground first with a higher speed than B .
- (2) B reaches the ground first with a higher speed than A .
- (3) A reaches the ground first with a lower speed than B .
- (4) Both A and B reach the ground at the same instant with the same speed.
- (5) Both A and B reach the ground at the same instant but B with higher speed than A .

9. A system of coplanar forces OA , OB , OC , OD , OE and OF acts on an object as shown in the figure. Magnitude of $OA = 2 OD$ and $OE = 2 OB$. The resultant force on the object is most likely to be
 (1) along the direction of OC .
 (2) along the direction of OE .
 (3) along the direction of OF .
 (4) along the direction of OA .
 (5) zero.



10. Figure shows displacement (s) versus time (t) curve for a motion of a particle. Consider the following statements made about its motion.
 (A) During the time period $t_0 - t_1$ the particle moves at a constant acceleration and during $t_2 - t_3$, it moves at a constant velocity.
 (B) Particle comes to rest at time t_4 .
 (C) During the time period $t_0 - t_4$, the total distance travelled by the particle is equal to the area under the $s-t$ curve.



Of the above statements,

- (1) only (A) is true.
- (2) only (A) and (B) are true.
- (3) only (B) and (C) are true.
- (4) all (A), (B) and (C) are true.
- (5) all (A), (B) and (C) are false.