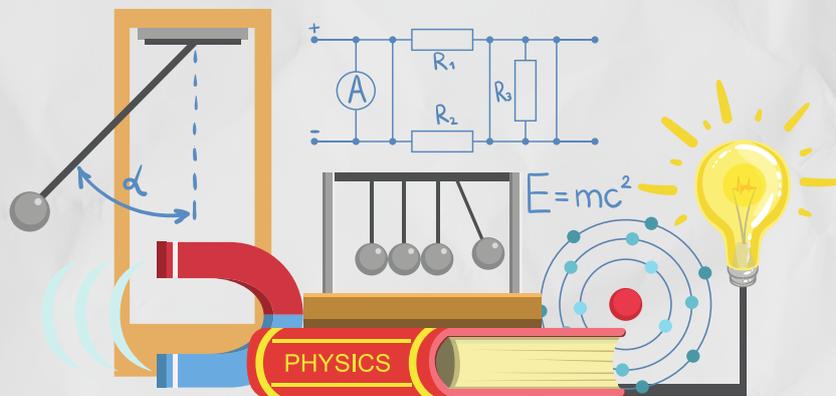


MEDICAL PHYSICS

FIRST ARCHIVE



1. What is the units of force in the egs system?

- a-g.m/s
- b-lb.ft.s
- c-g.cm/s*2
- d-lb.cm/s*2

Answer:c

2. A man starts from the origin and walks 14 m along the positive x-axis. He then turns around and moves 6 m along the negative x-axis. If the time of the whole journey is 5 s. Then his average speed in (m/s) is:

- a-5.3
- b-1.3
- c-2
- d-4

Answer:d

3. An elevator of mass 500 Kg is to be lifted up at a constant velocity of 0.6 m/s. What should be the minimum horse power (hp) of the motor to be used?

- a-1.5
- b-500
- c-4
- d-250

Answer:c

4. A stone is thrown vertically downwards with an initial velocity of 50 m/s from the top of a building. If it reaches the ground with a velocity of 60 m/s, then the height of the building is:

- a-80m
- b-140m
- c-120m
- d-55m

Answer:d

5. The velocity of a particle moving along the x axis is given by $v(t) = 4 + 12t - 3t^2$, what is the average acceleration of the particle during the time interval $t=0$ to $t=4$ s.

- a-16m/s*2
- b-zero
- c-12m/s*2
- d-6m/s*2

Answer:b

6. A force accelerates a body of mass M. The same force applied to a second body produces half the acceleration. The mass of the second body will be:

- a-M
- b-2M
- c-4M
- d-M/2

Answer:b

7. A car moves horizontally with a constant acceleration of 5 m/s^2 . A ball is suspended by a string from the ceiling of the car. The ball does not swing, being at rest with respect to the car. What angle does the string make with the vertical?

- a- 37°
- b- 26.6°
- c- 52.4°
- d- 32.5°

Answer:b

8. The kinetic energy of a car moving along a horizontal road is 100 KJ . The driver applies the breaks, and the car stops in 20 m . The force of friction (in KN) (assumed constant) is:

- a-10
- b-120
- c-5
- d-26

Answer:c

9. The apparent weight of a fish in an elevator is greatest when the elevator

- a-moves downward at constant velocity
- b-moves upward at constant velocity
- c-accelerates upward
- d-accelerates downward

Answer:c

10. In Figure 1, A block is pushed up a frictionless 30° incline by an applied force as shown. If $F = 25 \text{ N}$ and $M = 2.5 \text{ kg}$, what is the magnitude of the resulting acceleration (in m/s^2) of the block?

- a-2.5
- b-4.2
- c-3.7
- d-8.3

Answer:c

11. In Figure 2, All four vectors have the same magnitude of 6 units. The magnitude of the resultant

vector $R = A + B + C + D$ is:

- a-6 units
- b-11.2 units
- c-15 units
- d-13.4 units

Answer:d

12. In Figure 3, the coefficient of kinetic friction between mass m_1 and the horizontal surface is 0.30 and $m_1 = 4 \text{ kg}$, $m_2 = 2.0 \text{ kg}$. As m_2 moves down, the acceleration of the system (in m/s^2):

- a-3.3
- b-2.7
- c-9.8
- d-1.3

Answer:

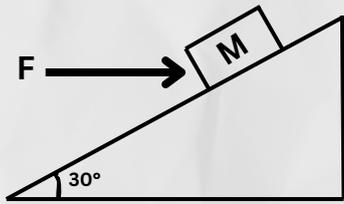


Figure1

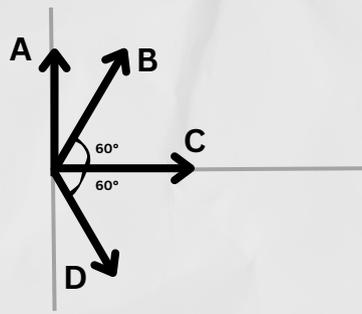


Figure2

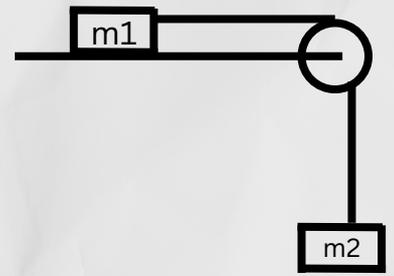


Figure3

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