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<b>Started on</b>	Sunday, 23 April 2017, 10:08 PM
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<b>State</b>	Finished
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<b>Completed on</b>	Monday, 24 April 2017, 12:42 AM
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<b>Time taken</b>	2 hours 33 mins
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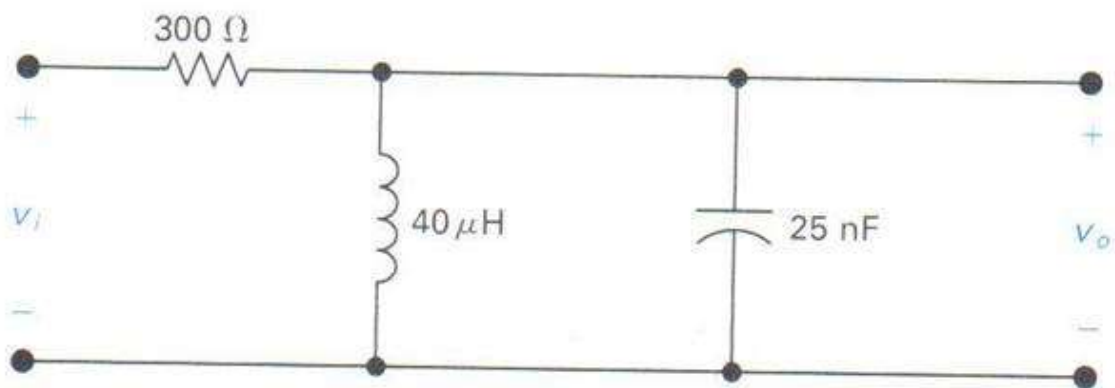
<b>Grade</b>	<b>100.00</b> out of 100.00
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**Question 1**

Correct

Mark 25.00 out of 25.00



P14.12\_6ed

For this bandpass filter circuit, find the following values.

a) Find  $\omega_0$ .

$$\omega_0 = 1000 \checkmark \text{ krad/sec (kilo rad/sec)}$$

b) Find  $f_0$ .

$$f_0 = 159.155 \checkmark \text{ kHz (kilo Hz)}$$

c) Find Q.

$$Q = 7.5 \checkmark$$

d) Find  $\omega_{c1}$ .

$$\omega_{c1} = 935.55 \checkmark \text{ krad/sec}$$

e) Find  $\omega_{c2}$ .

$$\omega_{c2} = 1068.88 \checkmark \text{ krad/sec}$$

f) Find  $\beta$  (Beta).

$$\beta = 133.33 \checkmark \text{ krad/sec}$$

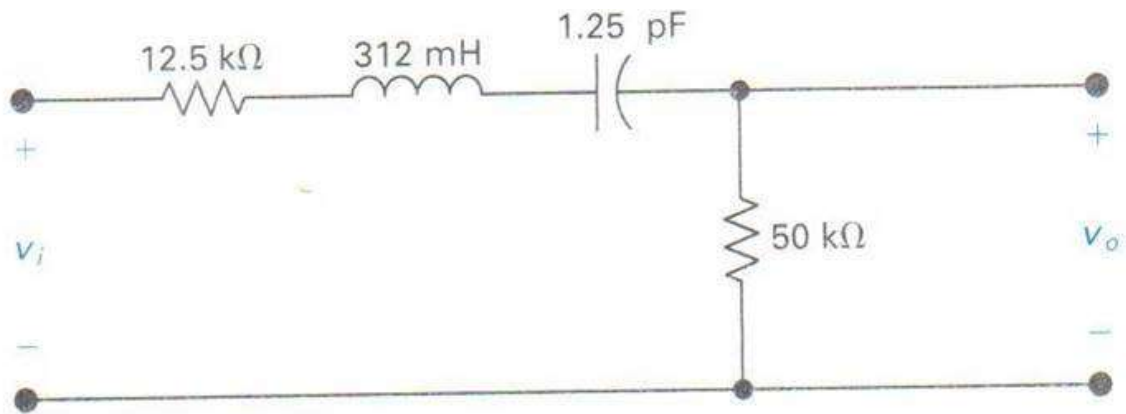
a)  $\omega_0 = 1,000$  krad/seca)  $f_0 = 159.1549$  kHzc)  $Q = 7.50$ d)  $\omega_{c1} = 935.5531$  krad/sece)  $\omega_{c2} = 1,068.8864$  krad/secf)  $\beta = 133.3333$  krad/sec**Correct**

Marks for this submission: 25.00/25.00.

## Question 2

Correct

Mark 25.00 out of 25.00



P14.13\_6ed

Given: 
$$H(s) = \frac{\frac{R_0}{L}s}{s^2 + \left(\frac{R_0 + R_{in}}{L}\right)s + \frac{1}{LC}}$$

Where  $R_0 = 50 \text{ k}\Omega$  (kilo Ohm) and  $R_{in} = 12.5 \text{ k}\Omega$  (kilo Ohm)

a) Find  $f_0$ .

$f_0 = 254.85 \text{ kHz (kilo Hz)}$

b) Find Q.

$Q = 7.99$

c) Find  $f_{c1}$ .

$f_{c1} = 239.409 \text{ kHz (kilo Hz)}$

d) Find  $f_{c2}$ .

$f_{c2} = 271.29 \text{ kHz (kilo Hz)}$

e) Find  $\beta$  (Beta).

$\beta = (R + R_i)/L = 31.88 \text{ kHz (kilo Hz)}$

a)  $f_0 = 254.8519 \text{ kHz}$

b)  $Q = 7.9936$

c)  $f_{c1} = 239.4089 \text{ kHz}$

d)  $f_{c2} = 271.2909 \text{ kHz}$

e)  $\beta = 31.8820 \text{ kHz}$

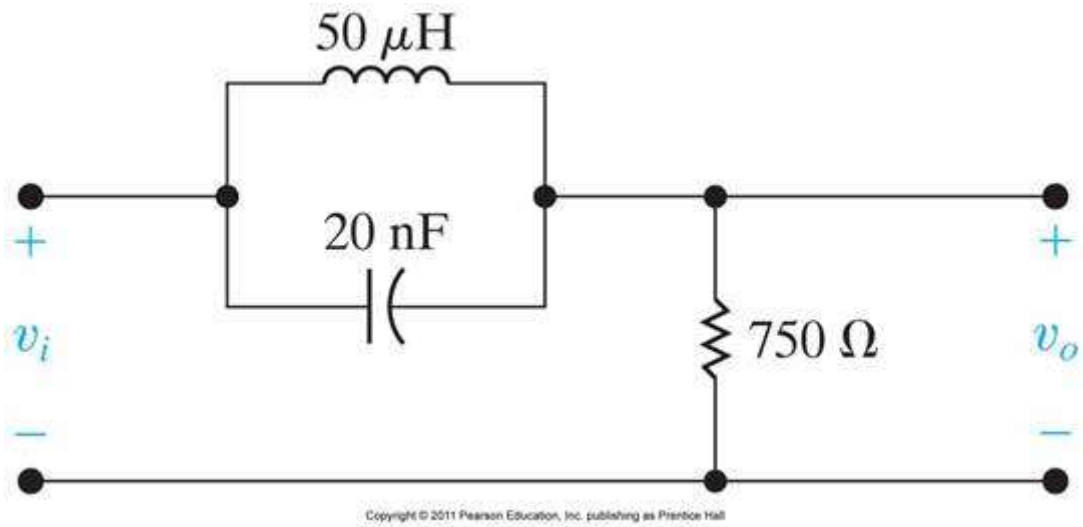
**Correct**

Marks for this submission: 25.00/25.00.

**Question 3**

Correct

Mark 25.00 out of 25.00



P14.35\_9ed

Given:  $H(s) = \frac{s^2 + \omega_0^2}{s^2 + \beta s + \omega_0^2}$

For this bandreject filter:

a) Calculate  $\omega_0$ .

$$\omega_0 = 1000 \text{ krad/sec (kilo rad/sec)}$$

b) Calculate  $f_0$ .

$$f_0 = 159.15 \text{ kHz (kilo Hz)}$$

c) Find Q.

$$Q = 15$$

d) Find  $\omega_{c1}$ .

$$\omega_{c1} = 967.22 \text{ krad/sec (kilo rad/sec)}$$

e) Find  $\omega_{c2}$ .

$$\omega_{c2} = 1030 \text{ krad/sec (kilo rad/sec)}$$

f) Find  $\beta$  (Beta).

$$\beta = 10.61 \text{ kHz (kilo Hz)}$$

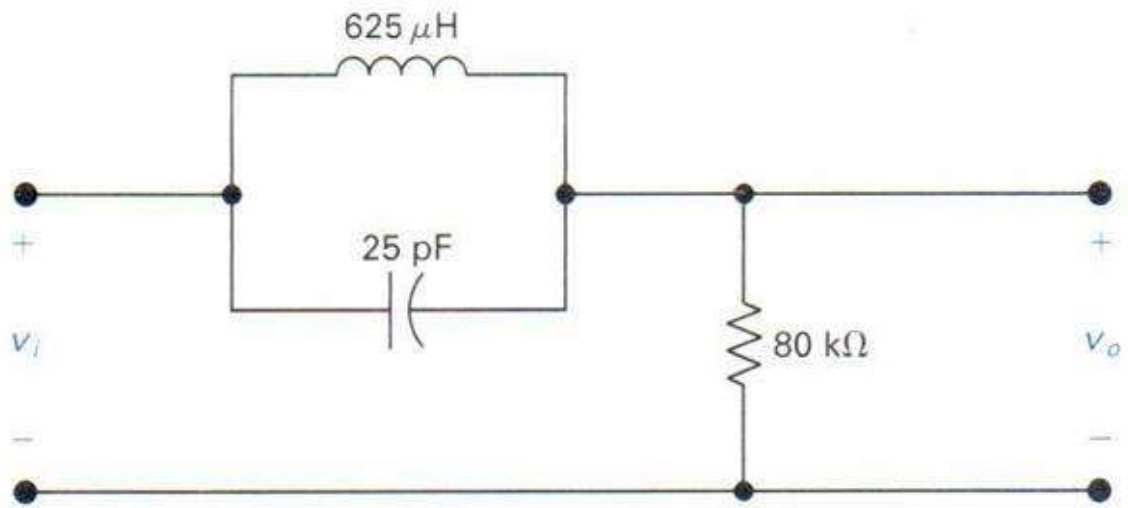
a)  $\omega_0 = 1,000$  krad/seca)  $f_0 = 159.1549$  kHzb)  $Q = 15.0$ c)  $\omega_{c1} = 967.2221$  krad/secd)  $\omega_{c2} = 1,033.8887$  krad/sece)  $\beta = 10.6103$  kHz**Correct**

Marks for this submission: 25.00/25.00.

**Question 4**

Correct

Mark 25.00 out of 25.00



P14.27\_6ed

Given: 
$$H(s) = \frac{s^2 + \omega_0^2}{s^2 + \beta s + \omega_0^2}$$

For this bandreject filter:

a) Calculate  $\omega_0$ .

$$\omega_0 = 8000 \text{ krad/sec (kilo rad/sec)}$$

b) Calculate  $f_0$ .

$$f_0 = 1273 \text{ kHz (kilo Hz)}$$

c) Find Q.

$$Q = 16$$

d) Find  $\omega_{c1}$ .

$$\omega_{c1} = 7753 \text{ krad/sec (kilo rad/sec)}$$

e) Find  $\omega_{c2}$ .

$$\omega_{c2} = 8253 \text{ krad/sec (kilo rad/sec)}$$

f) Find  $\beta$  (Beta).

$$\beta = 79.5775 \text{ kHz (kilo Hz)}$$

a)  $\omega_0 = 8,000 \text{ krad/sec}$

a)  $f_0 = 1,273.2395 \text{ kHz}$

b)  $Q = 16.0$

c)  $\omega_{c1} = 7,753.9053 \text{ krad/sec}$

d)  $\omega_{c2} = 8,253.9053 \text{ krad/sec}$

e)  $\beta = 79.5775 \text{ kHz}$

**Correct**

Marks for this submission: 25.00/25.00.