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(RECALL ALL MEMORY)

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**2 0 2 3
THEORY**

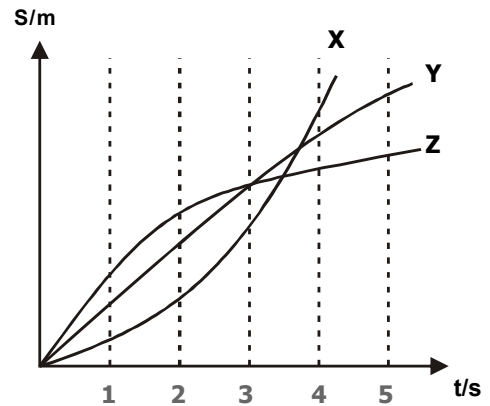
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 கல்விப் பொதுத் தராதரப் பத்திர(உயர் தர)ப் பரீட்சை, 2023 ஓகஸ்த்
General Certificate of Education (Adv. Level) Examination, August 2023

භෞතික විද්‍යාව I
பௌதிகவியல் I
Physics I

Multiple Choice Questions

1. **Dimensions of Power are,**
 (1) $ML^{-1} T^{-2}$ (2) $ML^2 T^{-3}$ (3) $ML^{-2} T^{-2}$ (4) $ML^{-2} T^{-3}$ (5) $ML^{-2} T^2$

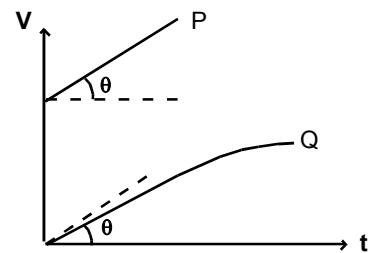
2. **Displacement - time curves of three objects X, Y and Z are shown in the diagram. Consider the following statements made on motions of these three objects.**
 (a) Velocities of X and Y becomes equal in the time duration between 2nd and 3rd seconds.
 (b) Velocities of Y and Z become equal in the 3rd second.
 (c) Velocity of X is higher than that of Y and X at $t = 4$.



True of the above is/are,

- (1) a and b only. (2) a and c only.
 (3) c only. (4) All of the above
 (5) None of the above

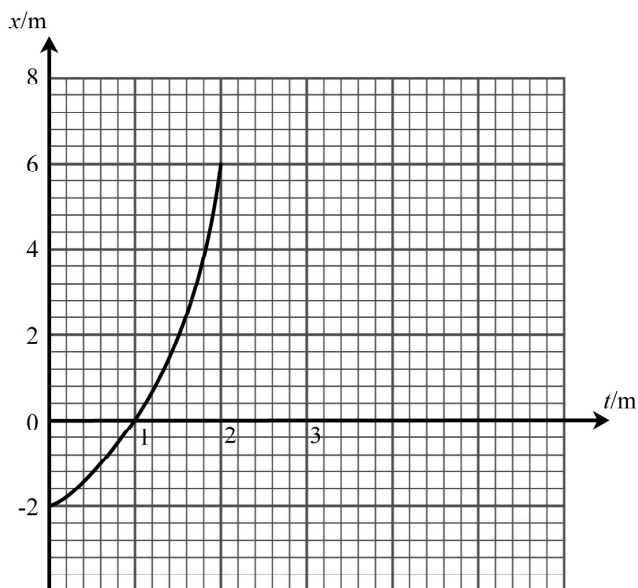
3. **Velocity - time curves of two objects P and Q are shown in the diagram. Consider the following statements made on these two objects.**
 (A) Initial accelerations of P and Q are equal.
 (B) Resultant force on P remains constant and the resultant force on Q decreases gradually.
 (C) P starts its motion from a point in front of Q and both the objects travel in the same direction.



True of the above is/are,

- (1) A and B only. (2) A and C only.
 (3) B and C only. (4) B only. (5) All of the above

4. Displacement - time curve of an object travelling with an acceleration along the x -axis is given in the graph. If initial velocity of the object is zero, magnitude of the acceleration is,



- (1) 2 ms^{-2}
- (2) 3 ms^{-2}
- (3) 4 ms^{-2}
- (4) 5 ms^{-2}
- (5) 6 ms^{-2}

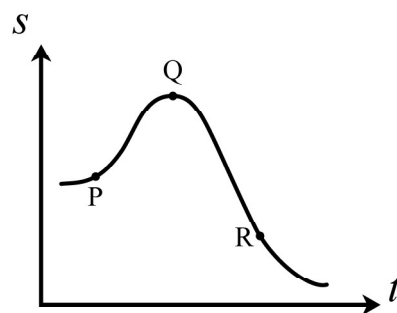
5. The ratio,

$$\frac{\text{Distance travelled in the 7}^{\text{th}} \text{ second}}{\text{Distance travelled in the 3}^{\text{rd}} \text{ second}}$$

of an object which falls down steadily from a vertically higher position is,

- (1) $\frac{13}{5}$
- (2) $\frac{11}{5}$
- (3) 3
- (4) $\frac{15}{7}$
- (5) $\frac{14}{5}$

6. s - t are displacement time curves. Gradient of such a displacement time curve represents the magnitude of velocity at that instance. Consider the following statements made on the graph shown in the diagram.



- (A) Velocity at Q is zero.
- (B) Magnitude of velocity at R is higher than that at P and the directions are opposite.
- (C) Magnitude of velocity at P is higher than that at Q and the directions are same.

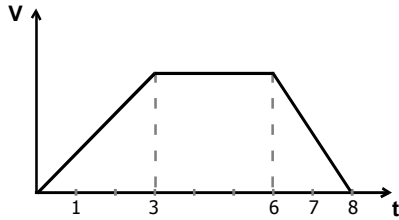
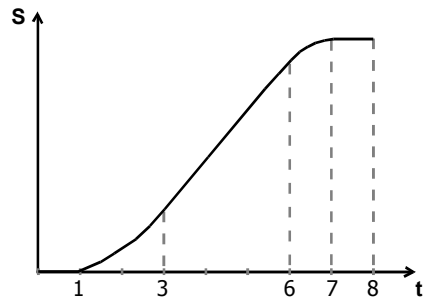
True of the above is/are,

- (1) A only.
- (2) A and B only.
- (3) A and C only.
- (4) All of the above
- (5) None of the above

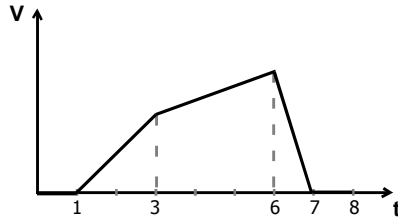
7. In a Vernier caliper, 49 main scale divisions; each of length 1 mm, coincide with 50 Vernier divisions. When thickness of a wooden block was measured with this Vernier caliper, the nearest mm reading was 42 and 19th Vernier division coincided with a main scale division. Thickness of the wooden block is,

- (1) 42.19 mm
- (2) 42.38 mm
- (3) 42.19 cm
- (4) 42.38 cm
- (5) 4.38 mm

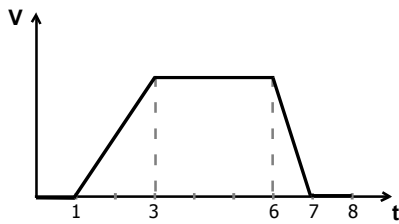
8. $s-t$ curve of an object within a time duration of 8 seconds is shown in the right. Corresponding velocity - time curve for this displacement - time ($s-t$) curve is,



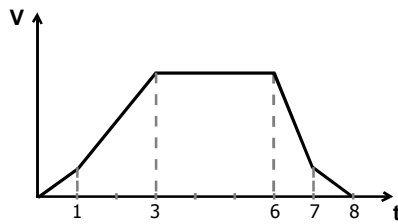
(1)



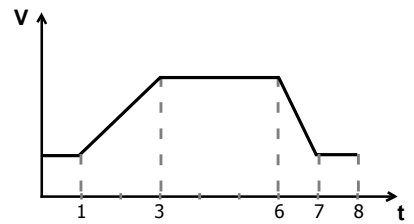
(2)



(3)



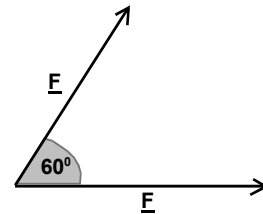
(4)



(5)

9. When two equal vectors of magnitude F act at a 60° angle between each other, their sum is equal to $10\sqrt{3}$. Magnitude F of one vector is,

- (1) 10 (2) $5\sqrt{3}$
 (3) $10\sqrt{3}$ (4) $20\sqrt{3}$
 (5) 20



10. Positions of the scales of a micrometer screw gauge, when anvil and the spindle touch each other are shown in the diagram. Zero error of this micrometer screw gauge is,

- (1) Is 0.45 mm and it should be added to the scale reading.
 (2) Is 0.45 mm and it should be subtracted from the scale reading.
 (3) Is 0.05 cm and it should be added to the scale reading.
 (4) Is 0.05 mm and it should be added to the scale reading.
 (5) Is 0.45 cm and it should be subtracted from the scale reading.

