

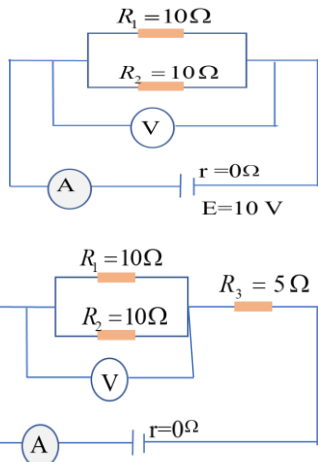
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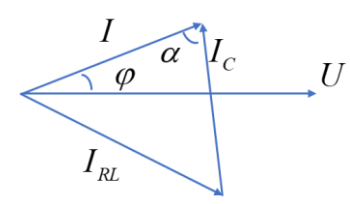
6. ເມື່ອໃຫ້ກະແສໄຟຟ້າ 2A ຜ່ານກໍ່ສາຍທີ່ມີຈຳນວນ 40 ຮອບ, ມີຟຼັກແມ່ເຫຼັກຜ່ານໜ້າຕັດຂອງກໍ່ສາຍ $10^{-4}Wb$ ຈຶ່ງຄິດໄລ່:
- ກ. ແຮງເຄື່ອນໄຟຟ້າສະທ້ອນທີ່ເກີດຂຶ້ນໃນກໍ່ສາຍ ຖ້າກະແສໄຟຟ້າຫຼຸດລົງ 0A ພາຍໃນເວລາ 0.08s
 - ຂ. ສຳປະສິດສະທ້ອນເອງຂອງກໍ່ສາຍ ແລະ ພະລັງງານສະສົມໃນກໍ່ສາຍ

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ຄະນະກຳມະການອອກຫົວບົດ

ຂໍ້ທີ	ຂະໜານຕອບ	ຄະແນນ
1	<p>ສິ່ງທີ່ຮູ້: $v_A = 2m/s$; $v_B = 6m/s$; $v_C = 0m/s$; $t_{AB} = 4s$; $t_{BC} = 6s$</p> <p>ກ. ຊອກໄລຍະທາງ A-B ແລະ B-C</p> $S_{AB} = v_A t_{AB} + \frac{1}{2} a_{AB} t_{AB}^2 \quad / \quad a_{AB} = \frac{v_B - v_A}{t_{AB}} = \frac{6 - 2}{4} = 1m/s^2$ $\Rightarrow S_{AB} = 2 \times 4 + \frac{1}{2} (1) 4^2 = 16m$ $S_{BC} = v_B t_{BC} + \frac{1}{2} a_{BC} t_{BC}^2 \quad / \quad a_{BC} = \frac{v_C - v_B}{t_{BC}} = \frac{0 - 6}{6} = -1m/s^2$ $\Rightarrow S_{BC} = 6 \times 6 - \frac{1}{2} (1) 6^2 = 18m$ <p>ຂ. ຊອກພະລັງງານເດີນເຄື່ອນຢູ່ຈຸດ B</p> $E = \frac{1}{2} m v_B^2 = \frac{1}{2} (1500)(6^2) = 27000J$	2
2	<p>ໃຫ້ຮູ້: $R_1 = R_2 = 10\Omega$; $R_3 = 5\Omega$; $E = 10V$; $r = 0\Omega$</p> <p>ຊອກ $I_A = ?$</p> <p>➤ ກໍລະນີສະວິກ S ປິດ:</p> $\therefore I = \frac{E}{R+r} = \frac{E}{\frac{R_1}{2} + R_3} = \frac{10}{\frac{10}{2} + 5} = 1A$ $\therefore V = IR_{12} = IR/2 = 1(10/2) = 5V$ <p>➤ ກໍລະນີສະວິກ S ເປີດ</p> $\therefore I = \frac{E}{R+r} = \frac{E}{R/2} = \frac{10}{10/2} = 2A$ $\therefore V = IR_{12} = IR/2 = 2(10/2) = 10V$	2
3	<p>ໃຫ້: $m_1 = m_2 = m$; $R_1 = R_2 = R$</p> <p>ວາງ: $I_1 = \frac{2}{5} mR^2$; a_1 ສໍາລັບໜ່ວຍມົນຕັນ</p> $I_2 = \frac{2}{3} mR^2$; a_2 ສໍາລັບໜ່ວຍມົນໂຄ້ງ <p>ນໍາໃນສົມຜົນ: $mg \sin \theta = (m + \frac{I}{R^2})a$</p> <p>➤ ໜ່ວຍມົນຕັນ: $mg \sin \theta = (m + \frac{I_1}{R^2})a_1 \quad / \quad I_1 = \frac{2}{5} mR^2$</p> $\Leftrightarrow mg \sin \theta = (m + \frac{2mR^2}{5R^2})a_1$ $\Rightarrow a_1 = \frac{5g \sin \theta}{7}$ <p>➤ ໜ່ວຍມົນໂຄ້ງ: $mg \sin \theta = (m + \frac{I_2}{R^2})a_2 \quad / \quad I_2 = \frac{2}{3} mR^2$</p>	1



	$\Leftrightarrow mg \sin \theta = (m + \frac{2mR^2}{3R^2})a_1$ $\Rightarrow a_1 = \frac{3 \sin \theta}{5}$ <p>ສະນັ້ນ $a_1 > a_2$ ໜ່ວຍມົນຕົ້ນກຶ້ງຮອດກ່ອນ.</p>	
4	<p>ໃຫ້ຮູ້: $T = 1\text{ s}$; $t = 2.5\text{ s}$; $x = -5\sqrt{2}\text{ cm}$; $v = -10\pi\sqrt{2}\text{ cm/s}$</p> <p>ໃຫ້ສົມຜົນ: $x = A \sin(\omega t + \varphi)$ (1)</p> <p>ແລະ $v = \omega A \cos(\omega t + \varphi)$ (2)</p> <ul style="list-style-type: none"> - ຊອກຄວາມໄວມຸມ: $\omega = \frac{2\pi}{T} = \frac{2 \times 3.14}{1} = 2\pi \text{ rad/s}$ - ຊອກໄລຍະປ່ຽນ: $A = \sqrt{x^2 + \frac{v^2}{\omega^2}} = \sqrt{(-5\sqrt{2})^2 + \frac{(-10\pi\sqrt{2})^2}{2\pi^2}} = 10\text{ cm}$ - ແທນຄ່າ $t; x; v$ ໃສ່ສົມຜົນຂ້າງເທິງ $\begin{cases} -5\sqrt{2} = 10 \sin(2\pi \times 2.5 + \varphi) & (3) \\ -10\pi\sqrt{2} = 10 \times 2\pi \cos(2\pi \times 2.5 + \varphi) & (4) \end{cases}$ <p>ແກ້ສົມຜົນ (3) ແລະ (4) ຈະໄດ້: $\Rightarrow \varphi = -\frac{\pi}{4}$</p> $\Rightarrow x = 10 \sin(2\pi t - \frac{\pi}{4}) \text{ cm}$	2
5	<p>ໃຫ້ຮູ້: $i = 3\sqrt{2 - \sqrt{2}} \sin 100\pi t$; $C = \frac{10^{-3}}{3\sqrt{2}\pi} \text{ F}$; $P = 270\text{ W}$; $\cos \varphi = \frac{\sqrt{2 + \sqrt{2}}}{2}$</p> <p>ຊອກ: $I_C = ?$; $I_L = ?$</p> <p>➤ ຊອກຜົນລືບ $U = \frac{P}{I \cos \varphi} = \frac{270}{3\sqrt{2 - \sqrt{2}} \times \frac{\sqrt{2 + \sqrt{2}}}{2}} = 90\sqrt{2} \text{ V}$</p> <p>➤ ຊອກ $Z_C = \frac{1}{\omega C} = \frac{1}{100\pi \frac{10^{-3}}{3\sqrt{2}\pi}} = 30\sqrt{2} \Omega$</p> <p>ດັ່ງນັ້ນ, $I_C = \frac{U}{Z_C} = \frac{90\sqrt{2}}{30\sqrt{2}} = 3 \text{ A}$</p> <p>➤ ຊອກ $I_L = I_{RL}$</p> <p>➤ ຈາກ $I_{RL}^2 = I^2 + I_C^2 - 2I I_C \cos \alpha$</p> $\Rightarrow I_{RL}^2 = I^2 + I_C^2 - 2I I_C \sin \varphi$ $\Rightarrow I_{RL}^2 = (3\sqrt{2 - \sqrt{2}})^2 + 3^2 - 2 \times 3\sqrt{2 - \sqrt{2}} \times 3 \sqrt{1 - (\frac{\sqrt{2} + \sqrt{2}}{2})^2} = 9$ $\Rightarrow I_{RL} = 3 \text{ A}$ <p>ສະນັ້ນ, $I_L = I_{RL} = 3 \text{ A}$</p> 	2
6	<p>ໃຫ້ຮູ້: $I = 2\text{ A}$; $N = 40$; $\Phi = 10^{-4}\text{ Wb}$</p> <p>ກ. ຊອກແຮງເຄື່ອນສະທ້ອນ:</p>	1

	$E_{emf} = -N \frac{d\Phi}{dt} = 40 \frac{10^{-4}}{0.08} = 0.05V$ <p>ຂ. ຊອກສໍາປະສິດສະທ້ອນ</p> $L = N \frac{\Phi}{I} = 40 \frac{10^{-4}}{2} = 2 \times 10^{-3} H$ <p>ຊອກພະລັງງານສະສົມໃນກໍ່ສາຍ:</p> $W = \frac{1}{2} LI^2 = \frac{1}{2} (2 \times 10^{-3})(2^2) = 4 \times 10^{-3} J$	
ລວມ		10

ຄະນະກຳມະການອອກຫົວບົດ