

Đáp Án Câu hỏi Trắc nghiệm ELCI-140144

Ngày thi 7-1-2016

Câu 1

$$U_a \left(\frac{1}{10} + \frac{1}{5} \right) + \frac{4i_1}{5} = 2i_2$$

$$i_2 = \frac{U_a + 4i_1}{5}$$

$$i_1 - 2i_2 = \frac{240 + 4i_1}{40} = 19$$

$$P_{lm} = 3444^2 = 23232 \text{ W}$$

$$Q_{lm} = 3(-3)44^2 = -17424 \text{ Var}$$

$$S_{lm} = \sqrt{P_{lm}^2 + Q_{lm}^2} = 29040 \text{ VA}$$

$$\cos \varphi_{lm} = \frac{P_{lm}}{S_{lm}} = 0,8$$

Câu 4

$$U_a = -80 \text{ V}, i_1 = 10 \text{ A}, i_2 = -8 \text{ A}$$

$$P_1 = 2920 \text{ W}$$

$$P_{ng} = 2400 + 5120 - 5320 + 720$$

$$= 2920 \text{ W} = P_1$$

$t < 0$, K_2 mở, K_1 ở 1, đổi sang SĐP

$$i_L = \frac{40\sqrt{2} \angle 45^\circ}{4 + j - 2j} = 10\sqrt{2} \angle 45^\circ$$

$$i_C = i_L(-2j) = 20\sqrt{2} \angle -45^\circ$$

$$u_C(t) = 20\sqrt{2} \cos(t - 45^\circ)$$

$$\Rightarrow u_C(-0) = 20 \text{ V}$$

Câu 2 Hở mạch

$$U_a \left(\frac{1}{5j} \right) - \ddot{U}_0 \left(\frac{1}{-5j} \right) = 0,1 \ddot{U}_0$$

$$\ddot{U}_0 \left(\frac{1}{5} + \frac{1}{5j} + \frac{1}{-5j} \right) - \frac{100 \angle 0^\circ}{5} = 0$$

$$\ddot{U}_0 = U_{ab} = 80 + 60j = 100 \angle 36,87^\circ$$

* Mạch kín

$$\ddot{U}_0 \left(\frac{1}{5} + \frac{1}{5j} + \frac{1}{-5j} \right) - \frac{100 \angle 0^\circ}{5} = 0$$

$$\Rightarrow \ddot{U}_0 = 100 \text{ V}$$

$$i_{ng} = 0,1 \ddot{U}_0 + \frac{\ddot{U}_0}{-5j} = 10 + 20j \text{ A}$$

$$Z_{td} = \frac{80 + 60j}{10 + 20j} = 4 - 2j = 4,47 \angle -26,5^\circ$$

$$Mạch Thevenin, để P_{max} : $R = 4,47 \Omega$$$

$$i = \frac{80 + 60j}{4 - 2j + 4,47} = 11,49 \angle 50,16^\circ \text{ A}$$

$$P_{max} = 4,47 \cdot 11,49^2 / 2 = 295 \text{ W}$$

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Câu 3 biến đổi tải $\Delta \rightarrow Y$

$$Z_Y = \frac{6 - 15j}{3} = 2 - 5j$$

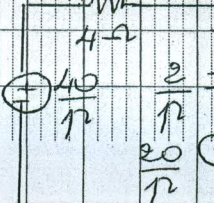
Mạch Y' đối xứng $Z_p = 4 - 3j \Omega$

$$I_p' = \frac{380/\sqrt{3}}{\sqrt{4^2 + 3^2}} = 44 \text{ A} = I_{td}$$

$$I_p = \frac{44}{\sqrt{3}}, \Delta P_{td} = 3 \cdot 2 \cdot 44^2$$

$$= 11616 \text{ W}$$

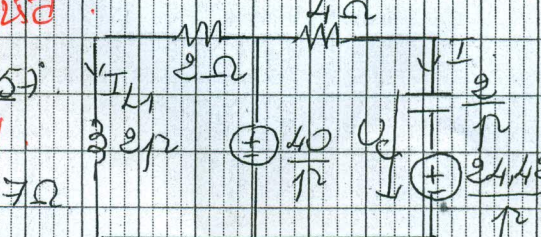
$0 < t < 0,5 \text{ s}$, K_2 đóng, K_1 mở



$$\Rightarrow u_C(t) = 40 - 20e^{-15,58t}$$

* $t > 0,5 \text{ s}$, K_2 đóng, K_1 ở 2

$$u_C(0,5 \text{ s}) = 24,42 \text{ V}$$



$$I = \frac{3,895}{12 + 0,5} \Rightarrow u_C = I \cdot \frac{2}{12} = \frac{24,42}{12}$$

$$u_C(t - 0,5 \text{ s}) = 40 - 15,58e^{-15,58(t - 0,5)}$$

$$I_L = \frac{40}{12(2p + 2)}$$

$$\Rightarrow i_L(t - 0,5) = 20 - 20e^{-15,58(t - 0,5)}$$

Thứ..... Ngày..... Tháng..... Năm.....

Câu 5.

$$U_a \left(\frac{1}{2} + \frac{1}{2} + \frac{R}{4} \right) - \frac{1}{2} U - \frac{R}{4} U_2 - \frac{U_1}{2} = 0$$

$$U_b \left(\frac{1}{2} + \frac{R}{2} \right) - \frac{1}{2} U_a = 0$$

$$U_2 = U_b$$

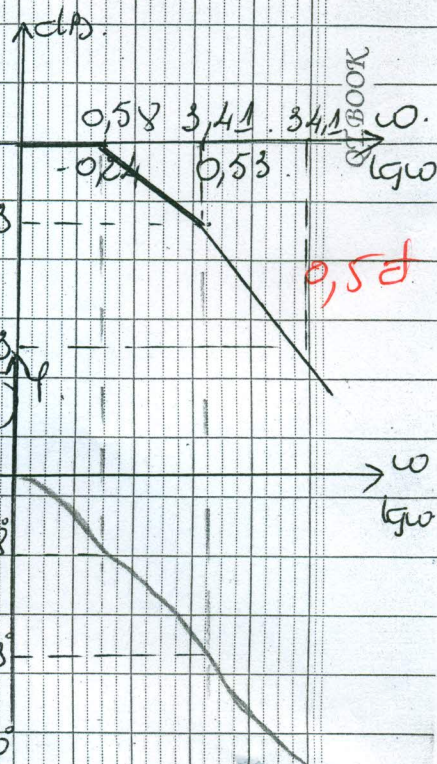
$$\frac{U_1(p)}{q} - \frac{U_2}{q} = \frac{2}{p^2 + 4p + 2} = \frac{2}{(p + 0,58)(p + 3,41)}$$

$$\lg | \psi(j\omega) | = 0 \text{ dB}$$

$$\varphi = - \arctg \frac{\omega}{0,58} - \arctg \frac{\omega}{3,41}$$

$$U_1(t) = 10 + 4 \sin 2t + 2 \sin 4t$$

$$\rightarrow U_2(t) = 10 + 0,96 \sin(2t - 104,1^\circ) + 0,188 \sin(4t - 131,25^\circ)$$



Thứ..... Ngày..... Tháng..... Năm.....

QT BOOK