

2013, 28th NIS '01' '02

5. 10x2

$$X_L = 5\Omega \quad 7120 \quad (K)$$

$$\bar{Z}_{AB} = R + jX_L - jX_C = 5 + j5 - j10 = (5 - j5) \Omega = 7.07 \angle -45^\circ \Omega$$

$$X_L = \omega L$$

$$L = \frac{X_L}{\omega} = \frac{5}{1000} = 5 \text{ (mH)}$$

$X_1 = 15 \text{ A}$ 2/28

$$\tilde{Z}_{AB} = 5 + j15 - j10 = (5 + j5)\Omega = 7.07 \angle 45^\circ \Omega$$

$$L = \frac{X_L}{\omega} = \frac{15}{1000} = 15 \text{ (mH)}$$

$$(5-j5)\Omega \leftarrow \underline{\underline{Z_{AB}}} \rightarrow (5+j5)\underline{\underline{\Omega}} : 1728\Omega \text{ של מיל}$$

$5\text{ mH} < L < 15\text{ mH}$: 660, 772, 884

(?) 1. ענין (4) מיל' אצל אדם למעלה (3)
 זמורה, אבי (תורה מתים), וסב

$$X_{L_0} = X_{C_0} = 10 \Omega$$

$$L = \frac{X_L}{\omega_0} = \frac{10}{1000} = 10 \text{ (mH)}$$

2. $\Delta\theta = 0^\circ$ (התאמה מלאה)

$$\Delta\phi = 0^\circ$$

$$U_{\max} = 10V$$

(1)

$$U_{\text{rms}} = \frac{U_{\max}}{\sqrt{2}} = \frac{10}{\sqrt{2}} \approx 7.07V$$

$$P = P_R = \frac{|U_{R0}|^2}{R} = \frac{7.07^2}{5} = 10(W)$$

זמנו של המיקר לווי 100ms
כל המיקר!

יחסי יחסי
מנהל המכללה

6 אלק

$$\bar{I}_{R2} = \frac{\bar{V}_{MN}}{R_2 + jX_{L2}} = \frac{20 \angle 0^\circ}{2 + j6} = 3.162 \angle -71.565^\circ (A) \quad (1)$$

$$\bar{Z}_{AB} = \left[\bar{Z}_C \parallel (R_2 + jX_{L2}) \right] + R_1 + jX_{L1} \quad (2)$$

$$\bar{Z}_{AB} = \left(\frac{1}{-j4} + \frac{1}{2 + j6} \right)^{-1} + 2 + j6 = (6 - j2) \Omega = 6.324 \angle -18.434^\circ (\Omega)$$

100ms (המיקר) כי 100ms (המיקר) (1)

$$\bar{I}_C = \frac{\bar{V}_{MN}}{\bar{Z}_C} = \frac{20 \angle 0^\circ}{4 \angle -90^\circ} = 5 \angle 90^\circ A \quad (3)$$

$$\bar{I}_T = \bar{I}_C + \bar{I}_{R2} = 5 \angle 90^\circ + 3.162 \angle -71.565^\circ = 2.236 \angle 63.433^\circ A$$

$$\bar{V}_S = \bar{I}_T \cdot \bar{Z}_T = 2.236 \angle 63.433^\circ \cdot 6.324 \angle -18.434^\circ = 14.142 \angle 45^\circ (V)$$

7.10k

התוצאה
היא נכונה

812) K 0.1 CN HPF 1.1127 178N 10N (K

$$2C^* = 12.5 \mu F$$

(?)

$$C^* = \frac{12.5}{2} = 6.25 \mu F ; L^* = 10 mH$$

$$R_0 = \sqrt{\frac{L^*}{C^*}} = \sqrt{\frac{10 \cdot 10^{-3}}{6.25 \cdot 10^{-6}}} = 40(\Omega)$$

$$f_c = \frac{1}{4\pi \sqrt{L^* C^*}} = \frac{1}{4\pi \sqrt{10 \cdot 10^{-3} \cdot 6.25 \cdot 10^{-6}}} = 318.309 [Hz]$$

$$d(\omega) = 2 \cosh^{-1} \left(\frac{\omega c}{\omega_c} \right) \quad (1)$$

$$d(\omega = 1435 \frac{rad}{sec}) = 2 \cosh^{-1} \left(\frac{2\pi \cdot 318.309}{1435} \right) = 1.721 (neper)$$

$$N_{dB} = d(neper) \cdot 8.69 = 1.721 \cdot 8.69 = 14.956 [dB]$$

$$P(\omega) = -2 \sinh^{-1} \left(\frac{\omega c}{\omega_c} \right) \quad (3)$$

$$-45 = -2 \sinh^{-1} \left(\frac{2\pi \cdot 318.309}{\omega} \right)$$

$$\left(\frac{-45}{-2} \right) = \sinh^{-1} \left(\frac{2\pi \cdot 318.309}{\omega} \right)$$

$$\sinh \left(\frac{45}{2} \right) = \frac{2\pi \cdot 318.309}{\omega}$$

$$\omega = 5226.231 \left(\frac{rad}{sec} \right)$$

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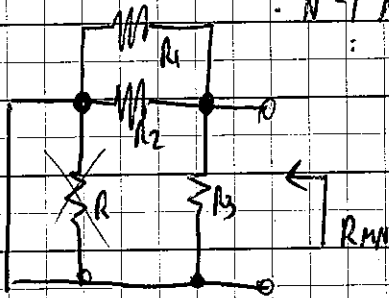
$$I = \frac{U_R}{R} = \frac{120}{40\text{ k}} = 3\text{ (mA)}$$

$$I_{R_{1 \rightarrow}} = \frac{V_{R_{1 \rightarrow}}}{R_{1 \rightarrow}} = \frac{120}{72k} = 1.66 \text{ mA}$$

יוסי יאשי
מנהל המכללה

$$I_3 = I_{R1-3} = 1.667 \text{ (mA)}$$

$$I_T = I_1 + I_3 = 3 + 1.667 = 4.667 \text{ (mA)}$$



(2) (סכ) נגלה חזון לפני ה' $M - 1 = N$

$$R_{MN} = R_1 \parallel R_2 \parallel R_3$$

: 2711 12.11

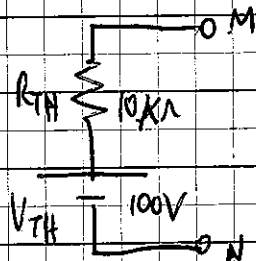
$$R_{MN} = \left(\frac{1}{30} + \frac{1}{20} + \frac{1}{60} \right)^{-1}$$

$$R_{TH} = 10k\Omega$$

$$V_{MN} = V_{R_3} = I_{R_3} \cdot R_3 = 1.66 \cdot 60 = 100V$$

Uth Uth

$$U_{ZH} = 100 \text{ V}$$



21/5/20

(c) $\frac{1}{2} \text{ unit } (2 \text{ m})$ of H_2O at 10°C

$$V_{NW} = \frac{V_{TH} \cdot R_V}{R_V + R_{TH}} = \frac{100 \cdot 990}{990 + 0} = 99 \text{ (V)}$$

$(R_v): 990 \text{ kN}$ max