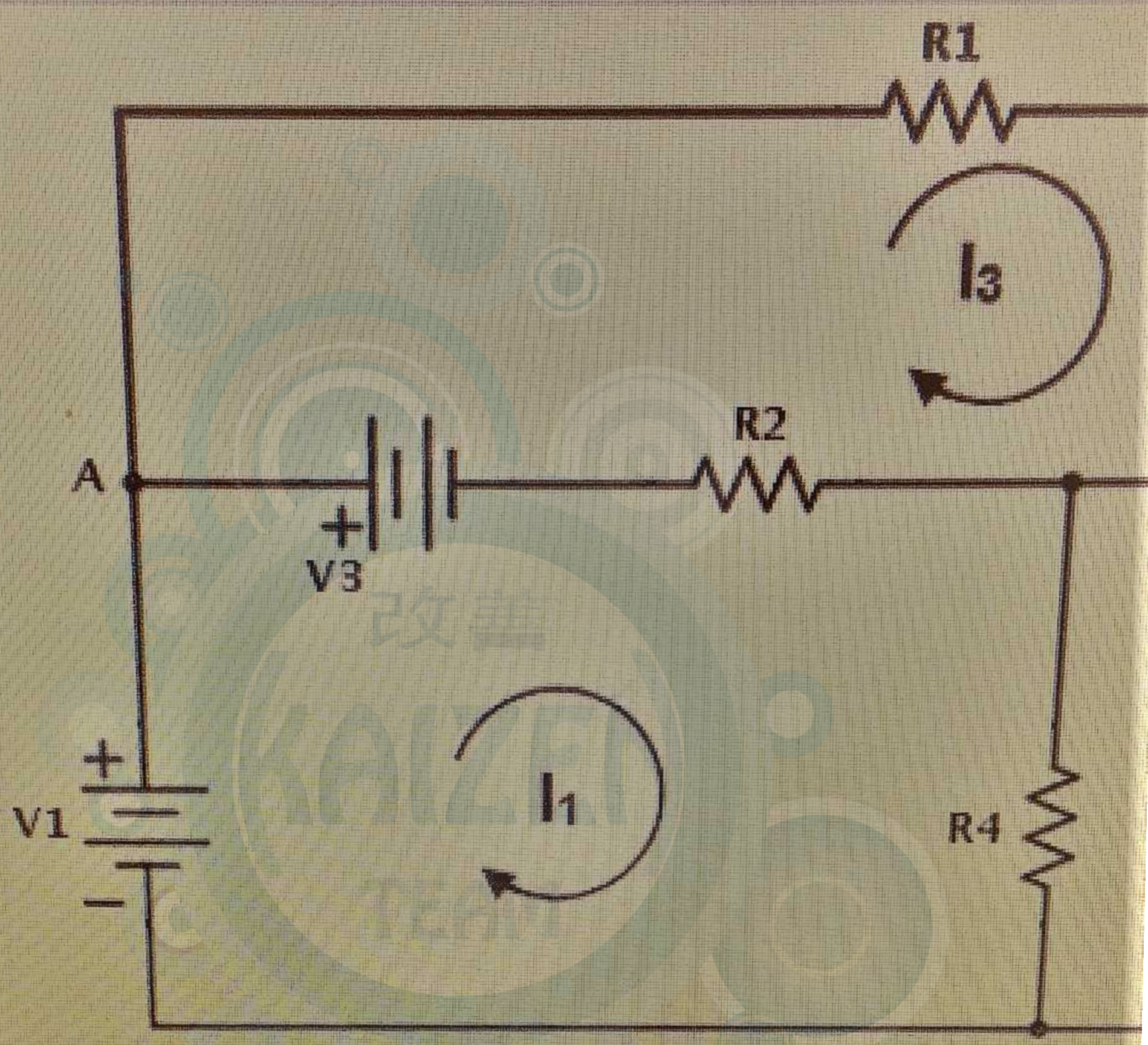
The correct mesh equation for mesh 2 is: (1.5 Points)



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

The peak to peak voltage (Vpp) for CH1 is approximately: (1.5 Points)

- ○ 1.6 volt
- ◉ 2.8 volt
- ○ 7.6 volt
- ○ 5.6 volt

19

The frequency for CH2 signal is: (1.5 Points)

- ○ 950 Hz
- ○ 125 Hz
- ◉ 800 Hz
- ○ 1250 Hz

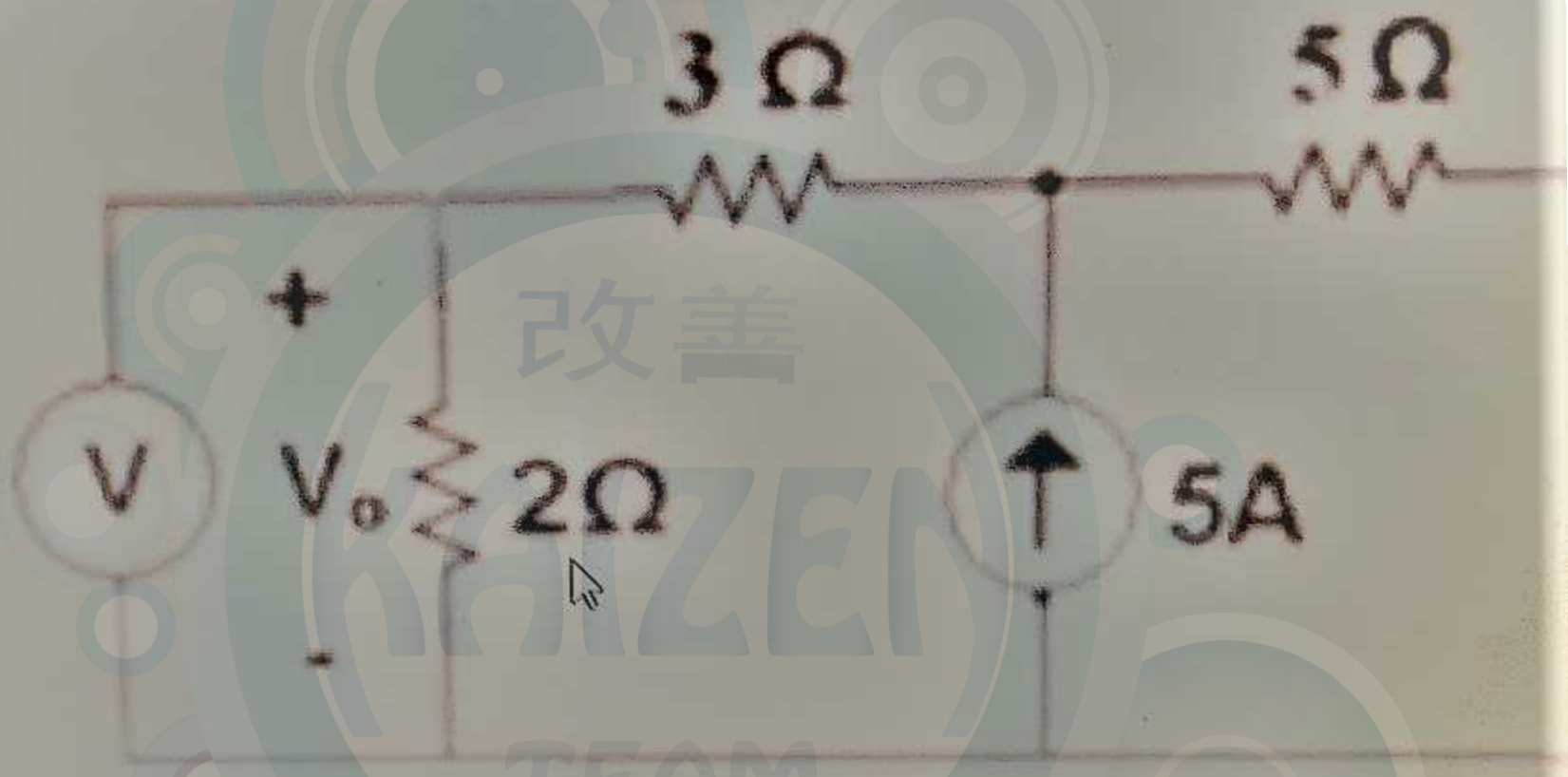
13

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

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

14

For the circuit shown below, if a superposition theorem has been carrie
voltage Vo, then the effect of the current source on the voltage (Vo) car
(1.5 Points)



- Connecting awire in parallel with the voltage source
- Disconnecting the voltage source and replacing it by a short circuit
- Disconnecting the current source
- Disconnecting both the voltage source and the current source

The expected reading for the Ammeter A2 is approximately; (1.5 Points)

- 267.6 mA
- None of the above
- 26.7 mA
- 2.67 mA

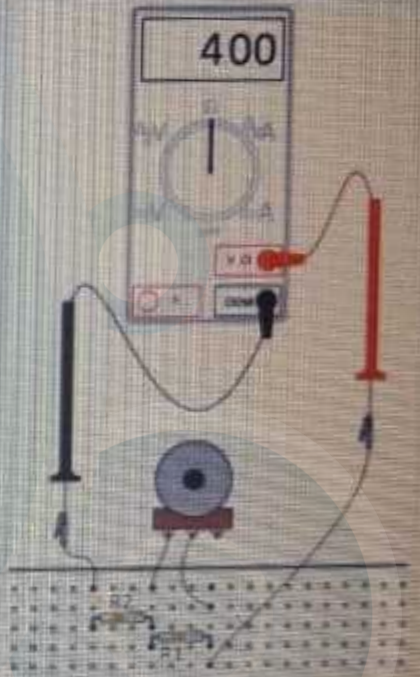
16

The value of the voltage source Vs is approximately: (1.5 Points)

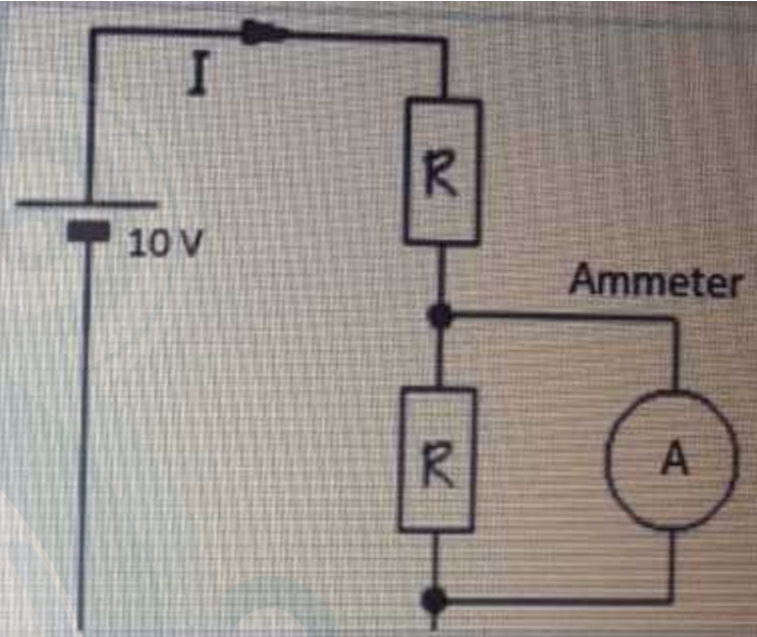
- 22.7 volt
- None of the above
- 2.27 volt
- 227.6 volt

10

If R1=R2 = 250 ohm, then the potentiometer value will be:
(1.5 Points)

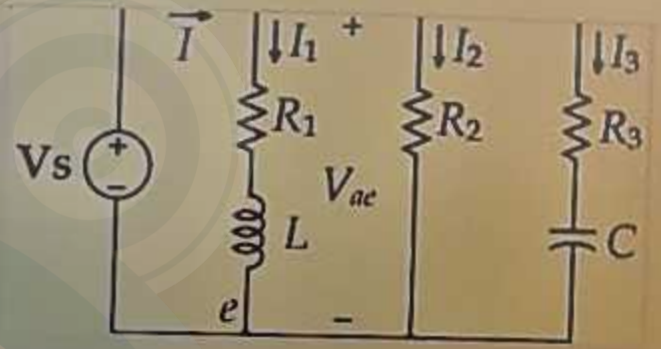


8



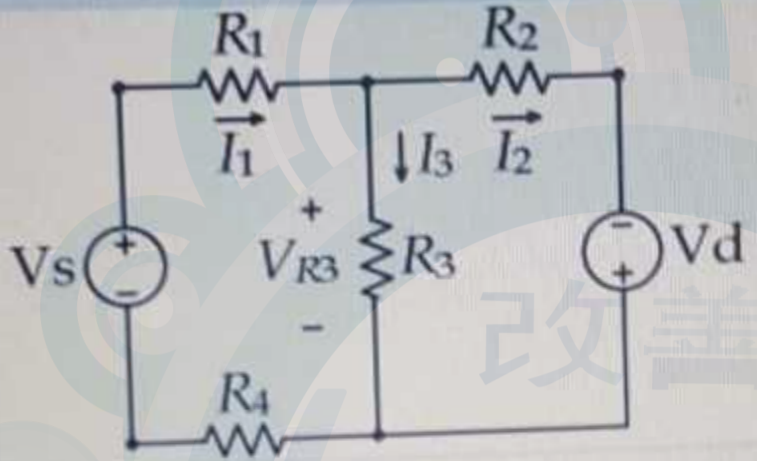
If R=180 ohm, then the Ammeter reading (in Ampere) is:
(1.5 Points)

0.055



Replacing the capacitor (C) by an inductor in the following circuit, this will: (1.5 Points)

- increase the value of the total current I
- make no changes to the current values
- increase the value of the current I2
- make the current I3 equal to zero
- decrease the value of the total current I

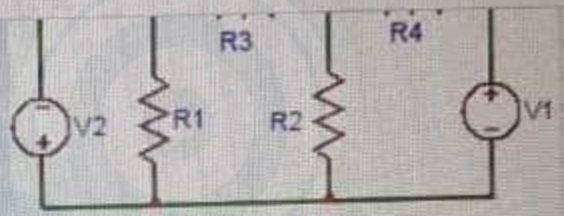


	Due to Vs only	Due to Vd only
I1	8.19	4.49
I2	2.62	-4.01
I3	5.57	8.5

12

If R2 = 220 ohm, then the value of the total absorbed power by it (in Watt) is:
(2 Points)

425.062



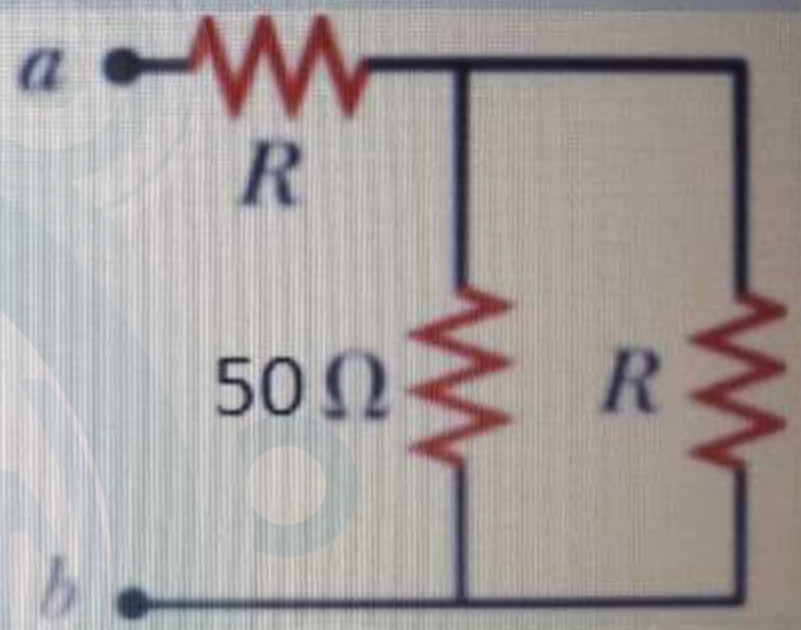
$$\frac{V_b}{R2} + \frac{V_b - V_1}{R4} + \square = 0$$

One of the student wrote the nodal equation at node b for the circuit shown, the missing term in the box is: □
(1.5 Points)

- (Vb + V1) / R4
- None of the above
- Vb / R1
- (Vb - V2) / R3
- (Vb + V2) / R3

(1.5 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%



505.09

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IF the total absorbed power by the resistor R3 is 150 W, this mean than the power absorbed by R3 due to Vs only is 112 W and the power absorbed by R3 due to Vd only is 38 W.
(1.5 Points)

- ○ True
- ◉ False

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IF R2 = 20 ohm, R3 = 20 ohm and R4 = 10 ohm, then the value of the resistor R1 for maximum power transfer is:
(2 Points)

160.8

15

IF the total absorbed power by the resistor R3 is 150 W, this mean than the power absorbed by R3 due to Vs only is 112 W and the power absorbed by R3 due to Vd only is 38 W.
(1.5 Points)

(2 Points)

425.062

13

If R3 = 60 ohm, then the voltage drop on it (in volt) is :
(1.5 Points)

844.2

14

IF R2 = 20 ohm, R3 = 20 ohm and R4 = 10 ohm, then the value of the resistor R1 for maximum power transfer is:
(2 Points)

17

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

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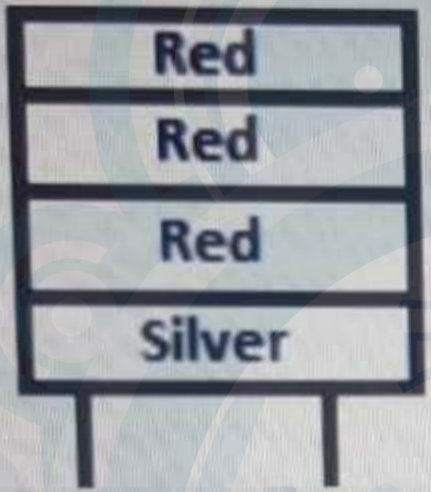
16

Applying Thevenin's theorems to a circuit yields to:
(1.5 Points)

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

17

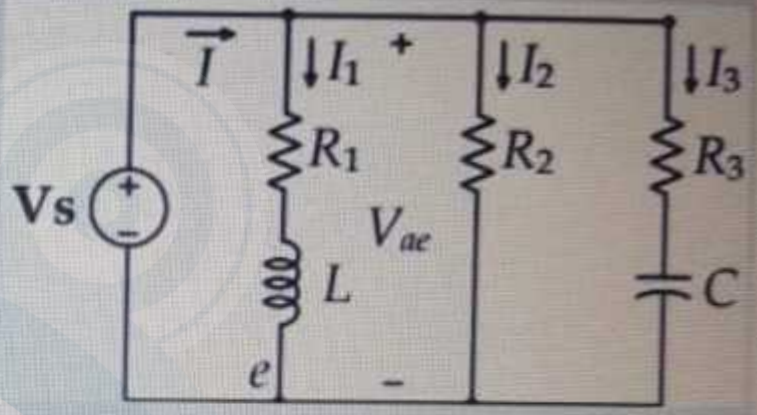
To find the Norton resistor of a circuit, we had to open all the current sources and short all the voltage sources.
(1.5 Points)



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

- 1.98 nF - 2.42 nF
- 198 nF - 242 nF
- 19.8 nF - 24.2 nF
- 19.8 mF - 24.2 mF
- 19.8 F - 24.2 F

9

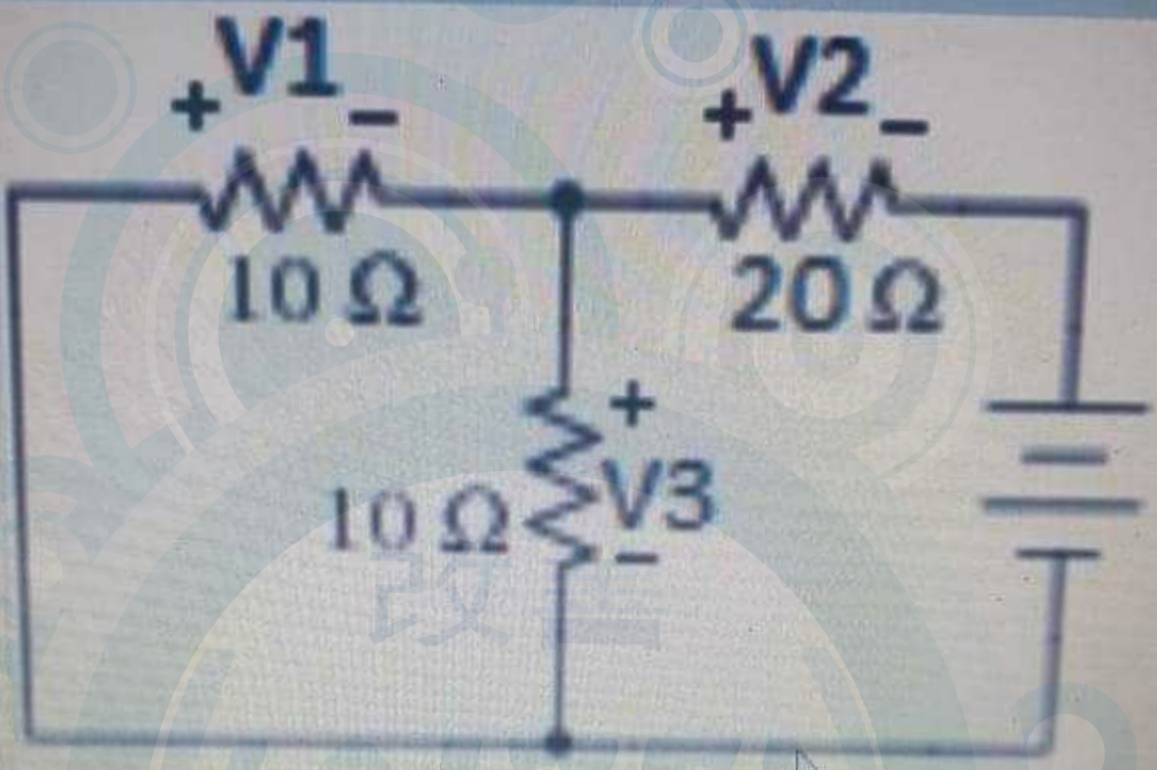


Replacing the capacitor (C) by an inductor in the following circuit, this will:
(1.5 Points)

- increase the value of the total current I
- make no changes to the current values
- increase the value of the current I2
- make the current I3 equal to zero
- decrease the value of the total current I

7

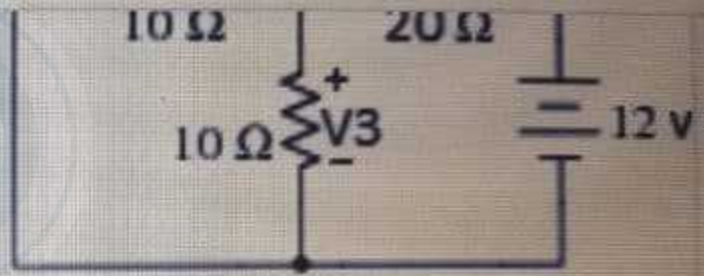
A student connected the circuit shown and he measured the resistor v
and record them in the shown table but, accidentally, he wrote one of
reading wrong. The wrong voltage (V1 or V2 or V3) is:
(2 Points)



V1	V2	V3
2.4	-9.6	2.4

V1 is the wrong voltage. It have to be a negative value

ENG



V1	V2	V3
2.4	-9.6	2.4

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

V1

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Refer to the signals shown on the scope screen. If both signals have a frequency of 4 kHz and the CH2 scale =0.85 volt/Div. answer the following questions:

19

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

Enter your answer

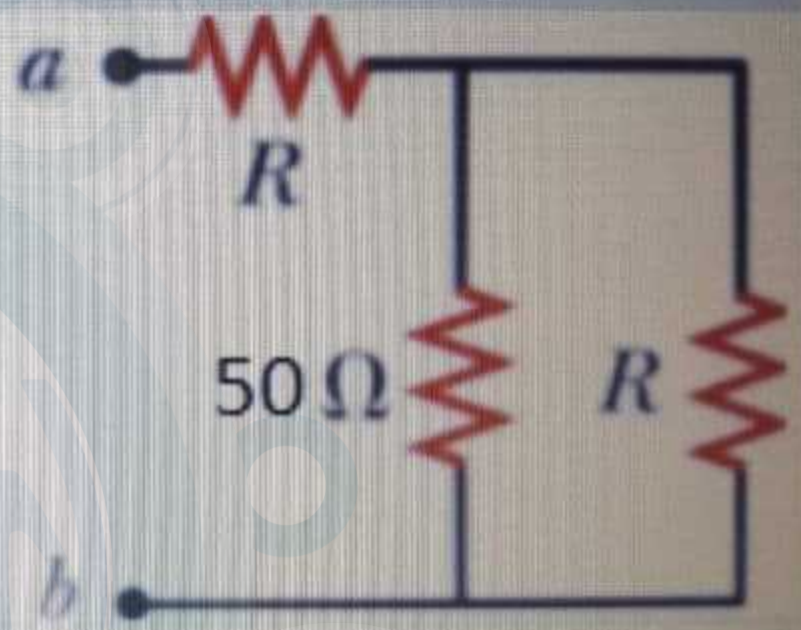
ical Engineering LAb 204)

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

- A
- B
- C
- None is correct

(1.5 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%



505.09

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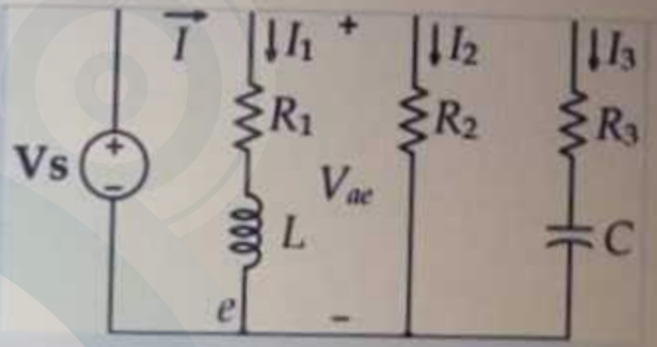
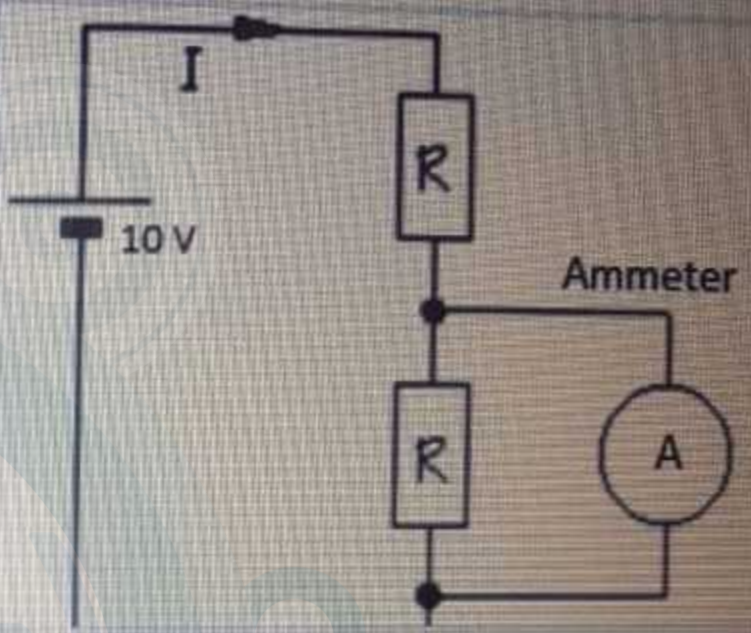


Replacing the capacitor (C) by an inductor in the following circuit, this will: □□
(1.5 Points)

- increase the value of the total current I
- make no changes to the current values
- increase the value of the current I2
- make the current I3 equal to zero
- decrease the value of the total current I

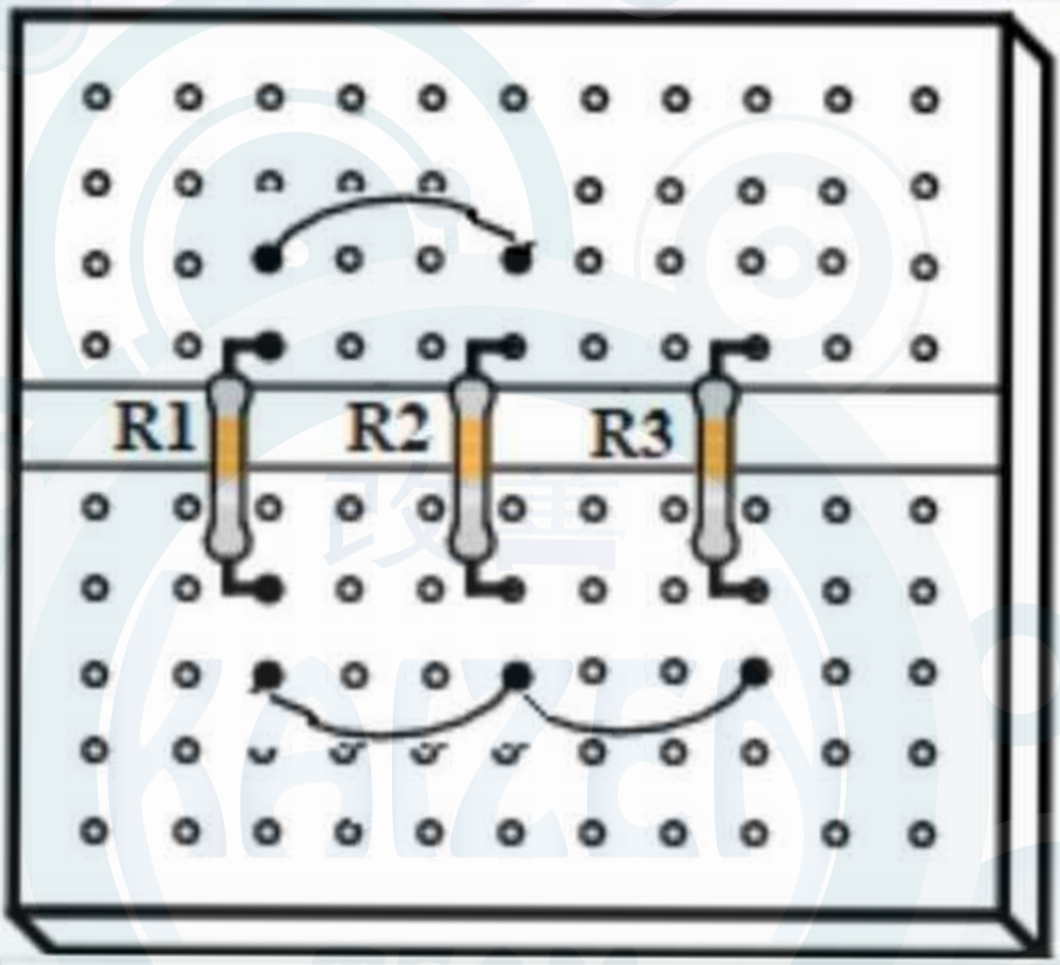
8



If R=180 ohm, then the Ammeter reading (in Ampere) is:
(1.5 Points)

0.055

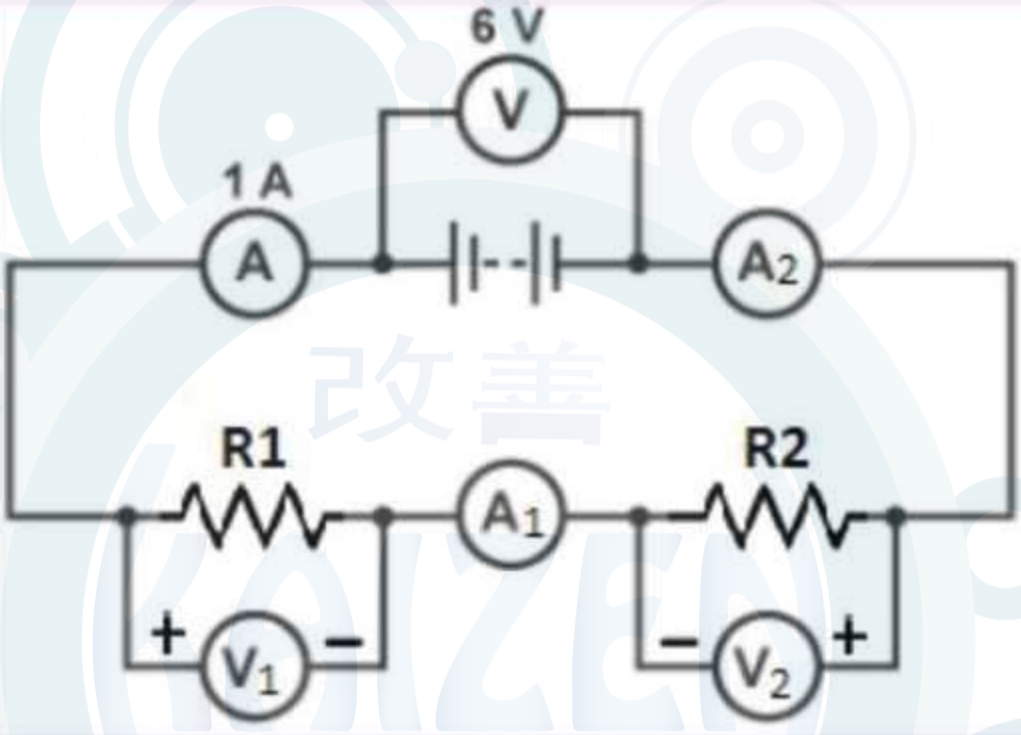
Three resistors are connected on a breadboard as shown in the figure. How can you describe this connection? (1.5 Points)



- all resistors are connected in parallel
- all resistors are connected in series
- R2 in series with the parallel resistors (R1 and R3)
- R3 in series with the parallel resistors (R1 and R2)

25

IF R1 = R2, then the correct reading of the voltmeter V2 (in volt) is:
(1.5 Points)

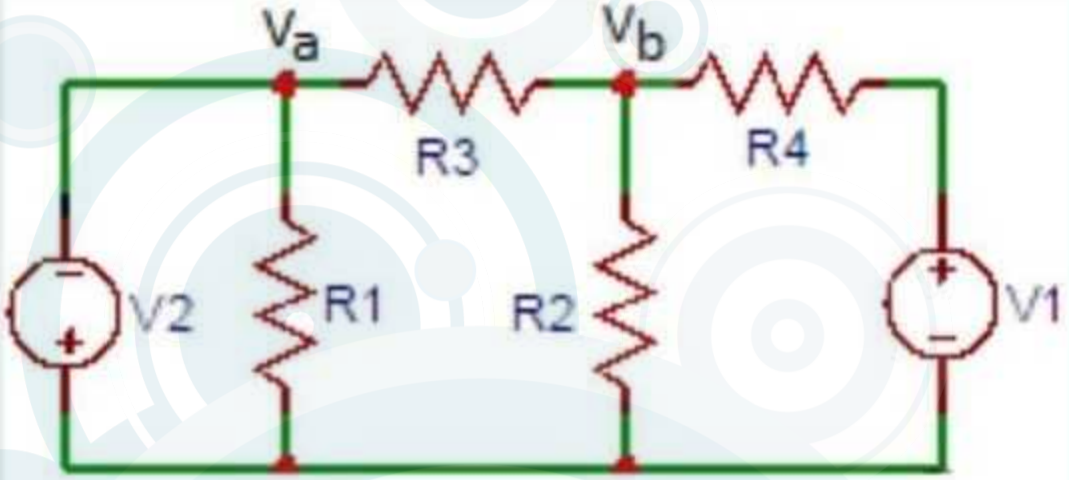


-3

26

Three resistors are connected on a breadboard as shown in the figure. How can you describe this connection?
(1.5 Points)

equation at node b for the circuit shown, the missing term in the box is:
(1.5 Points)



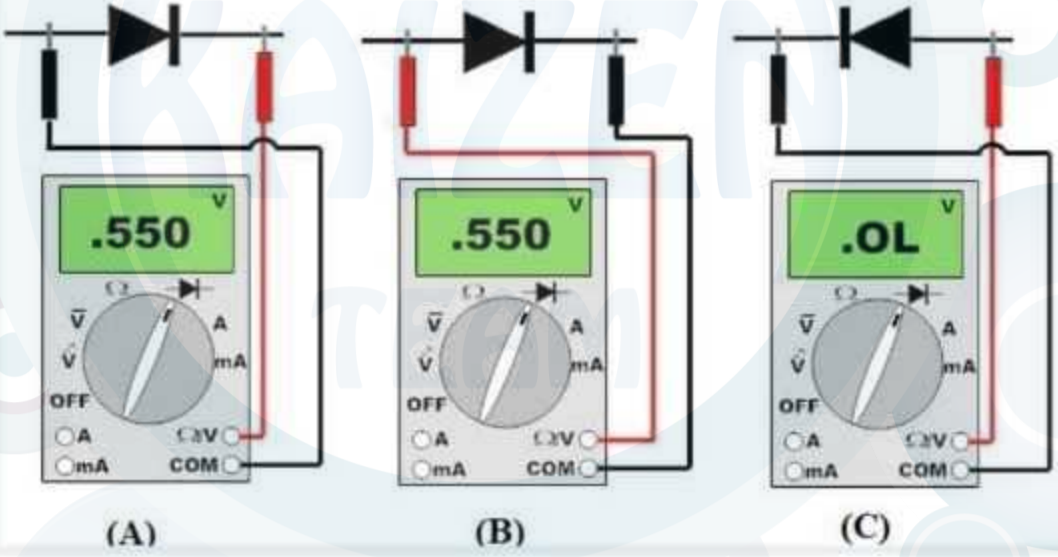
$$\frac{V_b}{R2} + \frac{V_b - V_1}{R4} + \square = 0$$

- (Vb - V2) / R3
- Vb / R1
- (Vb + V2) / R3
- None of the above
- (Vb + V1) / R4

Full wave rectifier

23

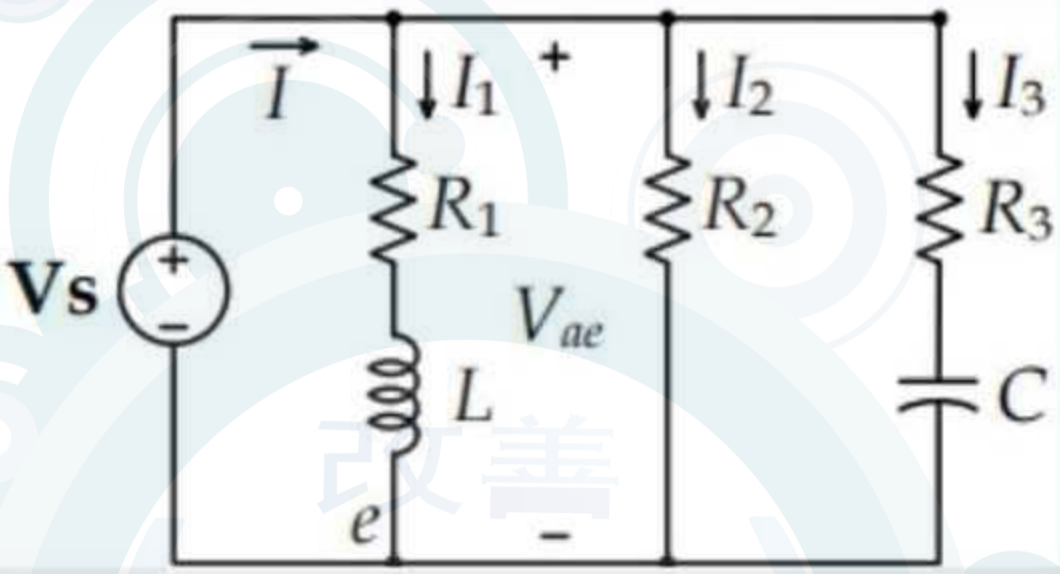
If the diode is working well, which of the following is the correct reading.
(A or B or C)
(1.5 Points)



B

9

Replacing the capacitor (C) by an inductor in the following circuit, this will: (1.5 Points)



- make no changes to the current values
- decrease the value of the total current I
- increase the value of the current I2
- make the current I3 equal to zero
- increase the value of the total current I

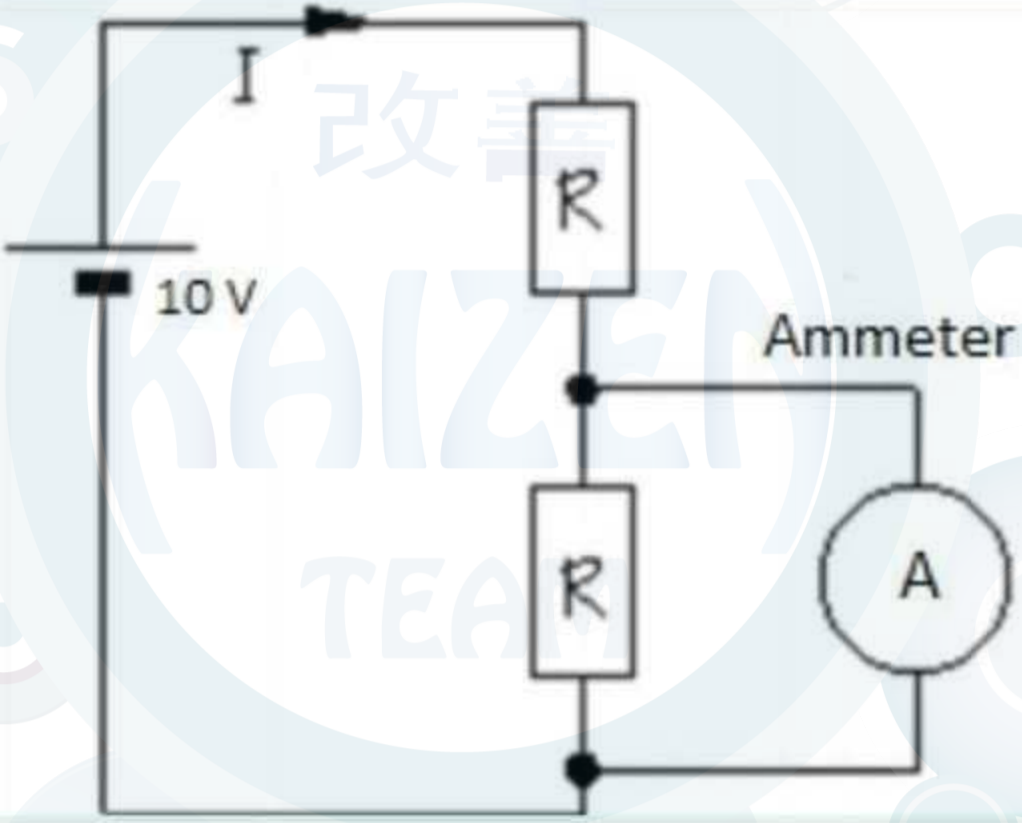
24

We can control the amplitude of the signal displayed on the oscilloscope screen by adjusting:
(1.5 Points)

- The Vertical position knob on oscilloscope.
- the Volt/div knob on oscilloscope.
- the Time/div knob on oscilloscope.
- the amplitude knob at the Function Generator.

8

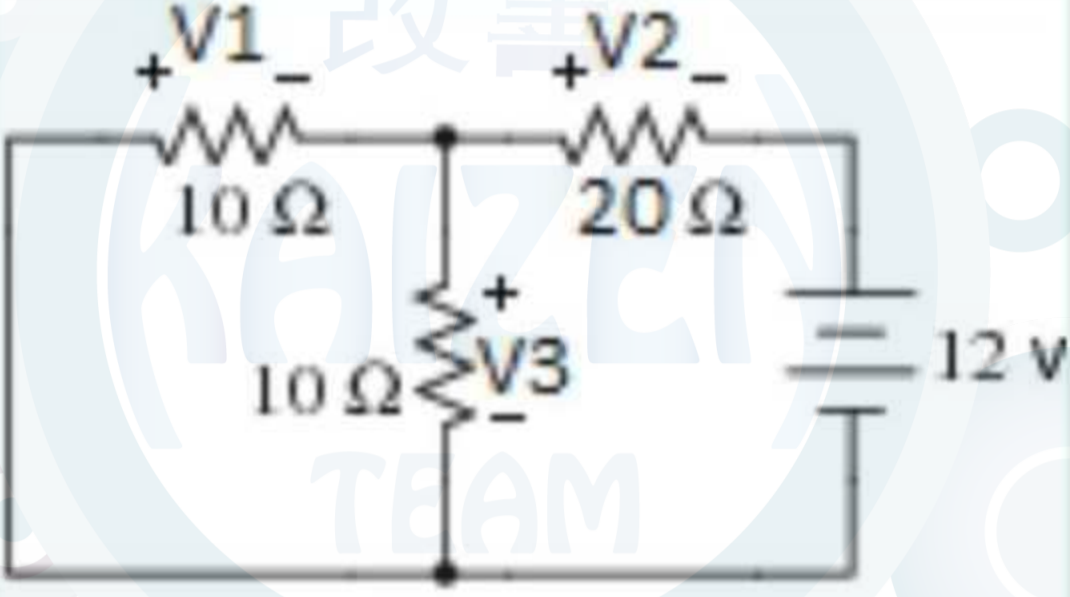
If R=180 ohm, then the Ammeter reading (in Ampere) is:
(1.5 Points)



0.05

7

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



V1	V2	V3
2.4	-9.6	2.4

V1

6

The correct connection and reading in the following Figure is: [7]
(1.5 Points)

- A
- B
- C
- None is correct

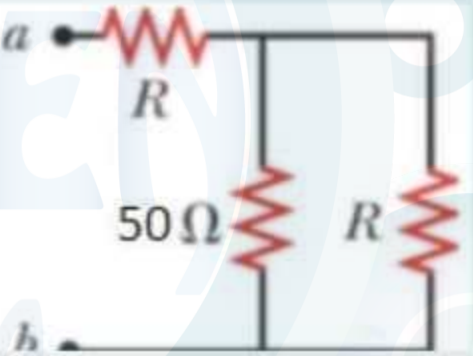
8. For a series RL circuit, if the resistance value is halved, then the total impedance magnitude will:
(1.5 Points)

- decrease
- be hard to know
- remain constant
- increase

5

For the circuit shown, if the resistor R= (Yellow, Blue, Brown), then the equivalent resistance (in ohm) between the terminals a and b is:
(1.5 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%



7. An RLC circuit consists of R= 24 Ω, |XL|=120 Ω and |XC|, are in series across a 60 V source. If the resonance frequency is 2kHz, then the value of capacitor is: (1.5 Points)

- 9.55 nF
- 663.1 nF
- 9.55 microF
- 663.1 microF

7. An RLC circuit consists of R= 24 Ω, |XL|=120 Ω and |XC|, are in series across a 60 V source. If the resonance frequency is 2kHz, then the value of capacitor is: (1.5 Points)

- 663.1 nF
- 663.1 microF
- 9.55 nF
- 9.55 microF

8. For a series RL circuit, if the resistance value is halved, then the total impedance magnitude will: (1.5 Points)

- decrease
- be hard to know
- remain constant
- increase

6. A 47 Ω resistor and a capacitor with 150 Ω of capacitive reactance are in series across an 4 Vp ac source. The total current expressed in rectangular form, is approximately:
(1.5 Points)

- I =(24.3 - j 7.61) mA
- I =(7.61 - j 24.3) mA
- I =(24.3 + j 7.61) mA
- I =(7.61 + j 24.3) mA

21

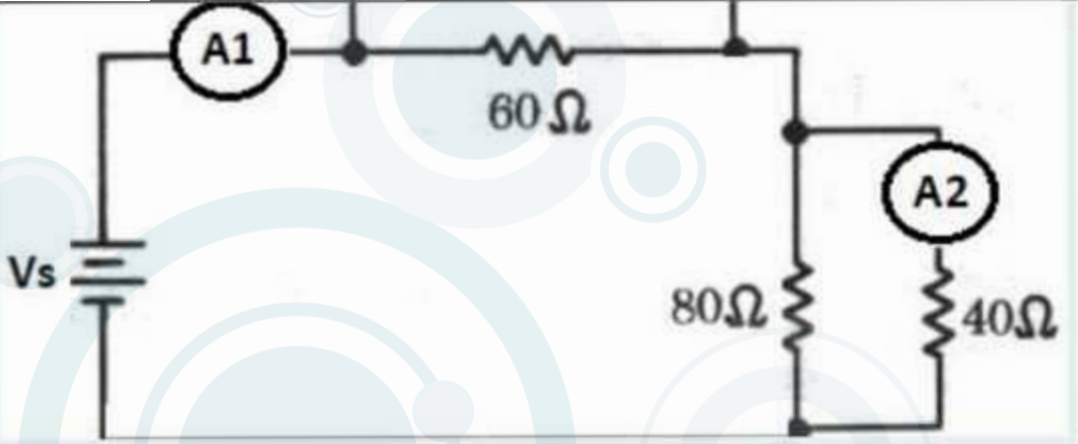
Number of the horizontal divisions on the whole scope screen is: (1.5 Points)

- 8 division
- 5 division
- 4 division
- 10 division

22

If you adjust the digital multimeter as a voltmeter, then choosing between (VAC) or (VDC) is according to:
(1.5 Points)

- number of resistors in the circuit
- polarity of the supply
- **the type of the supply**
- the way of voltmeter connection in the circuit



15

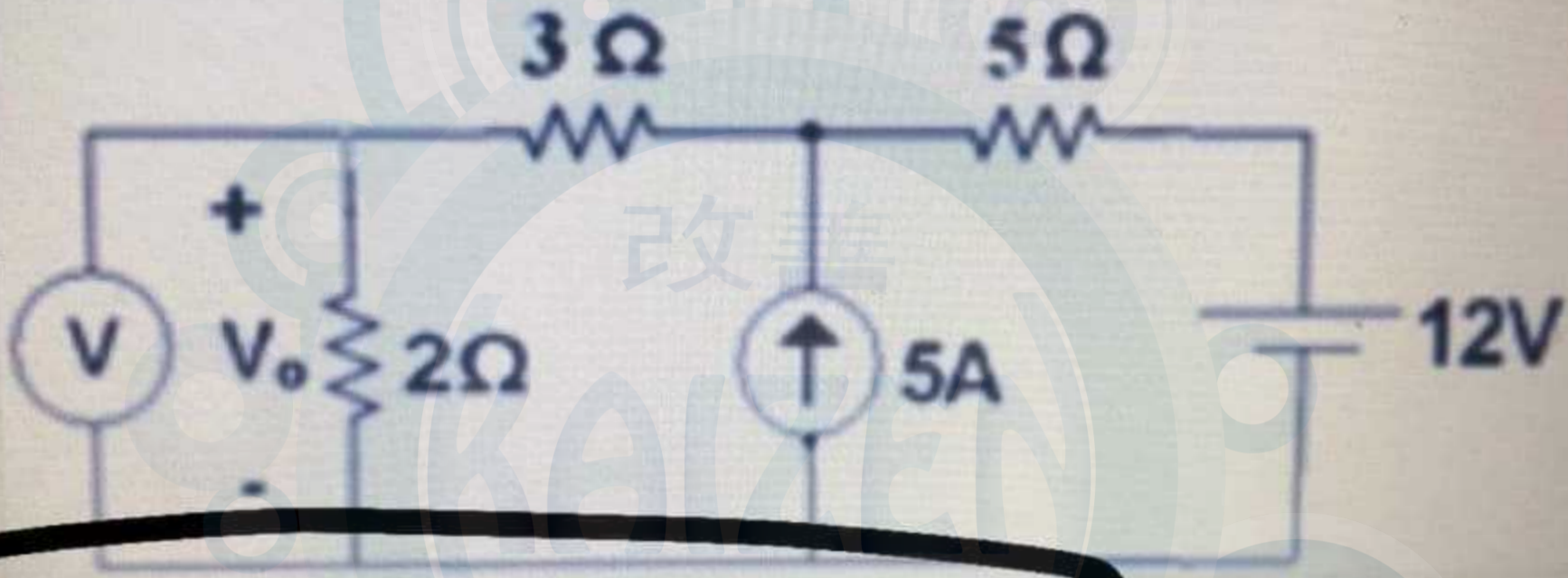
The expected reading for the Ammeter A2 is approximately;
(1.5 Points)

- None of the above
- 267.6 mA
- 26.7 mA
- 2.67 mA

3. For an RL circuit, when the supply frequency increases, then:
(2 Points)

- both series and parallel RL impedances will decrease
- both series and parallel RL impedances will increase
- the series RL impedance will increase and parallel RL impedance will decrease
- the series RL impedance will decrease and the parallel RL impedance will increase

For the circuit shown below, if a superposition theorem has been carried out to measure the voltage Vo, then the effect of the current source on the voltage (Vo) can be found by: (1.5 Points)



- Disconnecting the voltage source and replacing it by a short circuit
- Connecting both the voltage sou
- Connecting awire in parallel with the voltage source
- Disconnecting the current source

The following component is a:
(1.5 Points)

- Variable inductor
- Potentiometer.
- Variable capacitor
- Bridge