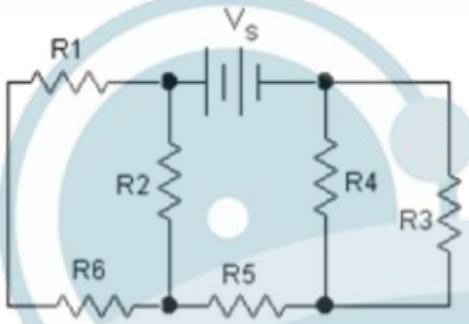
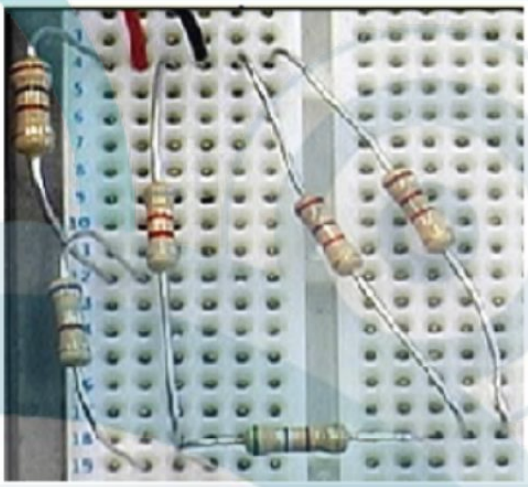
The Figure shows the schematic diagram for a circuit and next to it a photograph of a student's attempt to build this circuit. Answer the following:





4

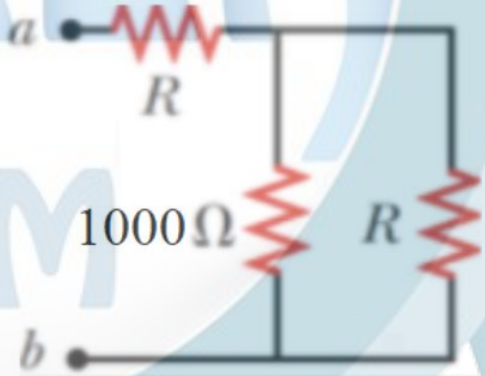
Is the shown circuit built correctly?
(2 Points)

- Yes
- No

5

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

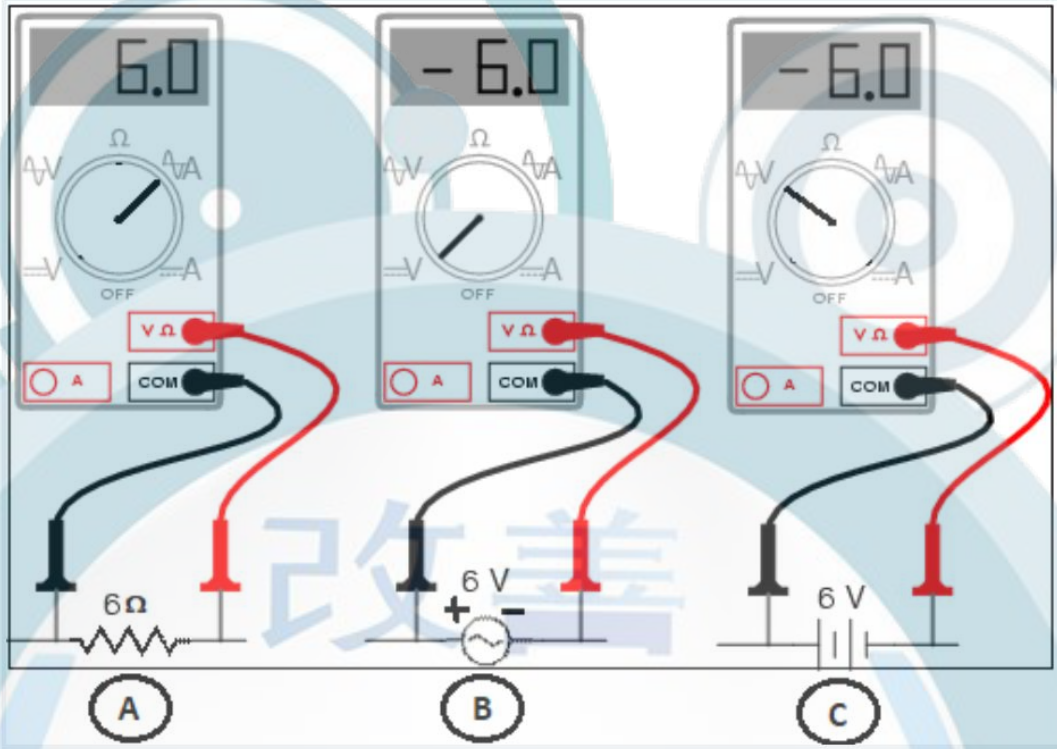
Black	0	Blue	6
Brown	1	Violet	7
Red	2	Grey	8
Orange	3	White	9
Yellow	4	Gold	±5%
Green	5	Silver	±10%



Enter your answer

6

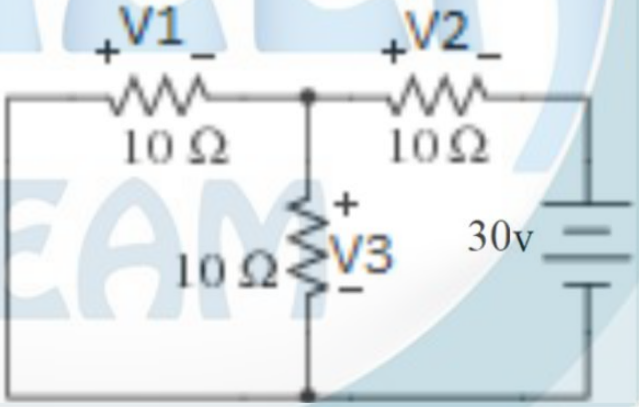
One of the following figures has either correct connection and reading. Which is that?
(1.5 Points)



7

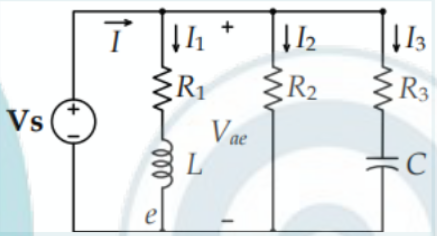
A student connected the circuit shown and then measured the resistor voltages and record them in the shown table (in volt), but accidentally wrote one of the reading wrong. The wrong voltage (V1 or V2 or V3) is:
(2 Points)

V1	V2	V3
10	-20	10



Enter your answer

8



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

- increase the value of the current (I2)
- increase the value of the total current (I)
- make no changes to the total current (I)
- make the current (I1) equal to zero
- decrease the value of the total current (I)

9

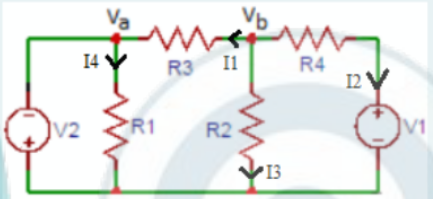
A part of the Function Generator is shown in the Figure, if we want to adjust its output frequency to 90 Hz, we had to:
(1.5 Points)

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

EE204_Midterm.. (EE204_2nd semester) ...

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)

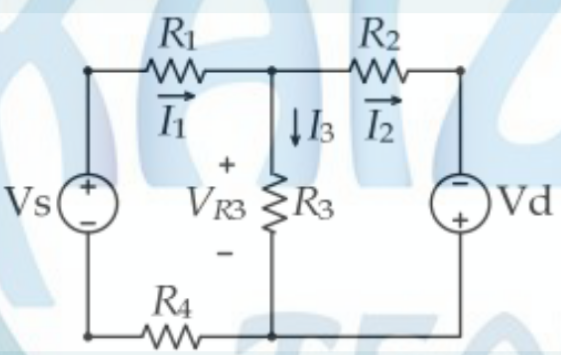


$$\frac{V_b}{R2} + \frac{V_b - V_1}{R4} + \square = 0$$

- (Vb + V2) / R3
- None of the above
- (Vb + Va) / R1
- Vb / R1
- (Vb - V2) / R3

EE204_Midterm.. (EE204_2nd semester) ...

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

11

The total absorbed power by R3 = 250 ohm (in kWatt) is:
(2 Points)

Enter your answer

12

The voltage drop on R2 = 60 ohm (in volt) due to Vd only is:
(2 Points)

Enter your answer

13

IF R2 = 30 ohm, R3 = 30 ohm and R1 = 10 ohm, then the value of the resistor R4 (in ohm) for maximum power transfer is:
(1 Point)

Enter your answer

EE204_Midterm.. (EE204_2nd semester) ...

14

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

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

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

16

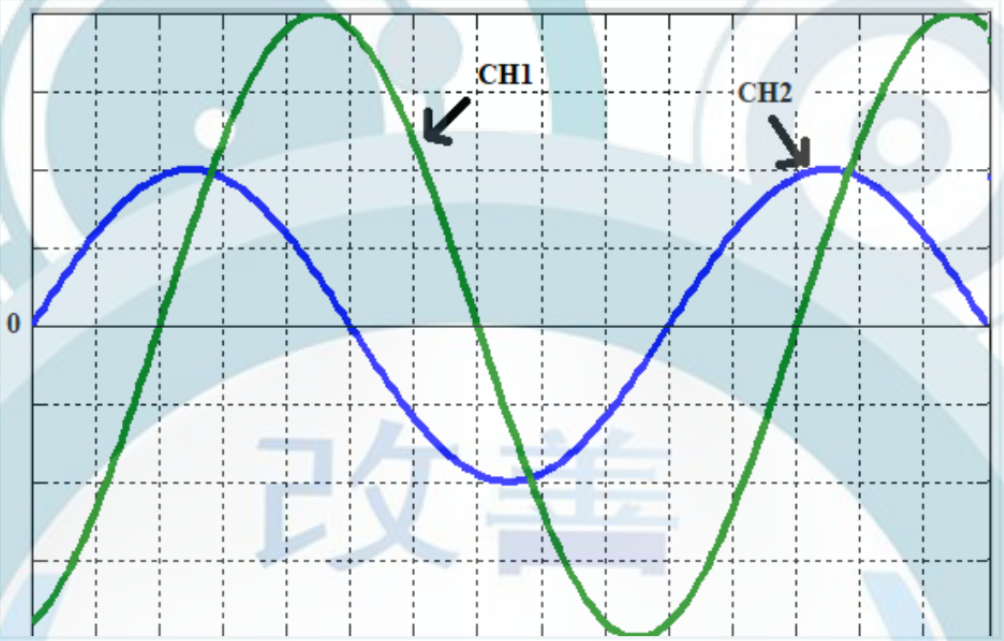
Black	0	Blue	6
Brown	1	Violet	7
Red	2	Grey	8
Orange	3	White	9
Yellow	4	Gold	±5%
Green	5	Silver	±10%

The inductor range value (with colors given by (red, orange, red, silver)) is:
(2 Points)

- 207 mH - 253 mH
- 0.207 mH - 0.253 mH
- 20.7 mH - 25.3 mH
- 0.0207 mH - 0.0253 mH
- 2.07 mH - 2.53 mH

改善 KAIZEN TEAM

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



17

The time/Dive scale (in msec/div) will be:
(2 Points)

0.025

18

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

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

19

The rms value (in volt) for the CH1 signal is approximately:
(2 Points)

2.4

20

CH1 lag CH2 .
(1 Point)

- (●) True
- ( ) False
- ( ) Can't be determined

21

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

72