3
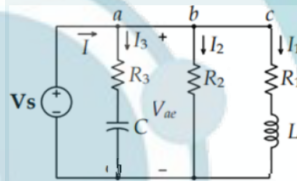
According to the figure shown below, which statement is true: 🔲
(2 Points)

Assume Vs is DC power supply
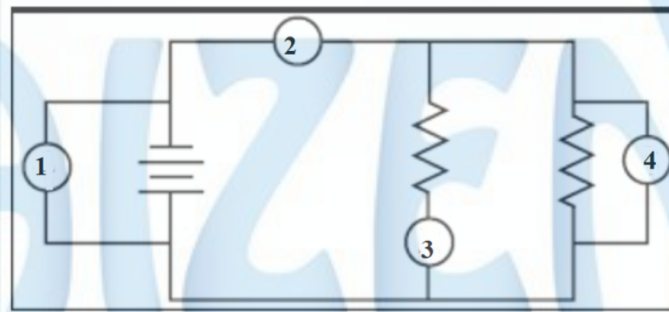
R3=2R1=4R2

- ⦿ Both A and C are correct
- ○ Both B and C are correct
- ○ B. The current I1 is double of I2
- ○ D. I1 is one fourth of I2
- ○ C. I3 = 0
- ○ A. The current I1 is half I2

4

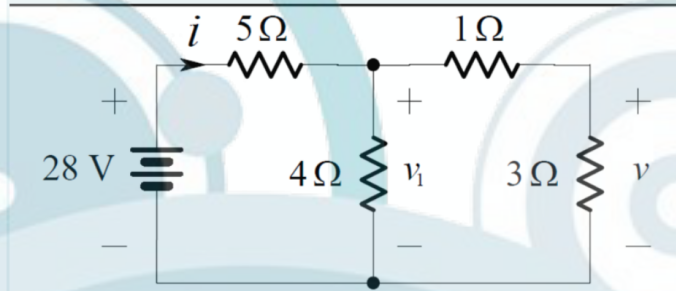You are asked to connect the following circuit in the lab, to connect it correctly: 🔲
(1 Point)

- ○ A. Devices 1 and 4 are ammeters, Devices 2 and 3 are voltmeters
- ○ B. Devices 2 and 3 are ammeters, Devices1 and 4 are voltmeters
- ○ Both A and C are correct
- ○ C. Devices 2 and 4 are ammeters, Devices 1 and 3 are voltmeters
- ○ None of these.

5

According to the figure, which statement is correct: 🔊
(1 Point)

○ None of these

○ C. The current through 4 ohm is equal to the current through 3 ohm

○ A. The voltage across 4 ohm is higher than the voltage across 5 ohm

○ B. The current through 4 ohm is higher than the current through 3 ohm
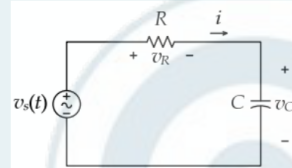
○ Both A and C

6

For the shown function generator device, if you want to generate a square wave with 3000 Hz, which buttons you have to press:
(1 Point)

○ B then 4, then rotate the frequency knob

○ None of the above

○ A then 5, then rotate the frequency knob

○ C then 4, then rotate the frequency knob

○ A then 2, then rotate the frequency knob
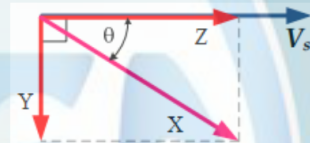
○ C then 2, then rotate the frequency knob

7

For the series RC circuit shown, given that the source frequency is 150 Hz, R= 2000 ohm and the total impedance phase angle is (-75) degree. The capacitor C value is:
(2 Points)

◯ 142.2 nF

◯ 1.422 nF

◯ 14.22 nF

◯ 142.2 microF

◯ None of the above

◯ None of the above

8

According to the phasor diagram for a parallel RL circuit shown, the symbols X, Y and Z are referred to:
(2 Points)

◯ X is for inductor current, Y is for source current and Z is for the resistor current

◯ X is for resistor current, Y is for source current and Z is for the inductor current

◯ X is for source current, Y is for resistor current and Z is for the inductor current

◯ X is for source current, Y is for inductor current and Z is for the resistor current

◯ None of the above

◯ X is for resistor current, Y is for inductor current and Z is for the source current

◯ X is for inductor current, Y is for resistor current and Z is for the source current

○ X is for inductor current, Y is for source current and Z is for the resistor current

○ X is for resistor current, Y is for source current and Z is for the inductor current

● X is for source current, Y is for resistor current and Z is for the inductor current

○ X is for source current, Y is for inductor current and Z is for the resistor current

○ None of the above

○ X is for resistor current, Y is for inductor current and Z is for the source current

○ X is for inductor current, Y is for resistor current and Z is for the source current

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The resistor voltage in a series RL circuit is always out of phase with the source current. 🔊
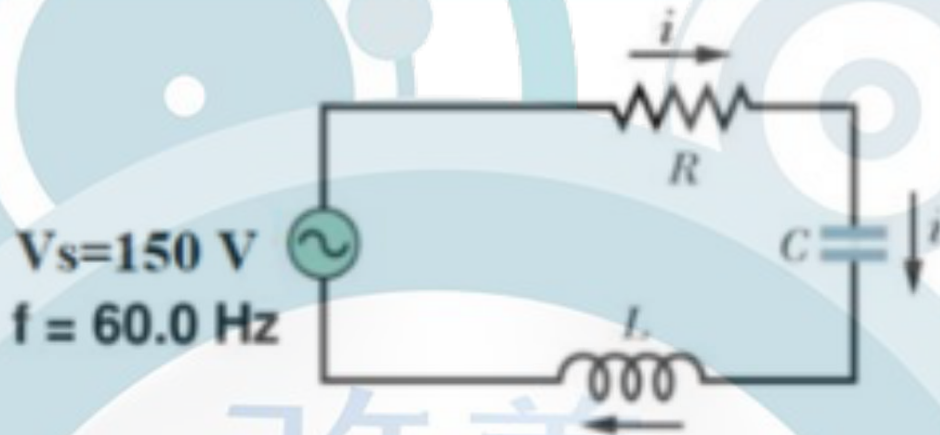(2 Points)

○ True

○ False

○ L

○ B

11

For a series R-L circuit :

(Note that you can select more than one choice if needed, but the wrong choice will cancel the correct one.)
(2 Points)

☐ the inductor impedance is minimum at high frequency

☐ None of the above

☐ the total impedance Z is totally real

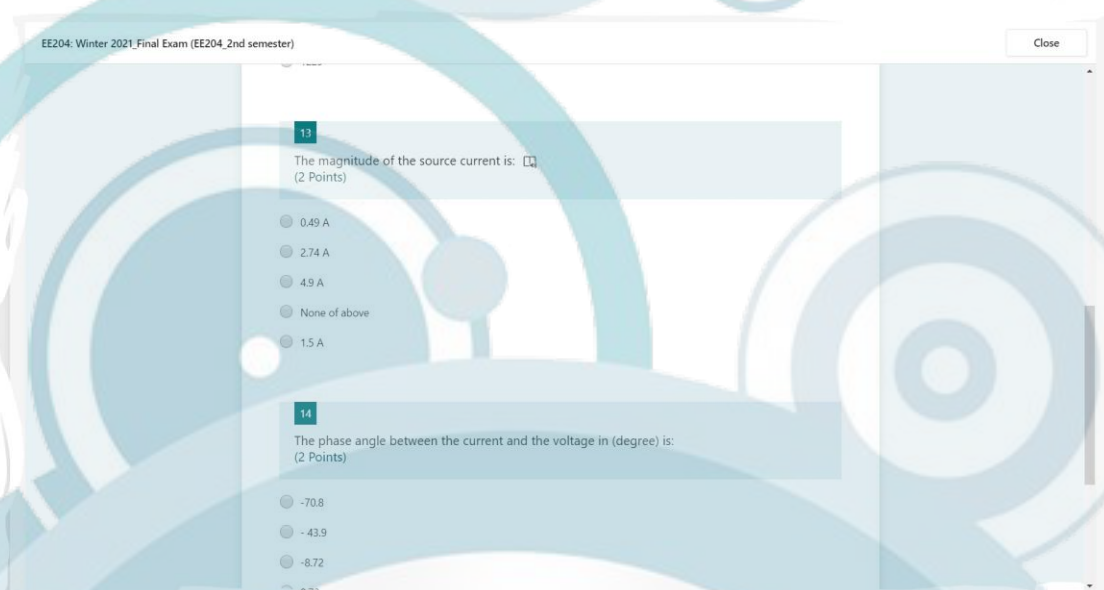☐ the source current is maximum at low frequeny

☐ the power factor is equal one

For the series R-L-C circuit shown, Given that R=200 ohm, L = 1.5 H and C = 3.5 microfarad. answer the following questions:
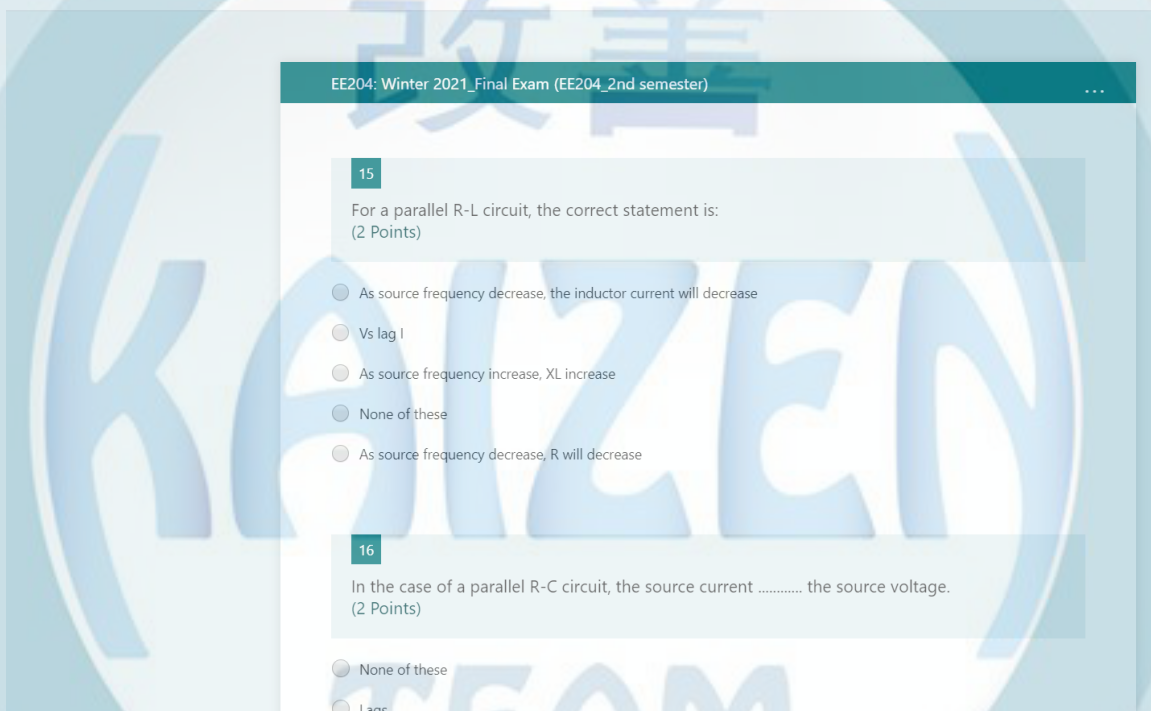

12
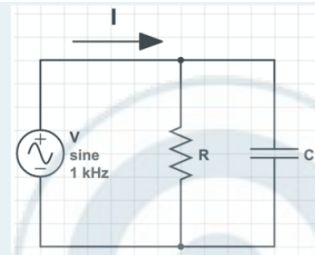
The magnitude of total impedance in (ohm) is:
(2 Points)

- ○ 54.68
- ○ 303.62
- ○ None of above
- ○ 1529.92
- ○ 1229

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The magnitude of the source current is:
(2 Points)

- 0.49 A
- 2.74 A
- 4.9 A
- None of above
- 1.5 A

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The phase angle between the current and the voltage in (degree) is:
(2 Points)

- -70.8
- - 43.9
- -8.72

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For a parallel R-L circuit, the correct statement is:
(2 Points)

- As source frequency decrease, the inductor current will decrease
- Vs lag I
- As source frequency increase, XL increase
- None of these
- As source frequency decrease, R will decrease

16

In the case of a parallel R-C circuit, the source current .... the source voltage.
(2 Points)

- None of these
- Lags

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For the circuit shown, if we want to find the phase shift between the source current and the source voltage using the oscilloscope device, then we had to:
(2 Points)

- ⦿ connect CH1 across V, and connect CH2 in series with V
- ○ connect CH1 across R, and connect CH2 in series with C
- ○ An element to the circuit must be added and connect CH2 parallel to it while CH1 is connected to V
- ○ connect CH1 across V, and connect CH2 across C
- ○ None of these
- ○ connect CH1 across V, and connect CH2 across R

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As frequency decreases, which of the following statements is true?
(2 Points)

- ○ both series and parallel RC impedance decrease
- ○ series RC impedance increases and parallel RC impedance decreases
- ○ None of these
- ○ series RC impedance decreases and parallel RC impedance increases
- ○ both series and parallel RC impedance increase

Use the figure to answer the following questions, assume practical germanium diode (Vγ = 0.3 V)
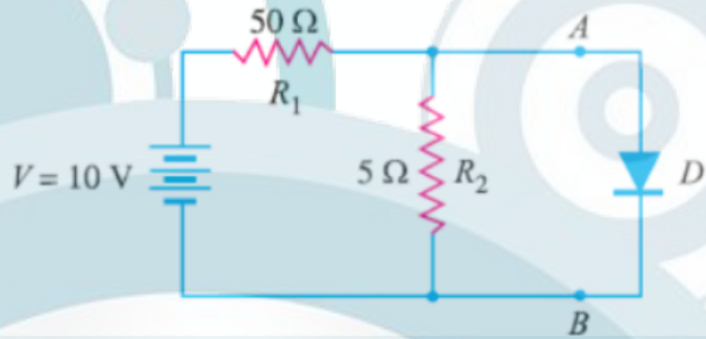
19

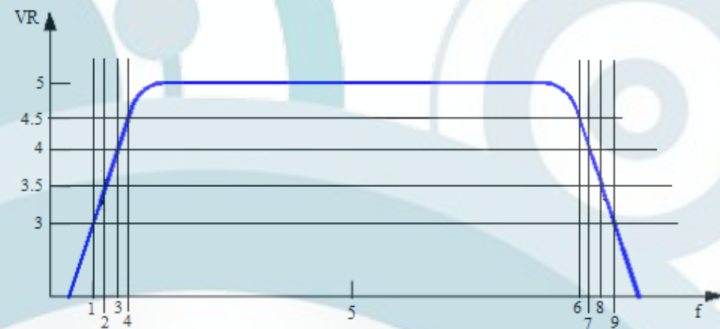The voltage (in volt) cross 5 ohm resistor is:
(2 Points)

○ None of above

○ 0.3

○ 0.809

○ 0.909

○ 0.7

○ 0.55

For a series R-L-C circuit, the resistor voltage variation with frequency is shown in the figure, answer the following questions:

23

The lower and upper cutoff (corner) frequencies, respectively (fL and fH) are:
(2 Points)

- ○ None of the above
- ○ 4 and 6
- ◉ 2 and 8
- ○ 1 and 9
- ○ 3 and 7
- ○ 5 only

24

The voltage at the resonance frequency is:
(1 Point)

- ○ 3
- ○ 4.5
- ○ 5
- ◉ 3.5