Quiz No: 4

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Section: B

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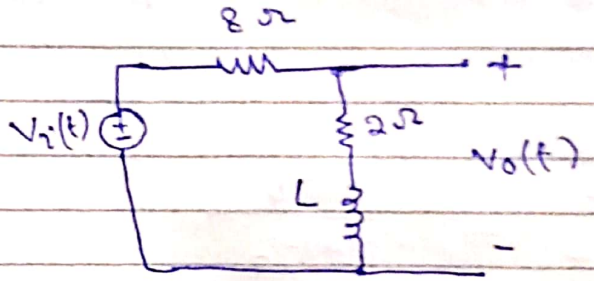
Ans




$$H(w) = \frac{\hat{V_o}(w)}{V_i(w)} = 0.2 \frac{1+j\,w/2}{1+j\,w/p}$$

$$z = \frac{1+7}{2} = \frac{8}{2}$$

$$\boxed{z = 4\Omega}$$

$$p = \frac{9+5}{2} = \frac{14}{2}$$

$$p = 7$$

$L = ?$

$V_o$ is the voltage drop across series of resister & Inductor

$$V_o = \frac{2\Omega + j\omega L}{2\Omega + 8\Omega + j\omega L} V_i(t)$$

$$\frac{V_o}{V_i} = \frac{2 + j\omega L}{10 + j\omega L}$$

$$\frac{V_o}{V_i} = \frac{2}{10}\left(\frac{1 + j\omega L/2}{1 + j\omega L/10}\right)$$

$$H(\omega) = \frac{V_o}{V_i} = 0.2\left(\frac{1 + j\omega L/2}{1 + j\omega L/10}\right) \quad \text{— eq (5)}$$

This is the network function, Now the given function is,

$$H(\omega) = 0.2\left(\frac{1 + j\omega/2}{1 + j\omega/p}\right) \quad \text{put values}$$

$$H(\omega) = 0.2\left(\frac{1 + j\omega/4}{1 + j\omega/7}\right) \quad \text{— eq (3)}$$

Compare eq (1) & (2)

$$0.2\left(\frac{1 + j\omega L/2}{1 + j\omega L/10}\right) = 0.2\left(\frac{1 + j\omega/4}{1 + j\omega/7}\right)$$

Compare nomenator.

$$1 + j\omega L/2 = 1 + j\omega/4$$

$$L/2 = \frac{1}{4}$$

$$L = \frac{2}{4}$$

$$\boxed{L = 0.5}$$

Now Compare denomenator.

$$1 + j\omega L/10 = 1 + j\omega/7$$

$$\frac{L}{10} = \frac{1}{7}$$

$$L = \frac{10}{7}$$

$$\boxed{L = 1.428}$$

As these equations gives d/f values
So this equation cannot be solved
for my Reg No

the END

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