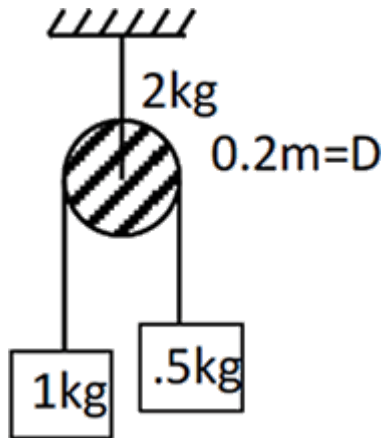


**Examrace**

## AIIMS MBBS Entrance Test 2019 Physics Paper with Answer & Solutions 25 May Second Shift Part 2

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Q-5. For the given figure find the acceleration of 1 kg block if string is massless and mass of pulley is 2 kg and diameter of pulley is 0.2 m



Options:

(1)  $\frac{2m}{s^2}$

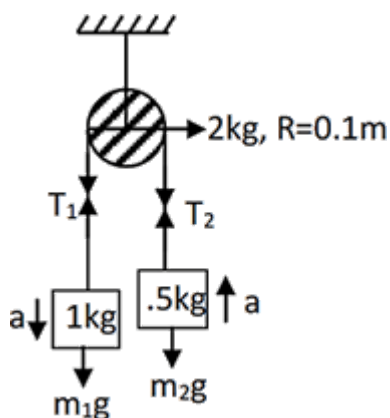
(2)  $\frac{2.5m}{s^2}$

(3)  $\frac{0.2m}{s^2}$

(4)  $\frac{1m}{s^2}$

Answer: (1)

Solutions:



$$m_1 g - T_1 = m_1 a \dots (1)$$

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$$T_2 - m_2g = m_2a \dots (ii)$$

$$T_1R - T_2R = l\alpha = l\frac{1}{R}$$

$$T_1 - T_2 = \frac{MR^2}{2} \cdot \frac{a}{R^2}$$

$$T_1 - T_2 = \frac{Ma}{2} \dots (iii)$$

$$m_1g - m_2g + T_2 - T_1 = (m_1a + m_2a)$$

By adding (i), (ii) and (iii)

$$10 - 5 = \frac{2a}{2} + \frac{a + a}{2}$$

$$5 = \frac{5a}{2} \Rightarrow a = \frac{2m}{s^2}$$

Q-6 For a refrigerator, heat absorbed from source is 800 J and heat supplied to sink is 500 J then find coefficient of performance is

Options:

(1)  $\frac{5}{8}$

(2)  $\frac{8}{5}$

(3)  $\frac{5}{3}$

(4)  $\frac{3}{5}$

Answer: (3)

Solutions:

$$\text{Coefficient of performance} = \frac{Q_2}{Q_1 - Q_2} = \frac{500}{800 - 500} = \frac{5}{3}$$

Q- 7 In a transformer number of turns in primary circuit is 500 and in secondary circuit number of turns is 10 and load resistance is  $10 \Omega$  and voltage of secondary coil is 50 V then find the current in primary circuit.

(1) 0.2A

(2) 0.3A

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(3) 0.4A

(4) 0.1 A

Answer: (4)

Solutions:

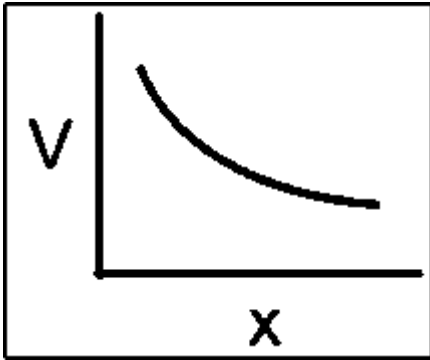
$$i_2 = \frac{V_2}{R_L} = \frac{50}{10} = 5A$$

$$\frac{i_1}{i_2} = \frac{N_2}{N_1} = \frac{i_1}{5} = \frac{10}{500} = i_1 = 0.1A$$

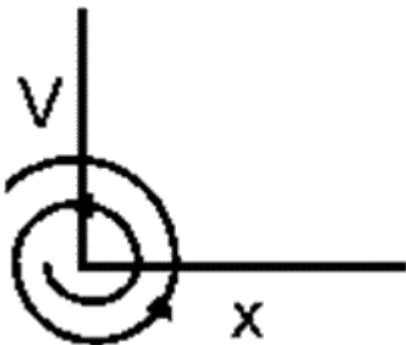
Q-8 In damped oscillation graph between velocity and position will be:-

Options:

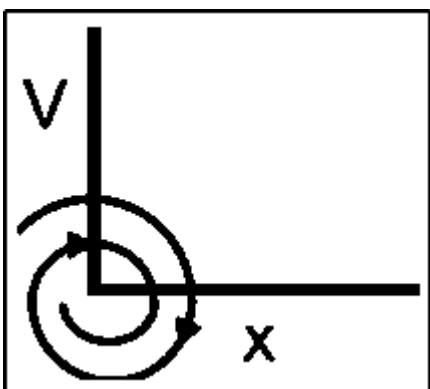
(1)



(2)

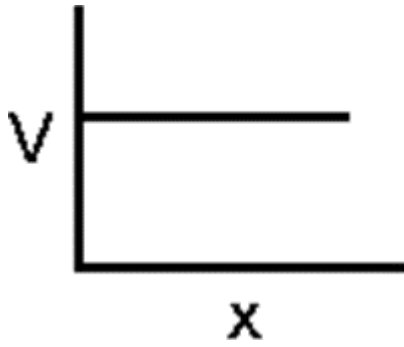


(3)



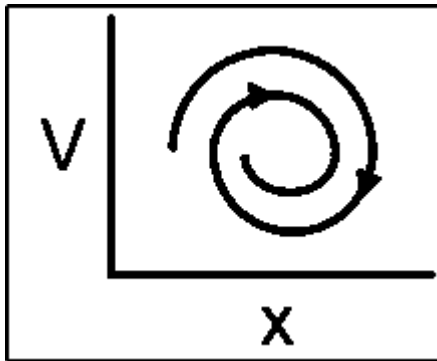
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(4)



Answer: (3)

Solutions:



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