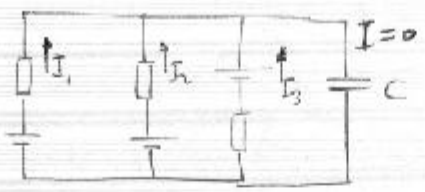
(3)



0.6 $\begin{cases} I_1+I_2+I_3=0 \\ 11.2-0.8I_1-11.4+0.4I_2=0 \\ 11.4-0.4I_2-12.0+0.2I_3=0 \end{cases}$

$I_1 = -0.643\ A$ 0.6

$I_2 = -0.786\ A$

$I_3 = 1.429\ A$

$V_c = 12 - I_3 \cdot 0.2 = 12 - 1.429 \times 0.2 = 11.71$ 0.4

$Q = CV_c = 2\times10^{-6} \times 11.71 = 23.42\ \mu C$ 0.4

---

(4)

$B = kv^{-2}$

$v = \frac{dr}{dt}$

$$I = \frac{\mathcal{E}}{R} = -\frac{1}{R}\frac{d\Phi}{dt} = -\frac{1}{R}\frac{A\,dB}{dt}$$

$$= -\frac{A}{R}\frac{dB}{dv}\frac{dv}{dt} = -\frac{A}{R}\left(\frac{-2K}{r^3}\right)(v)$$

si $r = r_0 - vt$

$$|I| = \frac{2AK\,v}{R\,(r_0 - vt)^3}$$

(5)

para $f = 50\ Hz$ $(\omega = 314\ rad/s)$ 0.7

$\bar{X}_L = \omega L = 0.094_{\angle 90^\circ}\ \Omega$

$\bar{Z} = R + \bar{X}_L \simeq R = 10000_{\angle 0}\ \Omega$

$\bar{V}_L = \bar{I}\,\bar{X}_L = \frac{\bar{V}}{\bar{Z}}\bar{X}_L = \frac{10000_{\angle 0} \cdot 0.094_{\angle 90}}{10000_{\angle 0}} = 94_{\angle 90}\ mV$

para $f = 10\times10^6\ Hz$ $(\omega = 6.28\times10^7\ rad/s)$

$\bar{X}_L = 6.28\times10^7 \times 3\times10^{-4} = 18.84_{\angle 90}\ k\Omega$ 0.8

$\bar{Z} = R + \bar{X}_L = 10\ k\Omega + 18.84_{\angle 90}\ k\Omega = 21.3_{\angle 62^\circ}\ k\Omega$

$\bar{V}_L = \frac{\bar{V}}{\bar{Z}}\bar{X}_L = \frac{10_{\angle 0} \cdot 18.84_{\angle 90}}{21.3_{\angle 62}} = 8.85_{\angle 28^\circ}\ V$