

# CET141 | Summer 2019

## Phasor and impedance practice

### Agendas and Objects:

- » Introducing Phasor
- » Impedance circuit analysis

### Student Details:

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Email:

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**Participation Test in this topic starts from here**

1. (20 pt) A sinusoidal current is given by the expression  
$$i = 100 \cos(600t + 45^\circ) \text{ mA}$$

a) (2 pt) Find  $f$  in hertz

Answer:	
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b) (2 pt)  $T$  in milliseconds

Answer:	
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c) (2 pt)  $I_m$  (magnitude)

Answer:	
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d) (2 pt)  $i(0)$

Answer:	
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e) (2 pt)  $\phi$  in degrees and radians

Answer:	
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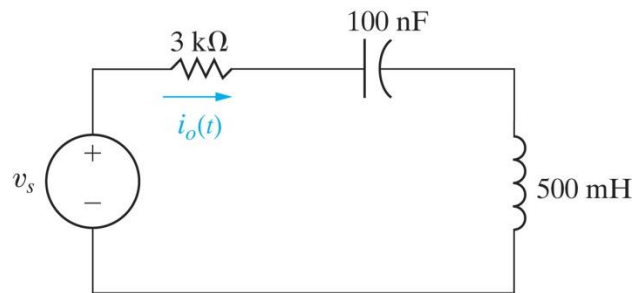
f) (5 pt) The smallest positive value of  $t$  at which  $i=0$

Answer:	
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g) (5 pt) The smallest positive value of  $t$  at which  $di/dt=0$

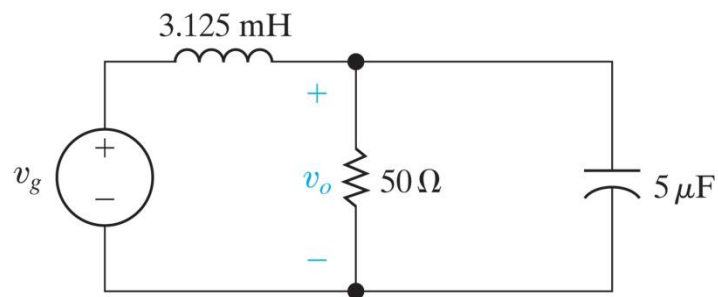
Answer:	
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2. (20 pt) Find the steady-state expression for  $i_o(t)$  in the circuit if  $v_s = 80 \cos 2000t$  V



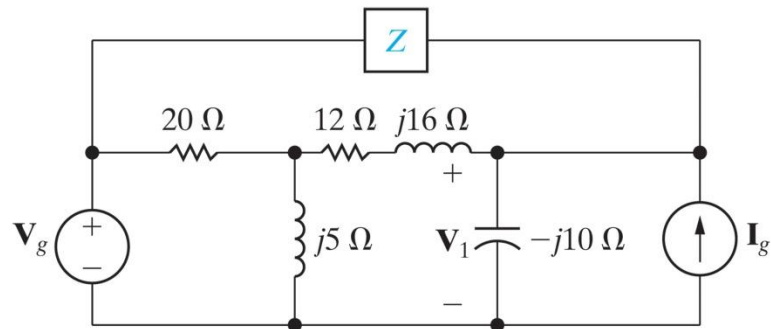
Answer:

3. (20 pt) Find the steady-state expression for  $v_o(t)$  in the circuit if  
 $v_g = 60 \sin 8000t \text{ V}$



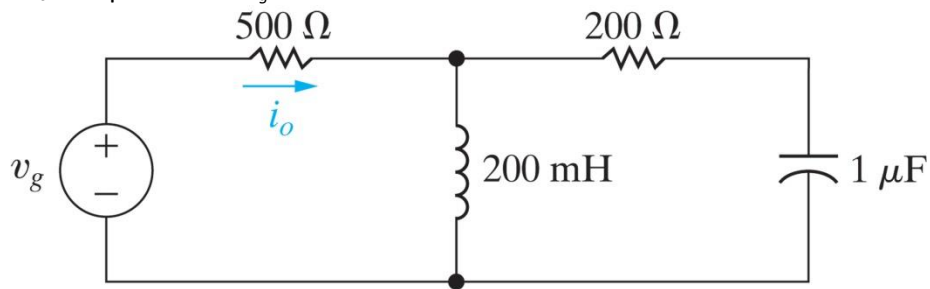
Answer:

4. (20 pt) Find the value of  $Z$  in the circuit if  $V_g = 100 - j50$  V,  $I_g = 30 + j20$  A, and  $V_1 = 140 + j30$  V.



Answer:

5. (20 pt = 10 pt each) The frequency of the sinusoidal voltage source in the circuit is adjusted until the current  $i_o$  is in phase with  $v_g$ .



- a) Find the frequency in hertz.

Answer:

- b) Find the steady-state expression for  $i_g$  (at the frequency found in [a]) if  $v_g = 90 \cos \omega t$  V.

Answer:

Total Score

/100