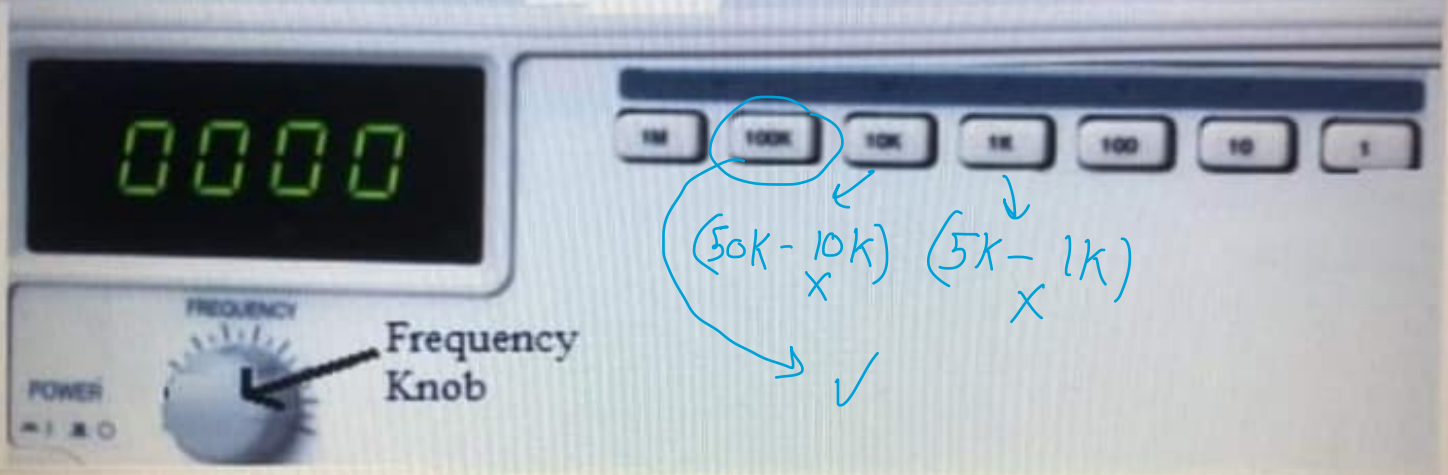
A part of the Function Generator is shown in the Figure, if we want to adjust its output frequency to 90 kHz, we had to:
(1.5 Points)



- Press the (10) button then rotate the frequency knob
- Press the (100k) button then rotate the frequency knob
- Press the (10k) button then rotate the frequency knob
- Press the (100) button then rotate the frequency knob

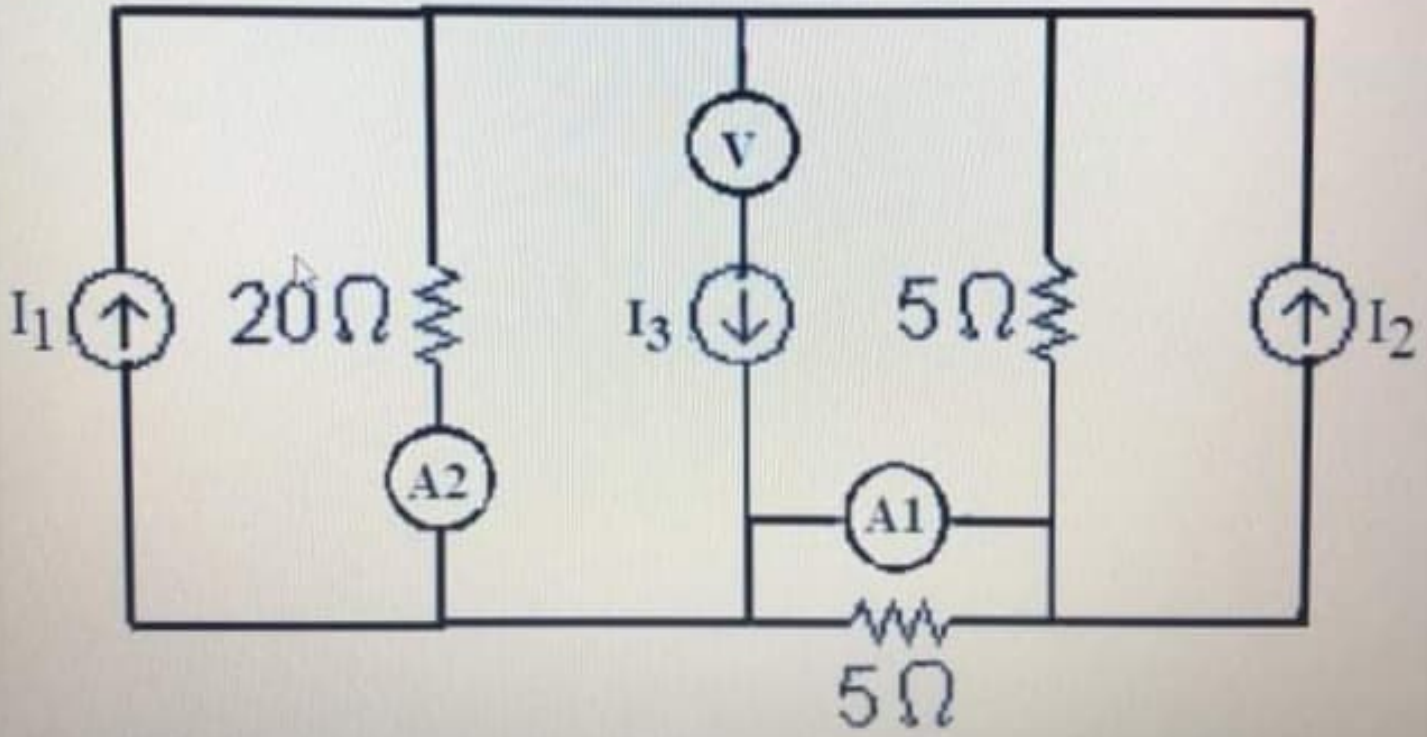
5

If a resistor has the following colors (Orange, White, Red, and gold) then the range value of this resistor is:
(1.5 Points)

- None of the above
- (2705 – 4390) ohm
- (2715 – 4085) ohm
- (2726 – 4073) ohm

7

A student connects the following circuit with three current sources (I1 = 3 A, I2 = 4 A and I3 = 6 A) and he added two Ammeters (A1 and A2) and one voltmeter (V).
The reading of the ammeter A2 (in A) will be:
(2 Points)



Enter your answer

6

- BLACK: 0
- BROWN: 1
- RED: 2
- ORANGE: 3
- YELLOW: 4
- GREEN: 5
- BLUE: 6
- VIOLET: 7
- GREY: 8
- WHITE: 9

Use the following table to calculate the value of the resistor that has colors (White, Green, Red, and Silver) while the Silver color represents 10% tolerance.
The maximum value of the resistor will be:
(2 Points)

$95 \times 10^2 \pm .1$

$9500 \pm (0.1 \times 9500)$

$= 10450\ \Omega$

Enter your answer

18

In the oscilloscope device, the knob that determines number of the displayed signal cycles on the screen is :
(1.5 Points)

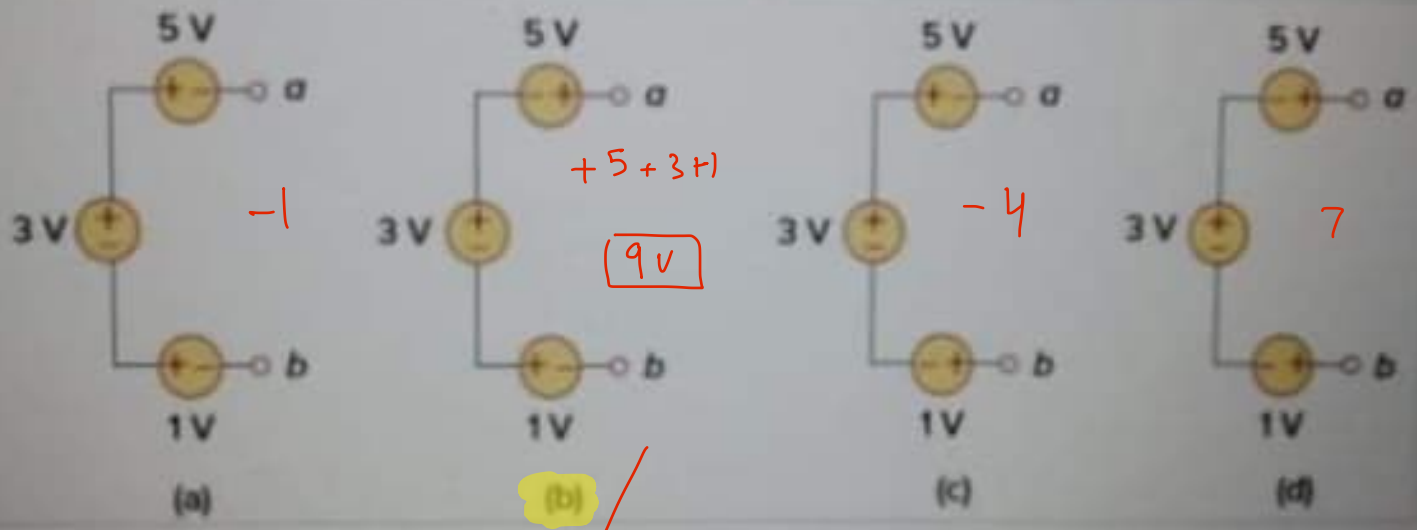
عدد الـ cycles ←

- Vertical position
- Time per Div
- Horizontal position
- Volt per Div

يعني ← frequency $f = \frac{1}{T}$

Time per Div

:The circuit that give Vab = 9V is
(1.5 نقطة)



-1

+5+3+1

9V

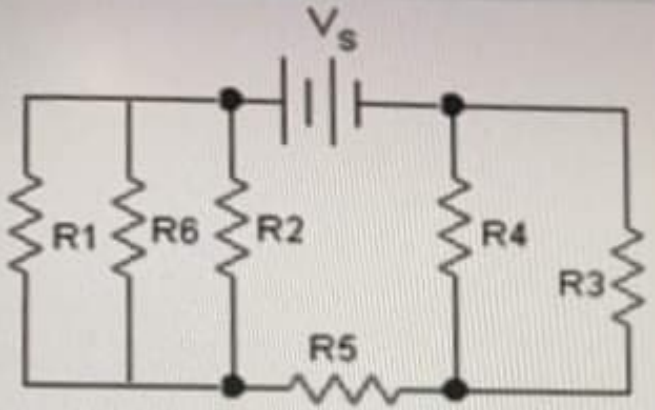
-4

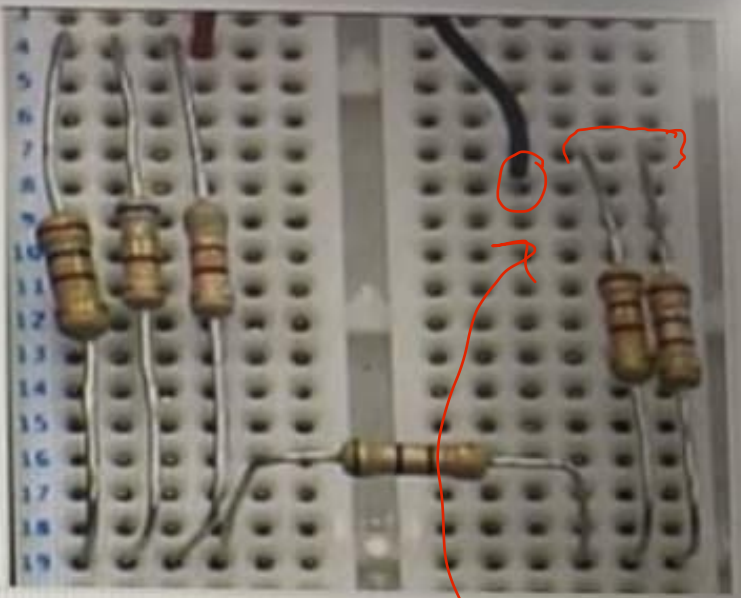
7

$V_{ab} = 9V$

بمشي من a الى b

c
b
d





حسب ما اری
انه مو نفس ال Node
اذا غلط

4

Is the shown circuit built correctly?
(2 Points)

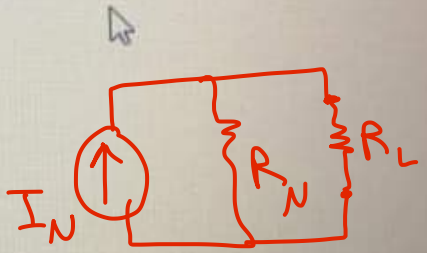
Yes

لكن اذا طلعو نفس ال Node
بضي صح

14

Applying Norton's theorems to a circuit yields to:
(1 Point)

- equivalent voltage source and a resistor in series
- equivalent current source and a resistor in parallel
- equivalent current source and a resistor in series
- equivalent voltage source and a resistor in parallel

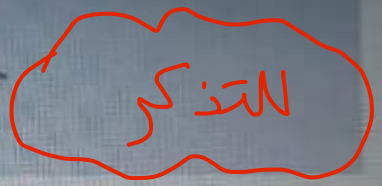


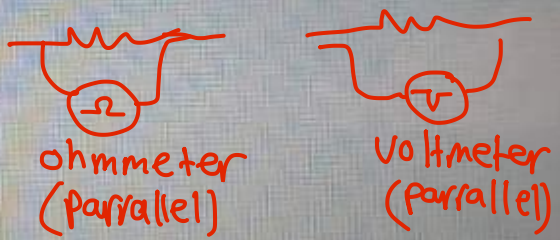
15

4

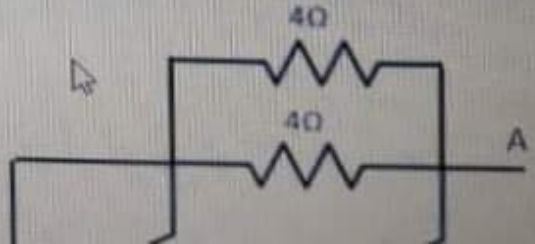
To measure the voltage a cross an element in any circuit:
(2 Points)

- You need a voltmeter connected in series with the element
- You need an ammeter connected in parallel with the element
- You need a voltmeter connected in parallel with the element
- You need an ammeter connected in series with the element

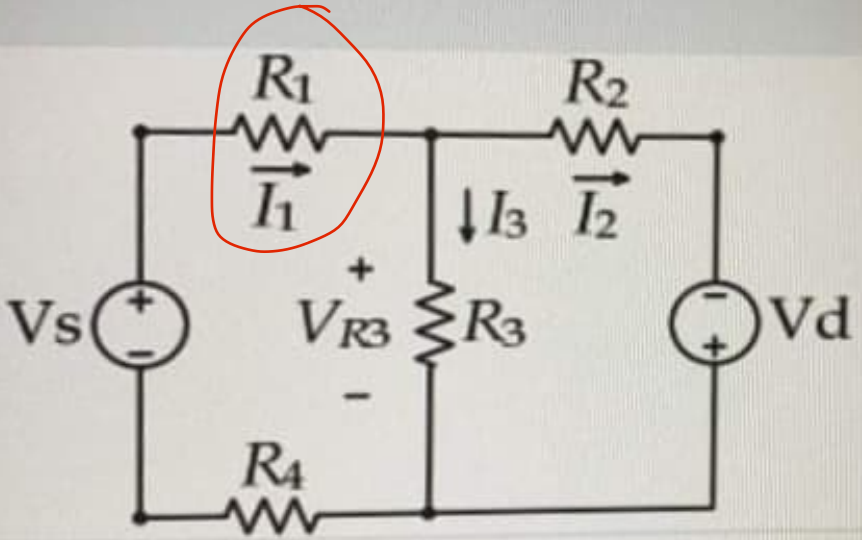




5



The circuit shown below is experimentally conducted by applying the superposition method for the circuit currents where the results are presented in the table as shown (in ampere). Accordingly, please answer the following:



	Due to Vs only	Due to Vd only
I1	8.19	4.49
I2	2.62	-4.01
I3	5.57	8.5

$I_1 = 8.19 + 4.49 = 12.68$

11

The total absorbed power by R1 = 390 ohm (in kWatt) is:
(2 Points)

$P = I^2R = 12.68^2 \times 390 = 62.705$ KW

The total absorbed power by R1 = 390 ohm (in kWatt) is:
(2 Points)

62.705

$I_{total} = 8.19 + 4.49 = 12.68$

$P_{R_1} = R I^2$

$= 390 \times (12.68)^2$

$= 62705.136\ w$

$= 62.705\ kw$

12

The voltage drop on R3 = 40 ohm (in volt) due to both supplies is:
(2 Points)

562.8

$I_{3_{total}} = 5.57 + 8.5 = 14.07\ A$

$V_{R_3} = I_3 R$

$= 14.07 \times 40$

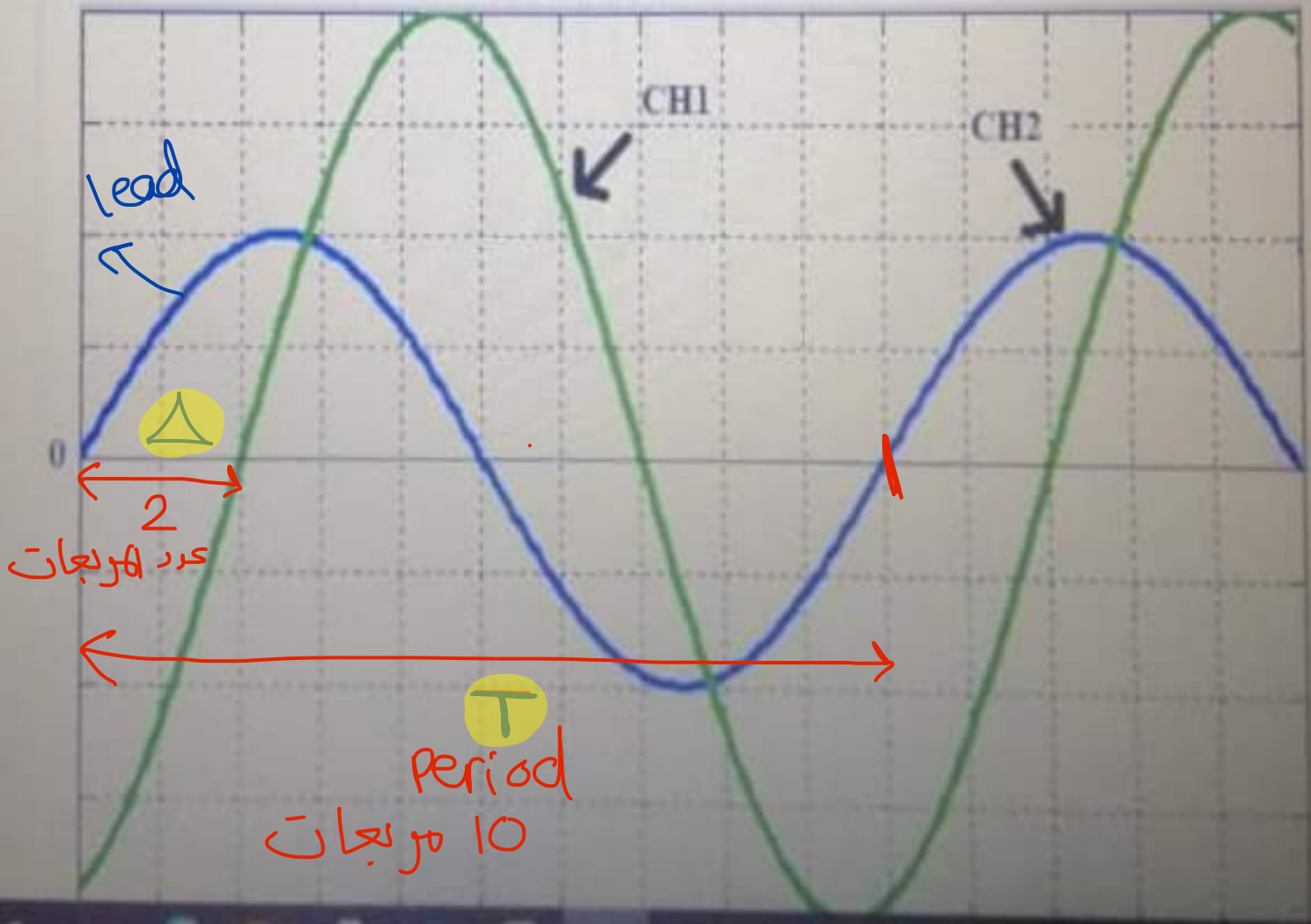
$= 562.8$

13

IF R1 = 7 ohm, R4 = 8 ohm and R3 = 30 ohm, then the value of the resistor R2 (in ohm) for

Referring to the signals shown on the scope screen above, If both signals have a frequency 4KHz while the CH1 scale =0.85 volt/Div. Answer the following questions:

يعني vertical



20

CH2 lead CH1 .
(1 Point)

- True
- False
- Can't be determined

21

The phase angle (in degree) between the two signals is:
(2 Points)

Enter your answer

$$\theta = \frac{\Delta \times 360^{\circ}}{T} = \frac{2 \times 360}{10} = 72^{\circ}$$

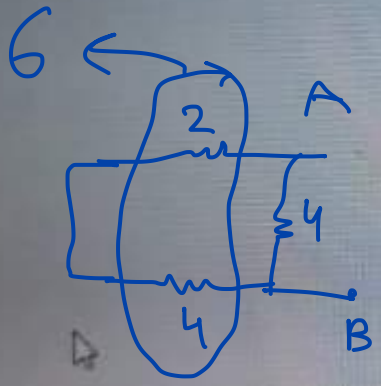
4

To measure the current passing through an element in any circuit: 5
(2 Points)

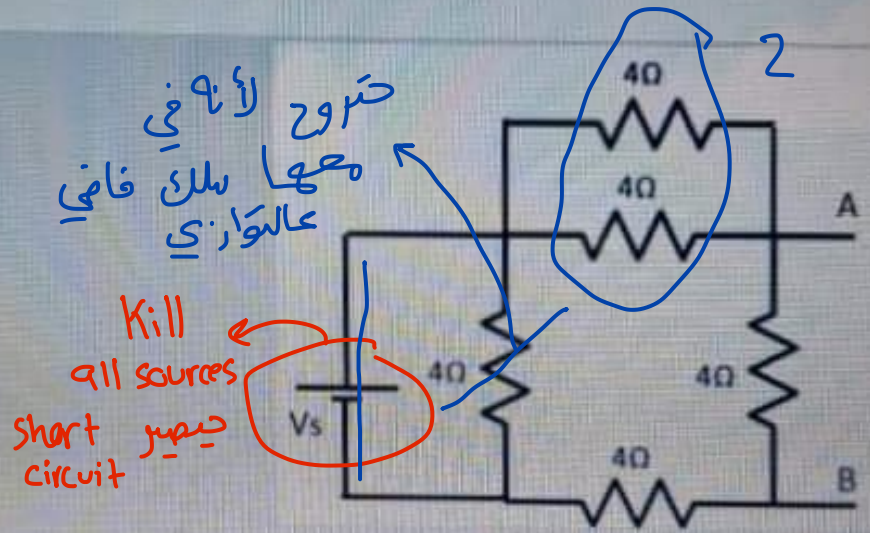
- You need an ammeter connected in parallel with the element
- You need a voltmeter connected in series with the element
- You need a voltmeter connected in parallel with the element
- You need an ohmmeter connected in series with the element
- You need an ohmmeter connected in parallel with the element
- You need an ammeter connected in series with the element

Ammeter connected series

5



$6 \parallel 4 = \boxed{2.4}$ R_{th}



For the following circuit, the Thevenin resistance between A and B (in ohm) is
(2 Points)

$R_{th} = 2.4$

Enter your answer

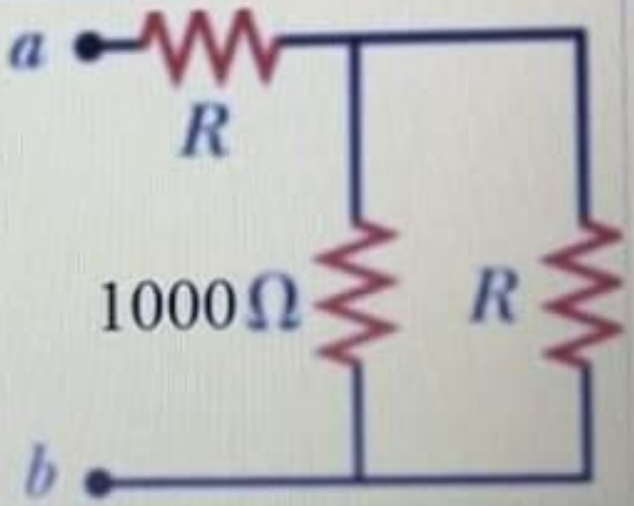
5

For the circuit shown, if the resistor R=(Orange, Violet, Brown, Brown, Silver), then the equivalent resistance (in ohm) between the terminals a and b is (ignore the tolerance): (2 Points)

3 7 1 x10¹ ± 1 ignore tolerance

3710

Black	0	Blue	6
Brown	1	Violet	7
Red	2	Grey	8
Orange	3	White	9
Yellow	4	Gold	±5%
Green	5	Silver	±10%

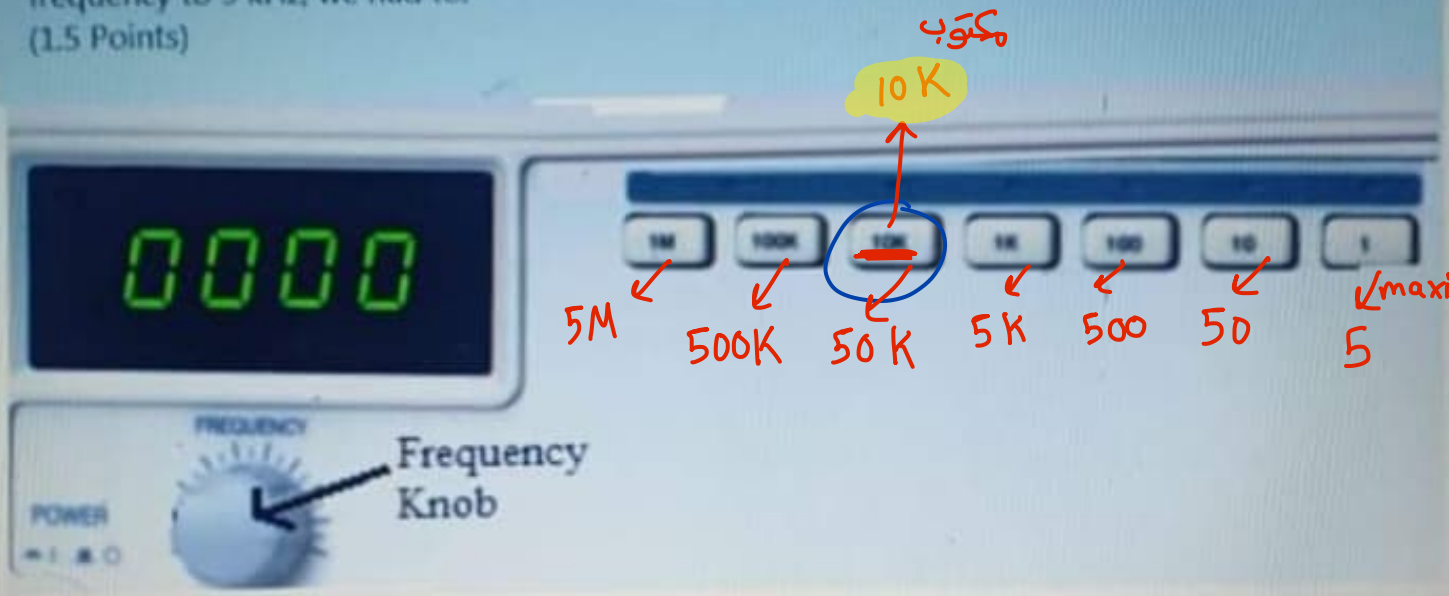


Enter your answer 3710Ω

Back Next

9

A part of the Function Generator is shown in the Figure, if we want to adjust its output frequency to 9 kHz, we had to:
(1.5 Points)



- Press the (100k) button then rotate the frequency knob
- Press the (100) button then rotate the frequency knob
- Press the (10) button then rotate the frequency knob
- Press the (10k) button then rotate the frequency knob

13

In the oscilloscope, the volt/div knob controls:
(1.5 Points)

- ○ The number of time for each horizontal division on the screen.
- ○ The number of time for each vertical division on the screen.
- ● The number of volts for each vertical division on the screen.
- ○ The number of volts for each horizontal division on the screen.

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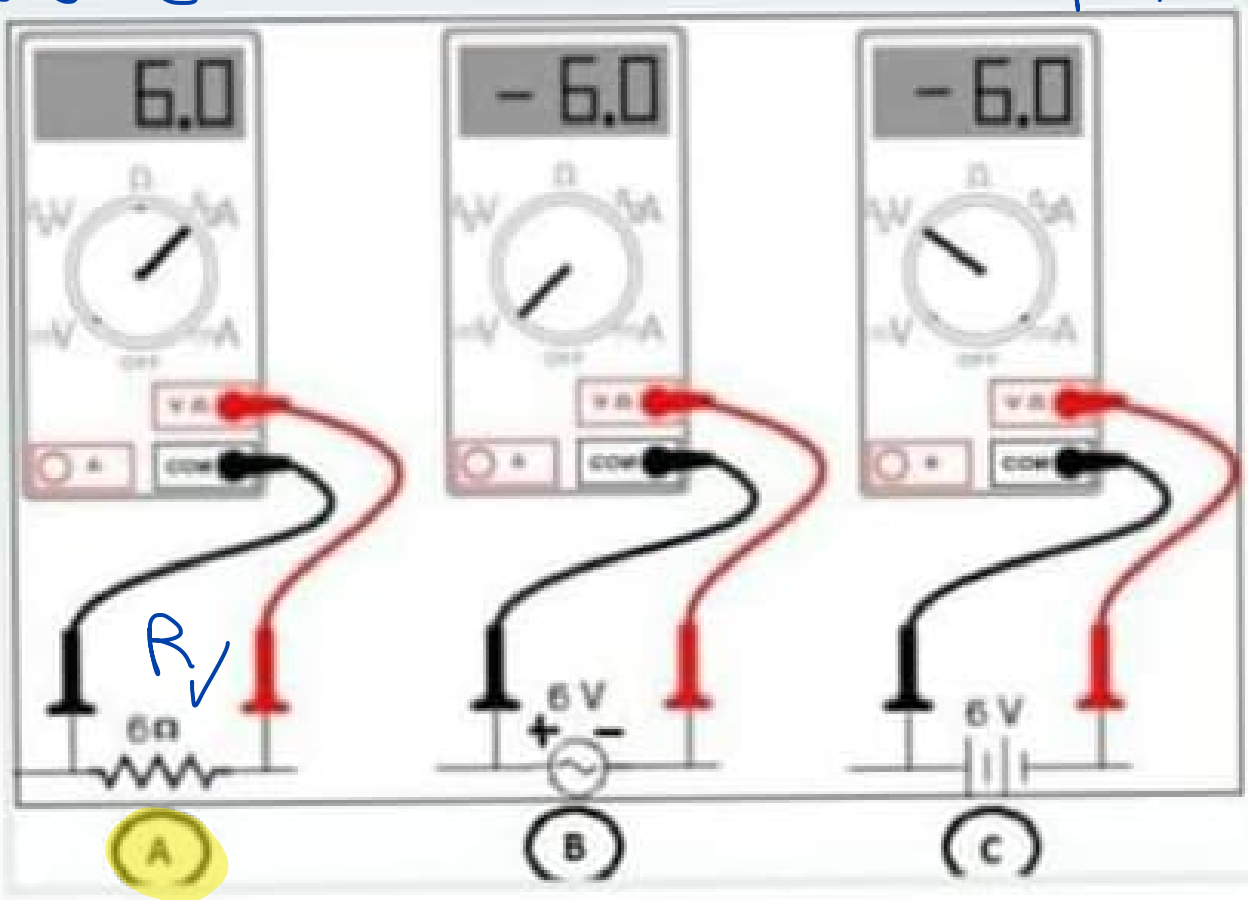
The correct connection and reading in the following Figure is: (1.5 Points)

هاد الجهاز فقط بقرأ

components → Resistor, L inductor, Capacitor

مش متأكدة بس اظن ه



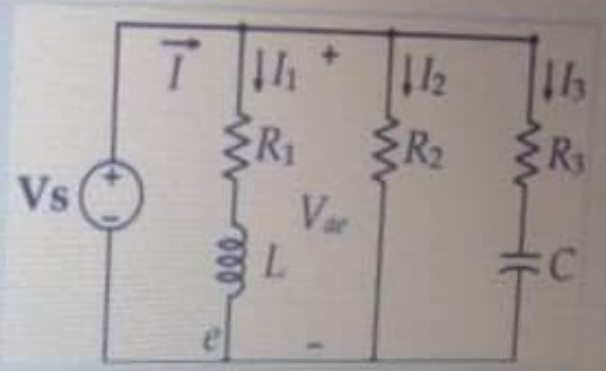
- A
- B
- C
- None is correct

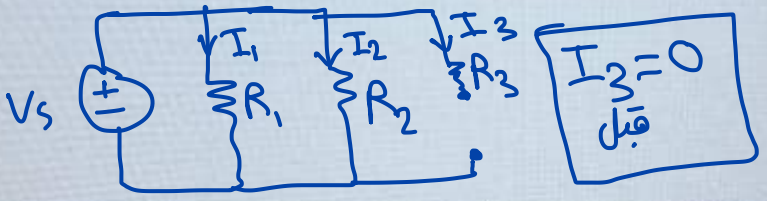
8

in DC

capacitor → open circuit

inductor → short circuit





Replacing the capacitor (C) (in the circuit shown next) by an inductor will: (2 Points)

increase the value of the current (I2)

decrease the value of the total current (I)

increase the value of the total current (I)

make no changes to the total current (I)

make the current (I) equal to zero

لـ راح يصير open circuit بدل Short circuit

وراح تدخل R_3 بالموضوع

واذاً R_{eq} حتقل لانها توازي

$V = I \; R$

I ↑ راح يزيد

R ↓ راح يقل

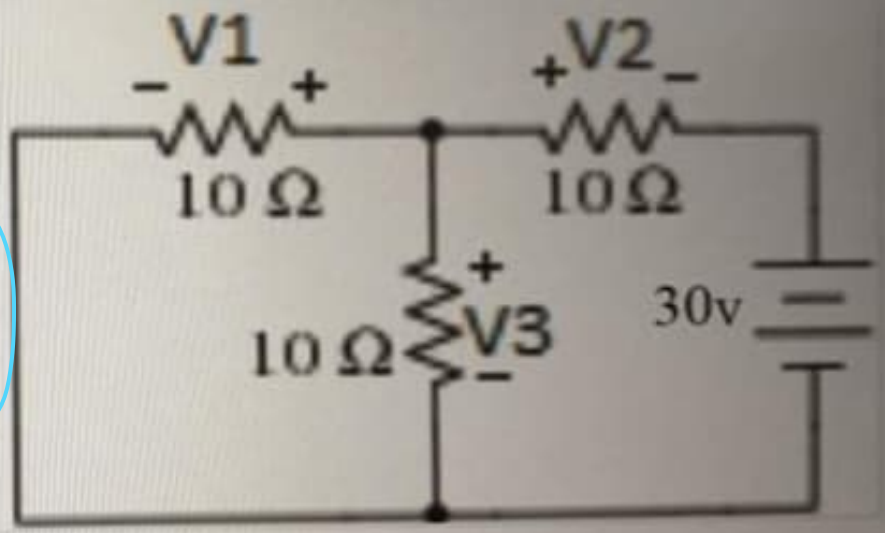
متى متأكدة ✶

7

A student connected the circuit shown and he measured the resistor voltages and recorded them in the shown table (in volt), but accidentally he wrote one of the readings wrong. The wrong voltage (V1 or V2 or V3) is:
(2 Points)

V_1 و V_3
توازي وإذاً لازم نفس الجهد

V1	V2	V3
10	-20	-10

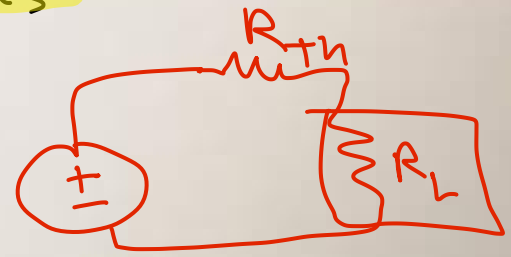


V3

14

Applying Thevenin's theorems to a circuit yields to:
(1 Point)

equivalent voltage source and a resistor in series



equivalent voltage source and a resistor in parallel

equivalent current source and a resistor in series

equivalent current source and a resistor in parallel

15

To find the Norton resistor of a circuit, we had to open all the current sources and short all the voltage sources
(1.5 Points)

True

False

Back

Next

6. In a series RC circuit, 12 V(rms) is measured across the resistor and 15 V(rms) is measured across the source voltage, the capacitor peak voltage (in volt) is:
(1.5 Points)

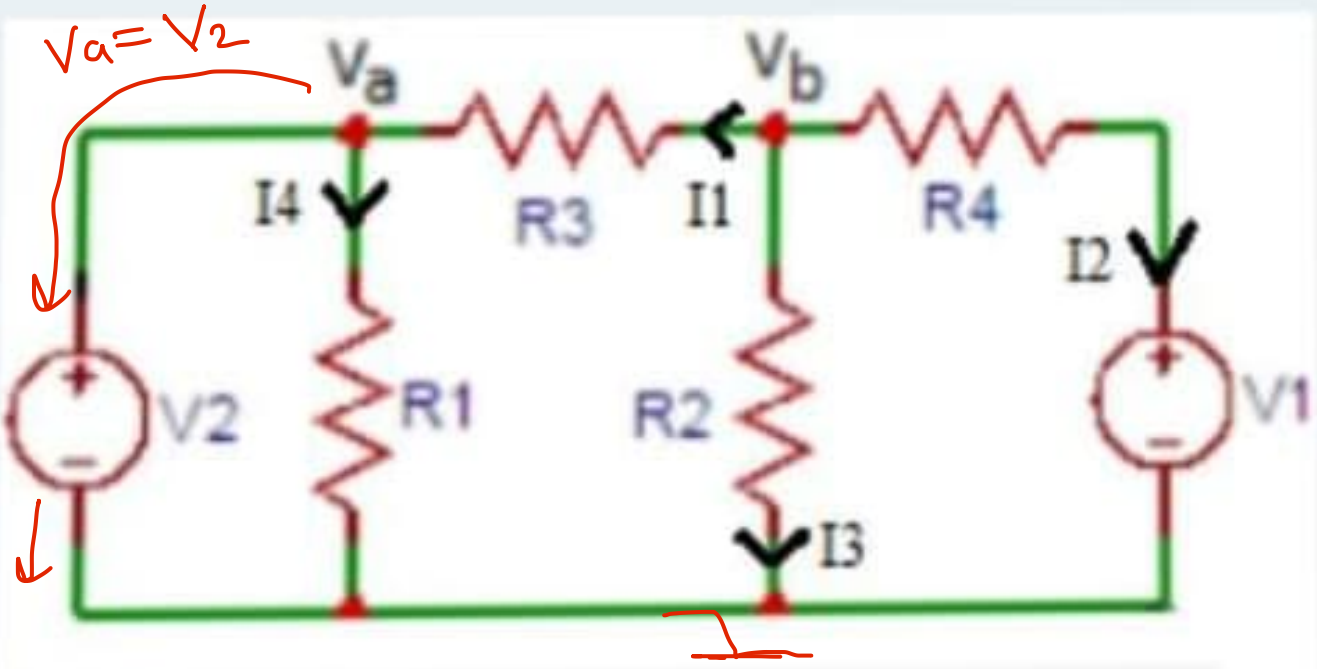
صري

- 9
- 12.73
- 26
- None of above

Back Next

10

A student wrote the Nodal equation at node (b) for the circuit shown here (as shown below it), the missing term in the box is:
(1 Point)

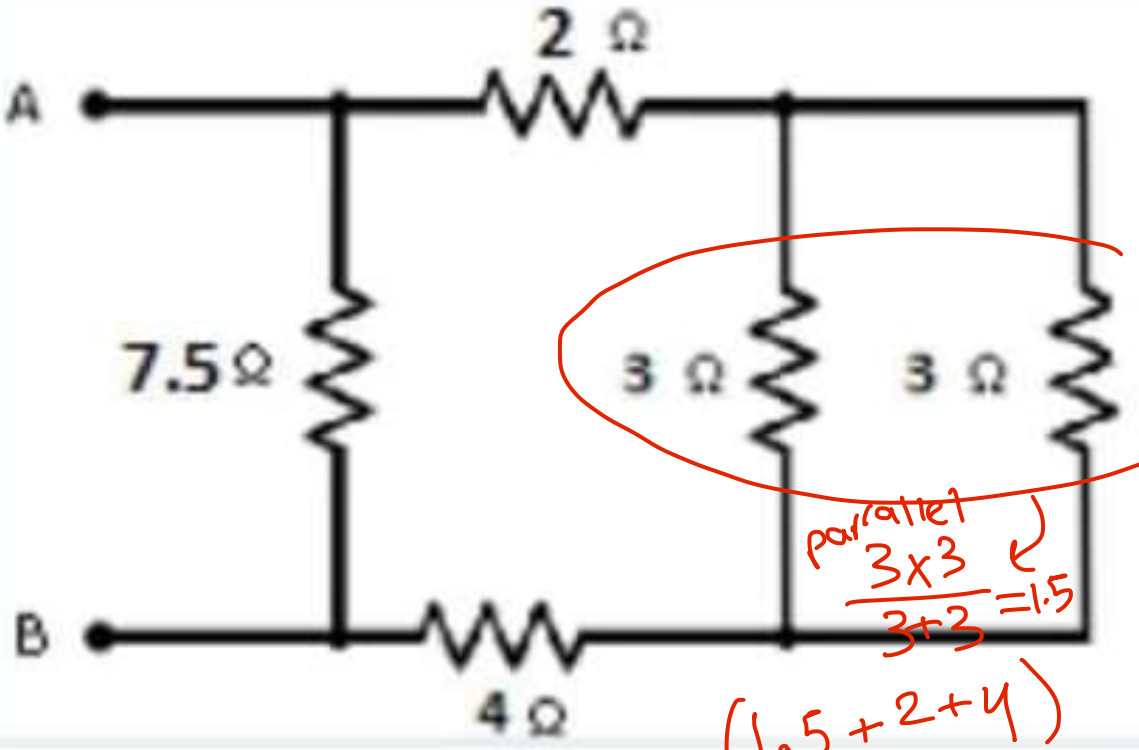


$$\frac{V_b}{R2} + \frac{V_b - V_1}{R4} + \boxed{\quad} = 0$$

- (Vb + V2) / R3
- (Vb + V1) / R4

3

For the following circuit, the equivalent
* resistance (in ohm) is
(1 نقطة)



parallel
$\frac{3\times3}{3+3}=1.5$

series $(1.5+2+4)$
$=7.5$

7.5 | 7.5

Parralel

$\frac{7.5\times7.5}{7.5+7.5}$

$=3.75\Omega$

1.6 ○

2.6 ○

3.75 ○

None of the above ○

10

A resistor has a nominal value of (R=4700) ohm, and a measured value using an ohmm
4230 ohm. The expected color code for this resistor is:
(1.5 Points)

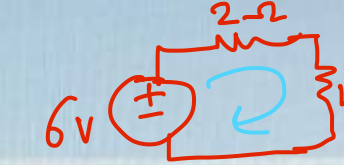
- yellow, violet, red and gold
- yellow, violet, red and silver
- yellow, violet, orange and silver
- yellow, violet, red

Back

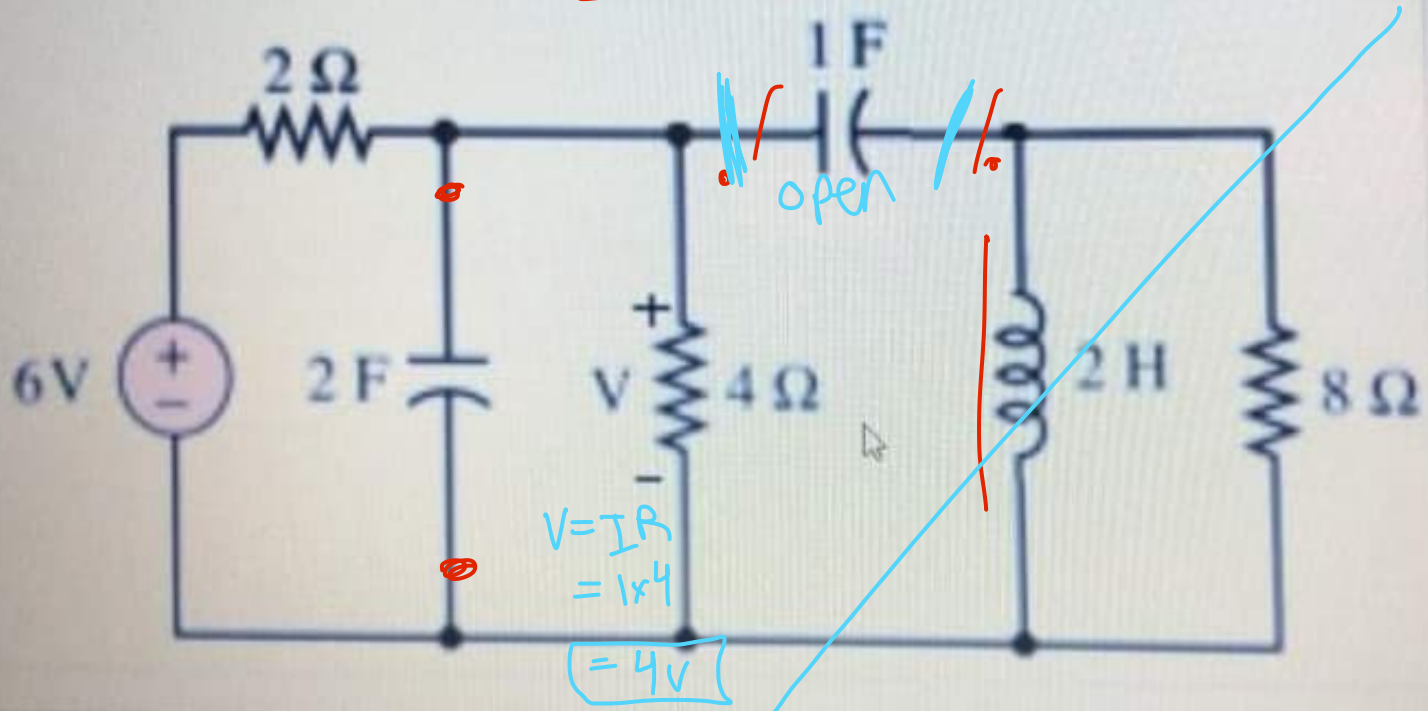
Next

The voltage (V) on the 4 ohm resistor (in volt) is:
(2 Points)

DC



$I = \frac{6}{6} = 1A$



Enter your answer = 4 V

Back | Submit

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15

$R_N = R_{th}$

خطأ لازم العكس

To find the Norton resistor of a circuit, we had to short all the current sources and open all the voltage sources.

(1.5 Points)

current source → open circuit

voltage source → Short circuit

- True
- False

Back | Next

7. If the value of R in a series RLC circuit is increased, then the resonant frequency will: (1.5 Points)

- Increases
- decreases
- be reduced to zero
- not affected

8. If the resistance value is doubled in a series RL circuit, then the magnitude of the total impedance of a circuit will: (1.5 Points)

$Z = R + X_L$

تزداد ↑ ↑

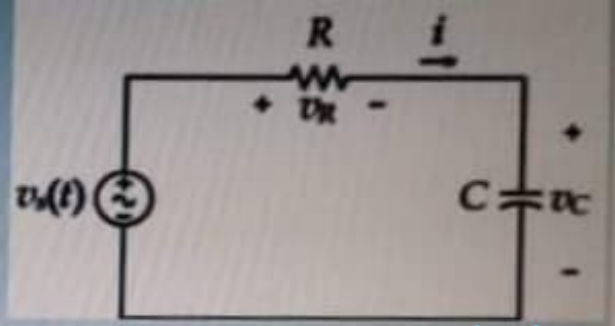
- increased
- decreased
- fixed
- Can't be determined without valuse

5

For the shown function generator, if you want to generate a square wave with 7500 Hz, which buttons you have to press?

(1 Point)

- A then 3, then rotate the frequency knob
- B then 3, then rotate the frequency knob
- C then 3, then rotate the frequency knob



$w = 2\pi f$
$= 300\pi$

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

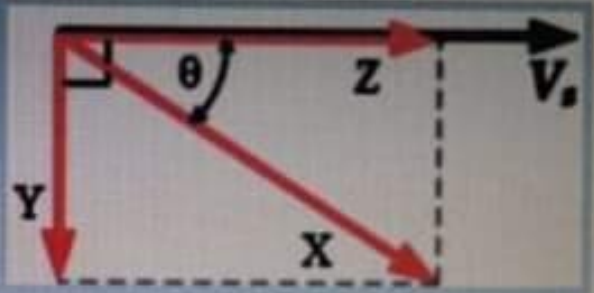
$$\angle Z = -\tan^{-1}\left(\frac{1}{\omega RC}\right)$$

$$-75^\circ = -\tan^{-1}\left(\frac{1}{300\pi \times 2000 \times C}\right)$$

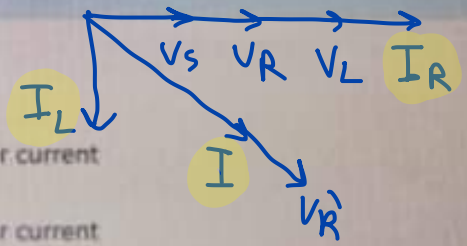
$$\tan(75^\circ) = \frac{1}{300\pi \times 2000 \times C}$$

$$C = 142.15 \text{ nF}$$

- 14.22 nF
- 142.2 nF
- 1.422 nF
- None of the above
- 142.2 microF



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



- None of the above
- X is for source current, Y is for resistor current and Z is for the inductor current
- X is for resistor current, Y is for source current and Z is for the inductor current
- X is for inductor current, Y is for resistor current and Z is for the source current
- X is for resistor current, Y is for inductor current and Z is for the source current
- X is for source current, Y is for inductor current and Z is for the resistor current
- X is for inductor current, Y is for source current and Z is for the resistor current

8

For a series RL circuit : 🕮
(2 Points)

R-L series

frequency $\frac{1}{\alpha}$ Is

(قيمة تقل)

- None of the above
- the power factor is equal one
- the inductor impedance is low at high frequencies
- the source current is high at low frequencies
- the total impedance Z is totally real

15

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

Is Vs

- (•) Leads
- ( ) None of these
- ( ) Lags
- ( ) Remains in phase with

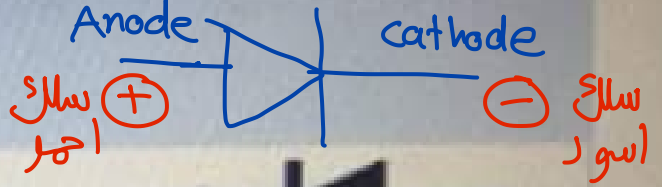
in RC

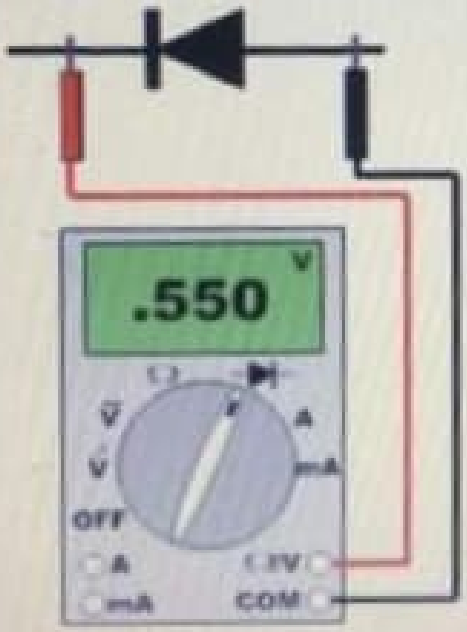
(Is) leads (Vs) by θ always

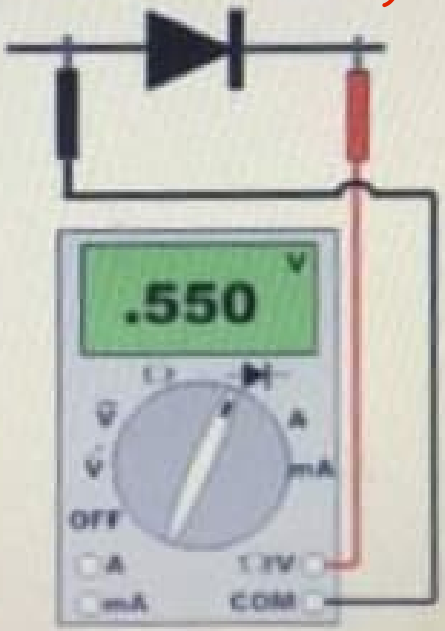
16

If the diode is working well, which of the following represents a correct reading?
(A or B or C)

(2 Points)







None of the above

17

اظن ملغي

If a supply voltage with 4 Vrms is input to a Full Wave Rectifier circuit, then the output rectified voltage will be (all diodes voltage have $V_\gamma = 0.7$ V):
(2 Points)

- 3.3 V
- None of the above
- 1.43 V
- 2.82 V
- 2.13 V
- 2.6 V
- 4.26V

21

The signal A is the output of : 🕮
(1 Point)

- half wave rectifier circuit
- full wave rectifier circuit
- resonance circuit
- clamper circuit
- clipper circuit
- None of these

23

We could achieve the signal B by:
(1 Point)

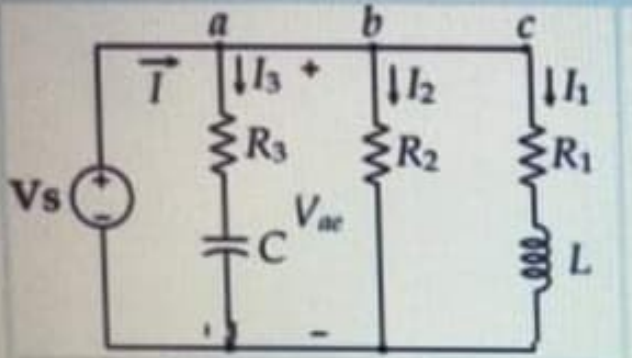
- ○ connecting a resistor on the output
- ◉ connecting a capacitor on the output
- ○ removing a capacitor from the output
- ○ add a diode
- ○ removing a resistor from the output
- ○ add an inductor
- ○ add potentiometer

24

If the frequency of the input waveform signal is 100 Hz, then the frequency of the signal A is: (1 Point)

- Can't be determined because it is not sinusoidal
- 100 Hz
- 50 Hz
- 200 Hz
- 0
- None of these

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



Assume Vs is DC power supply

~~R3=2R1=4R2~~ → $R_1 = 2R_2$

1 2

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

$I_3 = 0$ → open circuit

$I_1 = \frac{V}{2R_2}$ $I_2 = \frac{V}{R_2}$

$I_1 = \frac{1}{2} I_2$

I_1 is half I_2

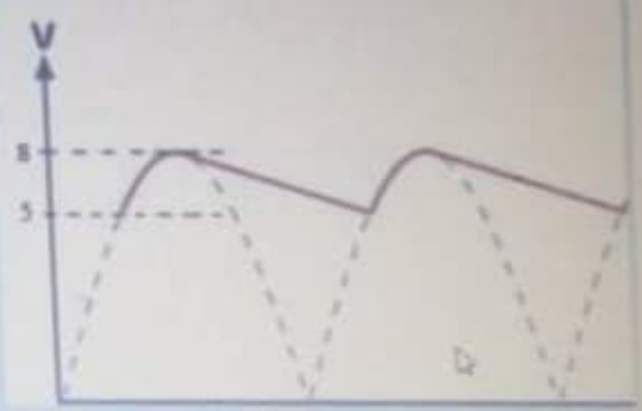
11

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 power factor is equal one
- [ ] the total impedance Z is totally real
- [ ] None of the above
- [x] the inductor impedance is maximum at high frequency
- [x] the source current is maximum at low frequency

21



The output signal of a full-wave rectifier circuit with a filter is shown in the following figure. The peak to peak ripple voltage (in volt) is:
(2 Points)

Enter your answer

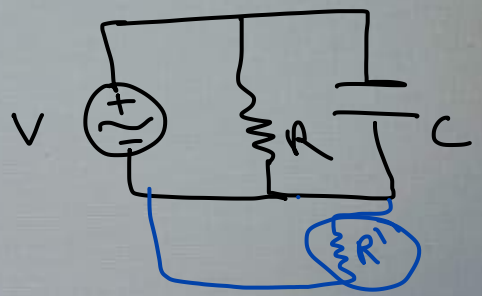
18

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

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

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

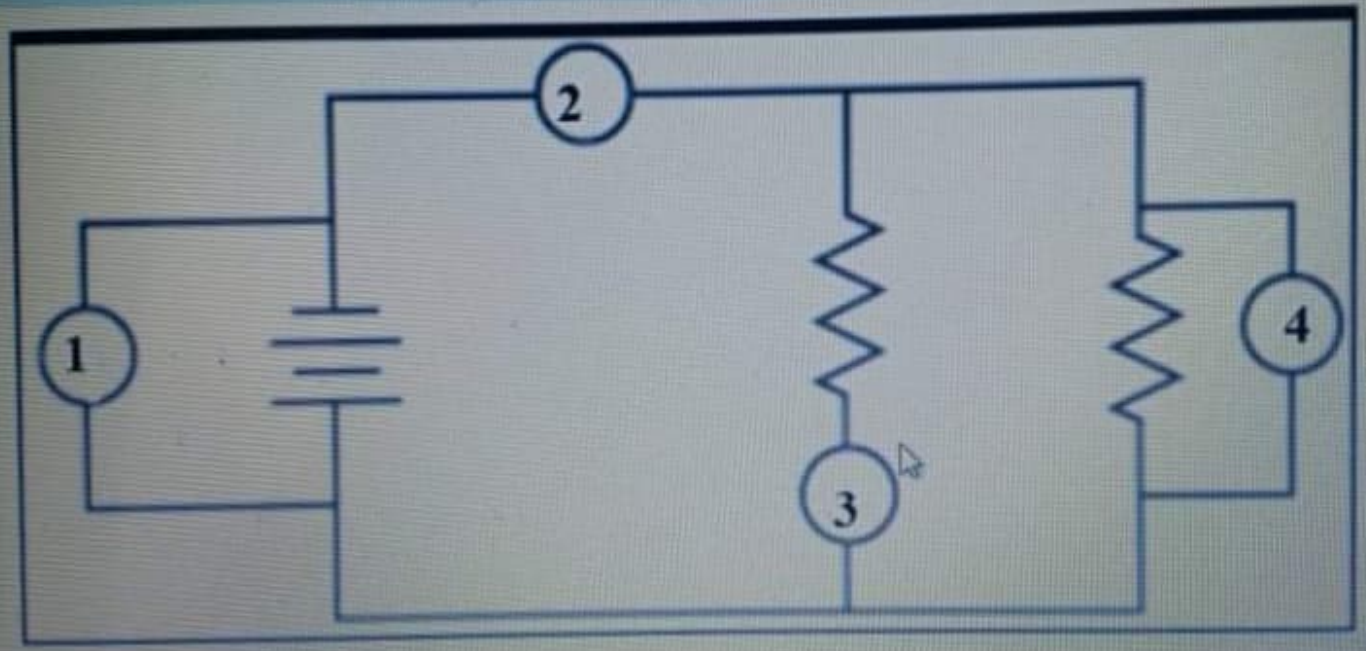
الشكل :-



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

4

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



B. Devices 2 and 3 are ammeters. Devices1 and 4 are voltmeters

B. Devices 2 and 3 are ammeters, Devices1 and 4 are voltmeters

A. Devices 1 and 4 are ammeters, Devices 2 and 3 are voltmeters

C. Devices 2 and 4 are ammeters, Devices 1 and 3 are voltmeters

Both A and C are correct

None of these.

Ammeter → (Series)
Voltmeter → (parralel)

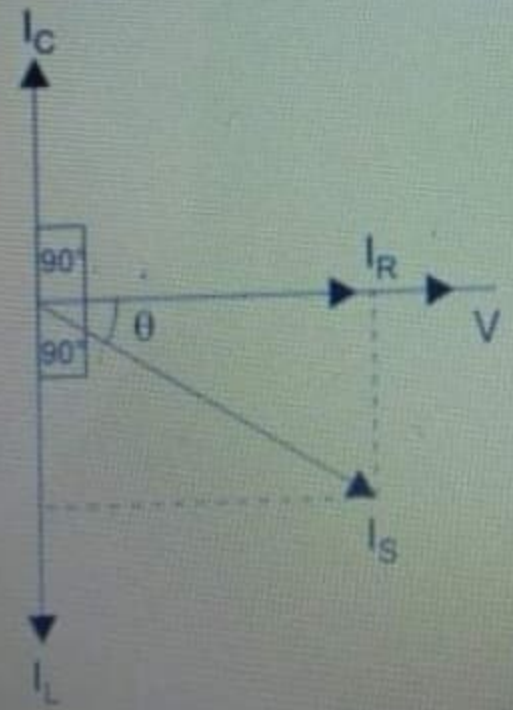
15

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

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

10 X يشطب

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



A. $I_s = (I_c - I_L) + I_R$

B. $I_s = (I_L - I_c) + I_R$

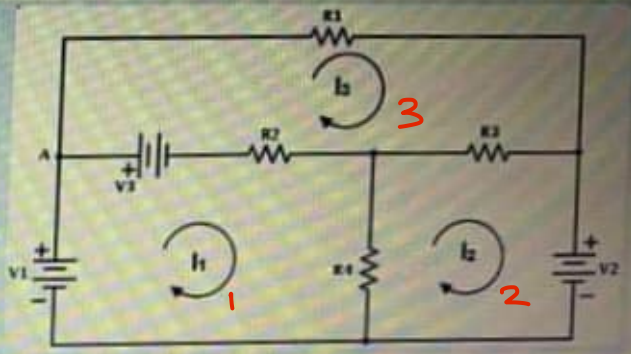
C. $I_s = (I_R - I_L) + I_c$

D. $I_s = (I_c - I_R) + I_L$

E. A and B are correct

20

The correct mesh equation for mesh 2 is:
(1.5 Points)



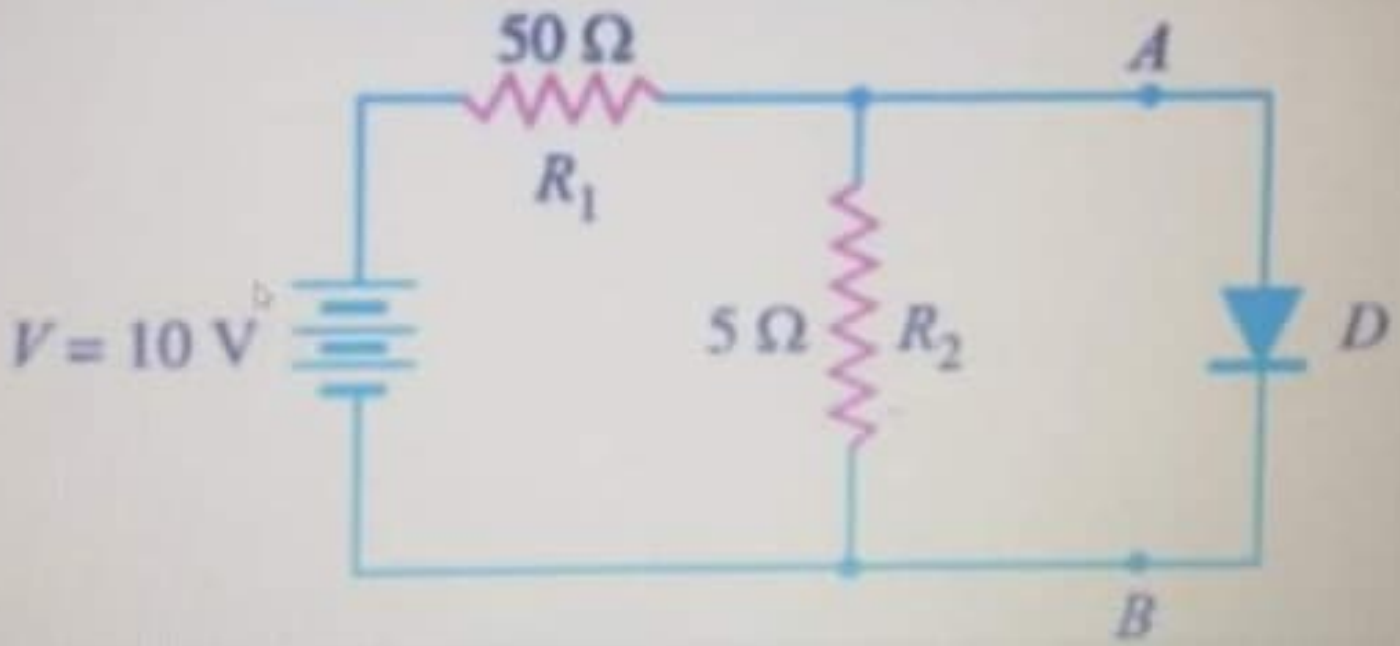
- V1 - V3 = I1 (R2 + R4) -(I2) (R4) - (I3) (R2)
- -V2 = I2 (R3 + R4) - (I3) (R3) - (I1) (R4)
- V2 = I2 (R3 + R4) - (I3) (R3) - (I1) (R4)
- V3 = I3 (R2 + R3 + R1) - (I1) (R2) - (I2) (R3)

$$+V_2 + R_4(I_2 - I_1) + R_3(I_2 - I_3) = 0$$

$$-V_2 = I_2(R_4 + R_3) - I_3(R_3) - R_4(I_1)$$

Back Next

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



19

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

??

0.3

None of above