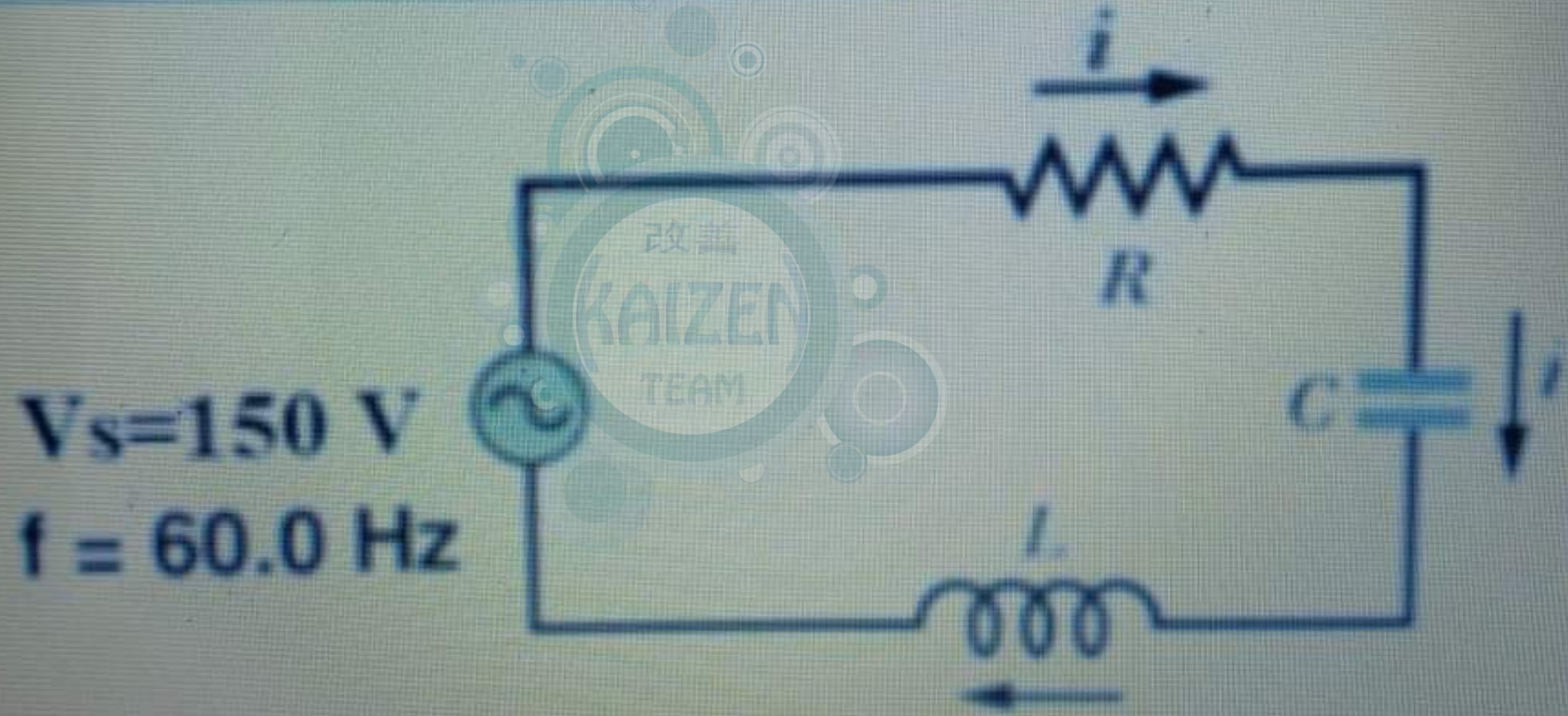
For the series R-L-C circuit shown. Given that R=100 ohm, L = 1.25 H and C = 3.5 microfarad. answer the following questions:



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.

None of the above

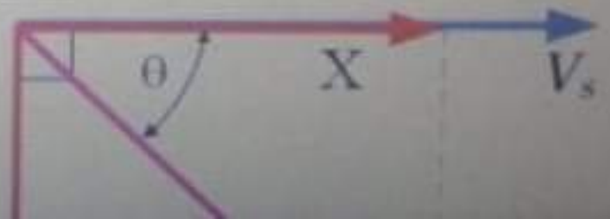
3

The circuit that always has positive reactive power (Q) when changing its frequency will be:

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

- [ ] Series RL circuit
- [ ] None of these
- [ ] Series RC circuit
- [ ] Parallel RC circuit
- [ ] Parallel RL circuit

4



13

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

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

20

The current (in A) passing through the diode is:
(2 Points)

- 0.46
- 0.134
- 0.14
- 0.2
- None of above
- 0
- 0.046

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
- [ ] the inductor impedance is maximum at high frequency
- [ ] the source current is maximum at low frequeny

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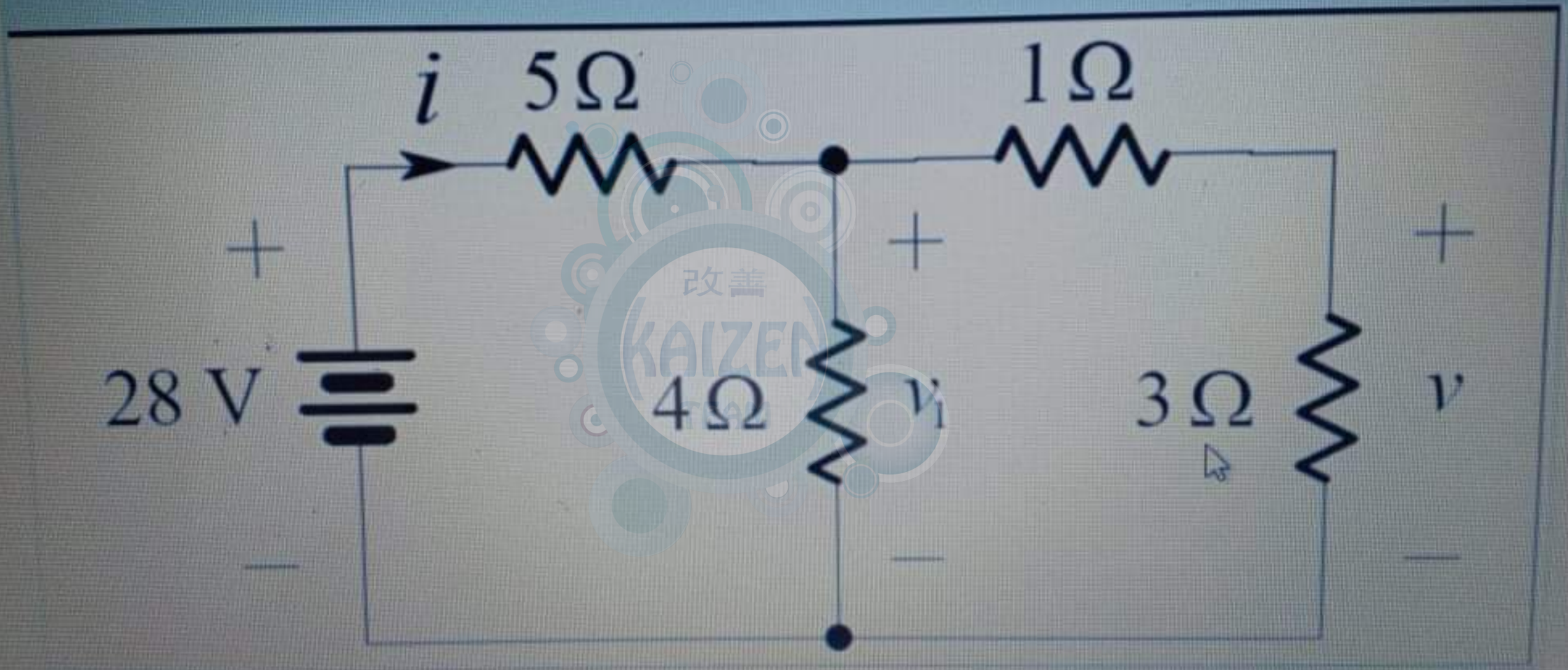
5

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



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

None of these

None of the above

3

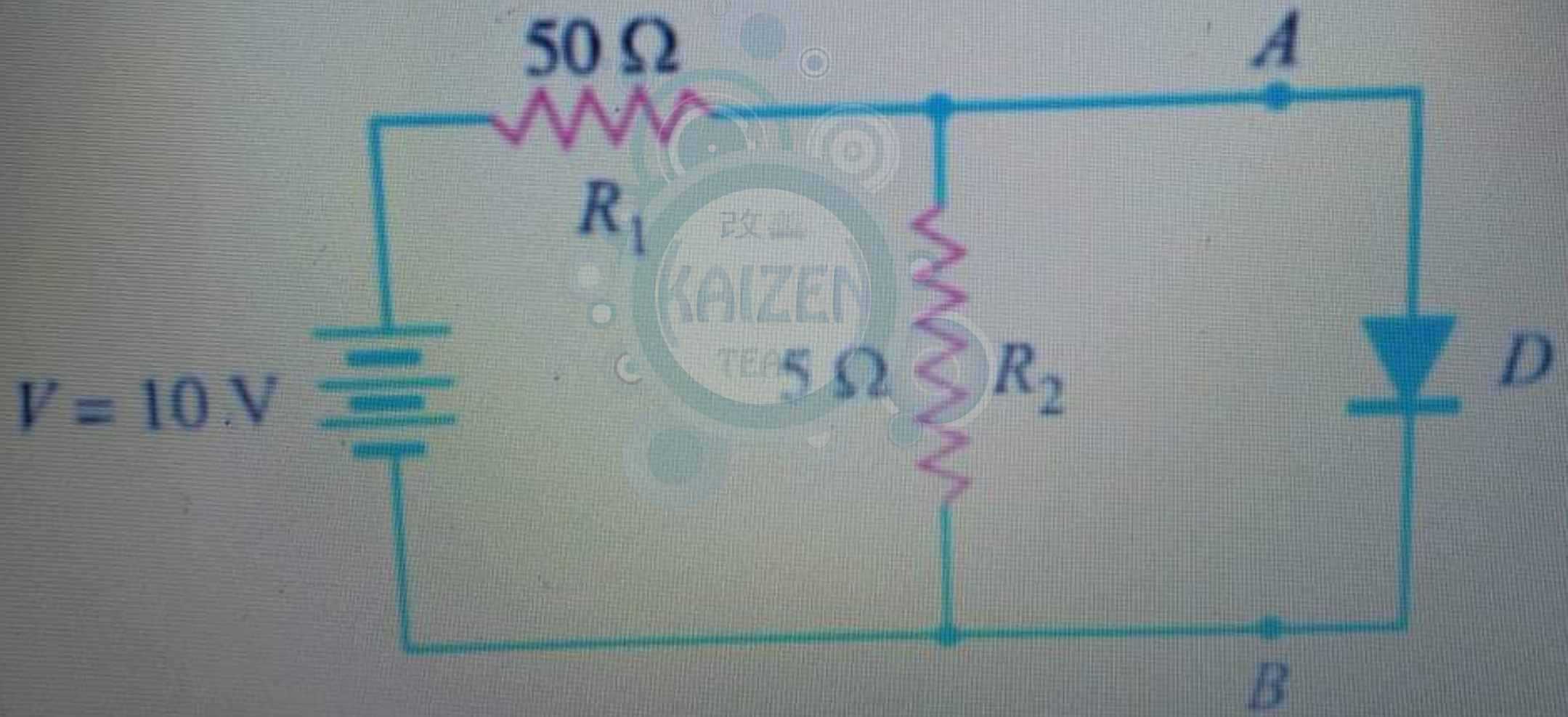
The circuit that always has positive reactive power (Q) when changing its frequency will be:

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

- [ ] Series RL circuit
- [ ] None of these
- [ ] Series RC circuit
- [ ] Parallel RC circuit
- [ ] Parallel RL circuit

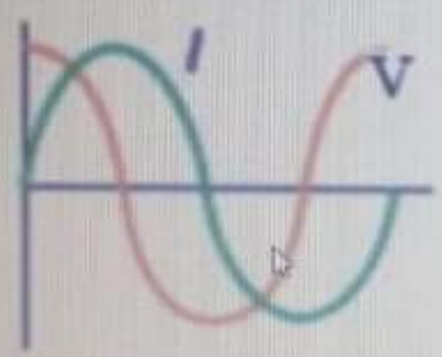
4

Use the figure to answer the following questions, assume practical silicon diode (Vγ = 0.7 V)



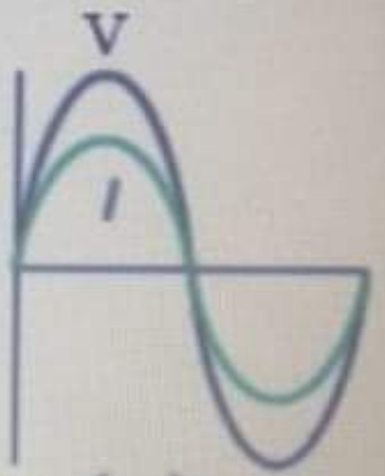
2

Which of the following plots represent the source voltage (V) and the total current (I) in a series RL circuit versus frequency?
(2 Points)



(a)

(b)



(c)

- a
- b
- c
- None of the above

D

A

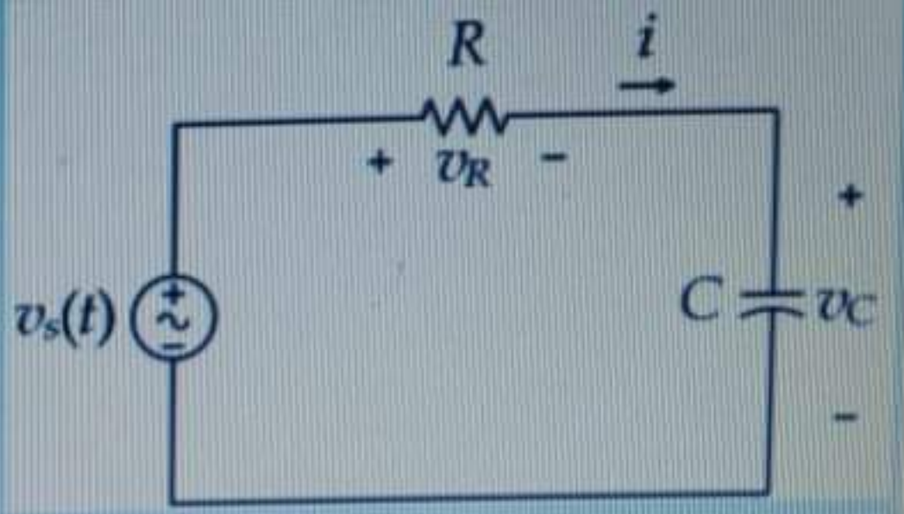
B

C

E

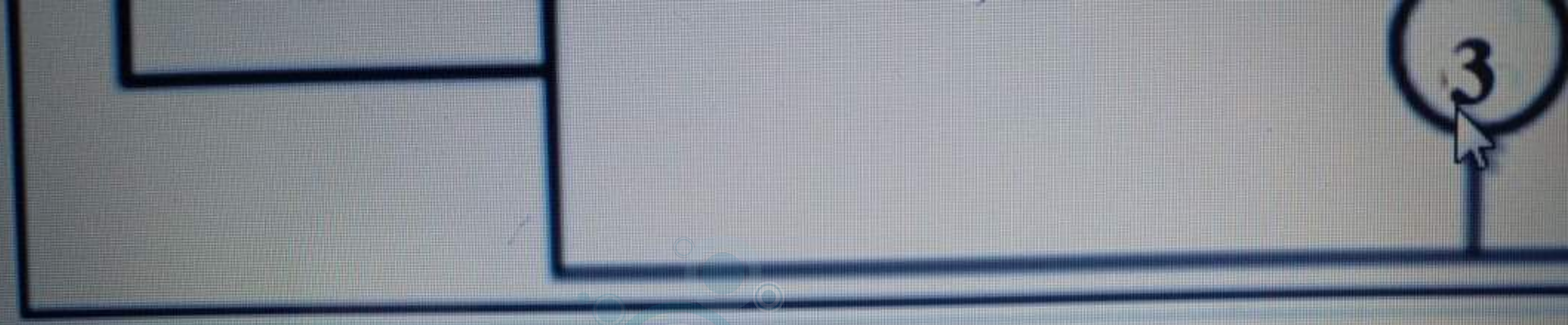
- A then 2, then rotate the frequency knob
- C then 2, then rotate the frequency knob
- C then 4, then rotate the frequency knob
- None of the above
- B then 4, then rotate the frequency knob
- A then 5, then rotate the frequency knob

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 (-65) degree. The capacitor C value is:
(2 Points)

- 2.474 nF
- 24.74 microF
- 24.74 nF
- 247.4 nF
- None of the above



- [x] 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

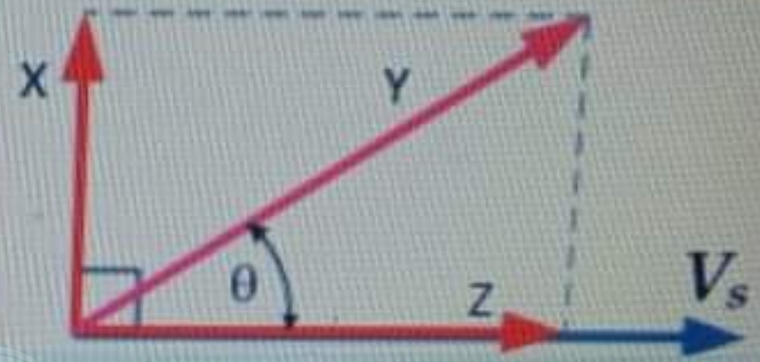
18

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

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

semester)

4



A student draw a phasor diagram for a parallel RC circuit shown. The X, Y and Z represent respectively:

(Note: I is the total source current, IR is the resistor current and IC is the capacitor current)
(1 Point)

- IR, I and IC
- IR, IC and I
- IC, I and IR
- IC, IR and I

14

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

- 8.72
- -70.8
- 70.8
- None of above
- - 43.9
- -8.72

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

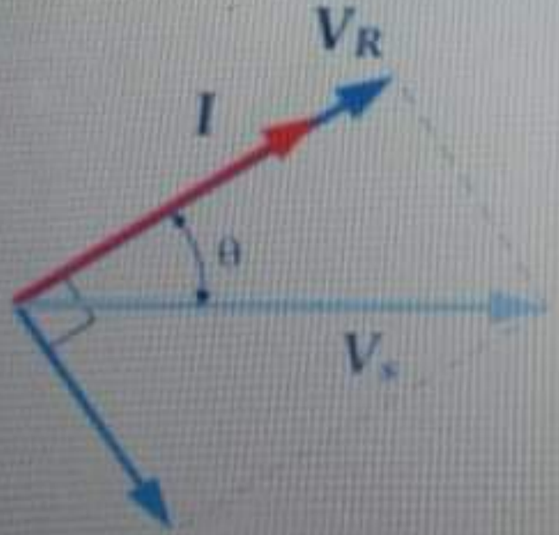
- connect CH1 across V, and connect CH2 across C
- connect CH1 across V, and connect CH2 across R
- None of these
- An element to the circuit must be added and connect CH2 parallel to it while CH1 is connected to V
- connect CH1 across R, and connect CH2 in series with C
- connect CH1 across V, and connect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

5

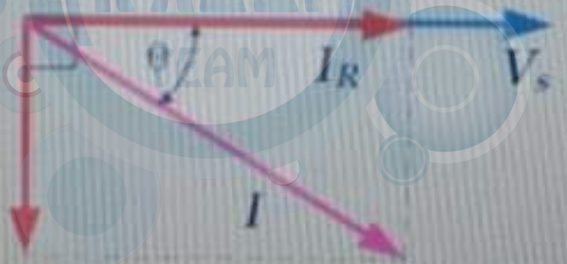
For the shown phasor diagrams, which one represents leading power factor (PF) ?

If (Vs) represents the source voltage, (I) the source current, (IR) is the current through the resistor and (VR) is the voltage on the resistor.

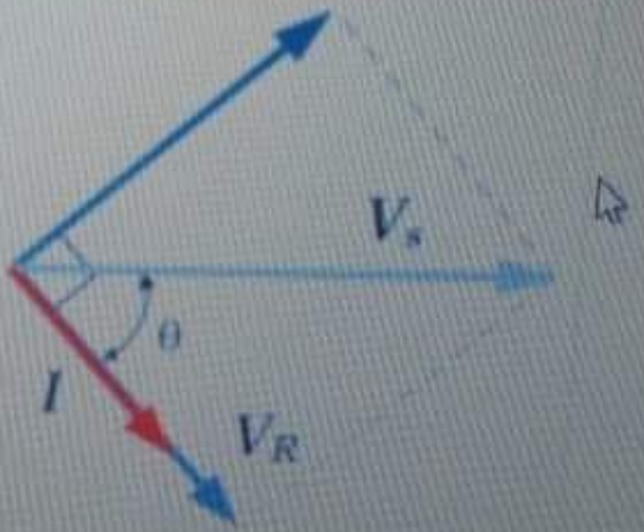
(Note that you can select more than one choice if needed, but the wrong choice will cancel the correct one.)
(2 Points)



(A)



(B)

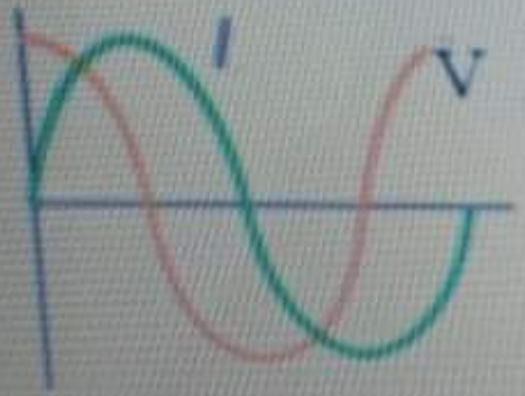


(C)

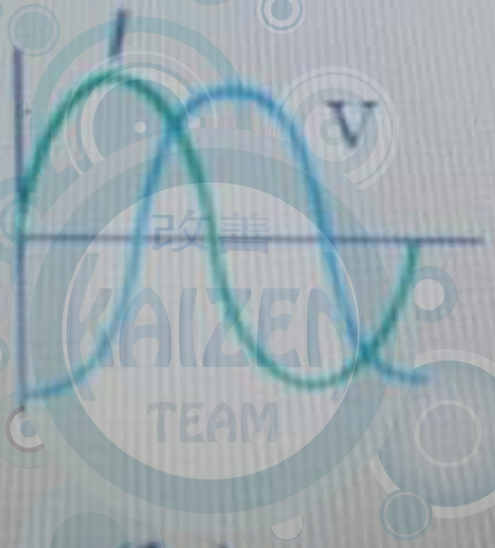
semester)

6

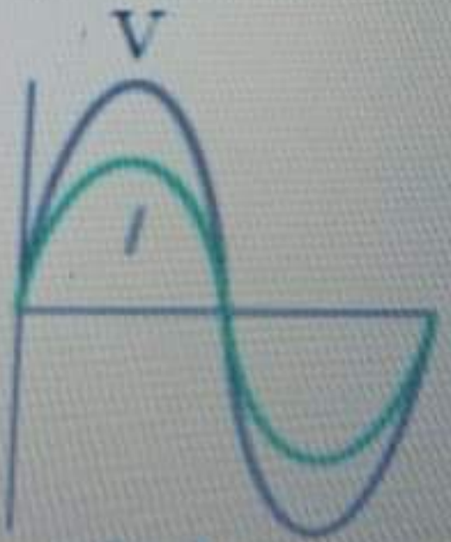
Which of the following plots represents the source voltage (V) and the total current (I) in a parallel RC circuit versus frequency?
(2 Points)



(a)



(b)



(c)

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

9

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

True

False

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2

The circuit that always has positive angle for its total impedance (Z) when changing its frequency will be:

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

- [ ] None of these
- [ ] Parallel RC circuit
- [ ] Series RC circuit
- [ ] Parallel RL circuit
- [ ] Series RL circuit

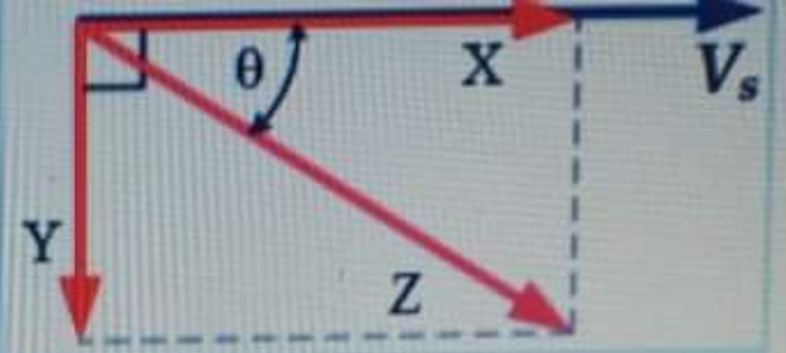
3

10 Ω

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

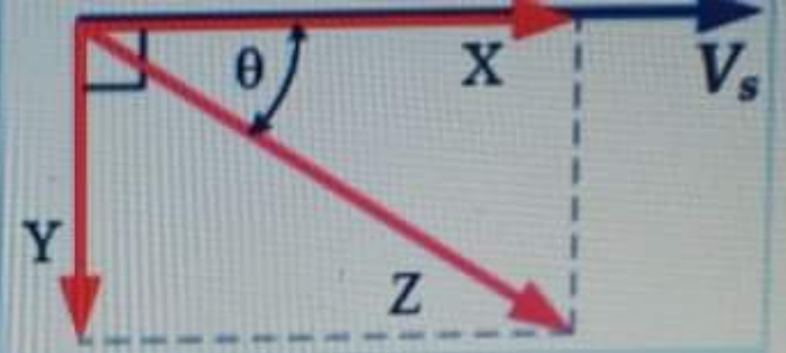
8



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

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

6

For the shown function generator device, if you want to generate a square wave with 300 Hz, which buttons you have to press:

(1 Point)

19

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

- 0.809
- 0.909
- 0.7
- 0.3
- 0.55
- None of above

12

The magnitude of total impedance in
(2 Points)

1529.92

None of above

303.62

54.62

1229

13

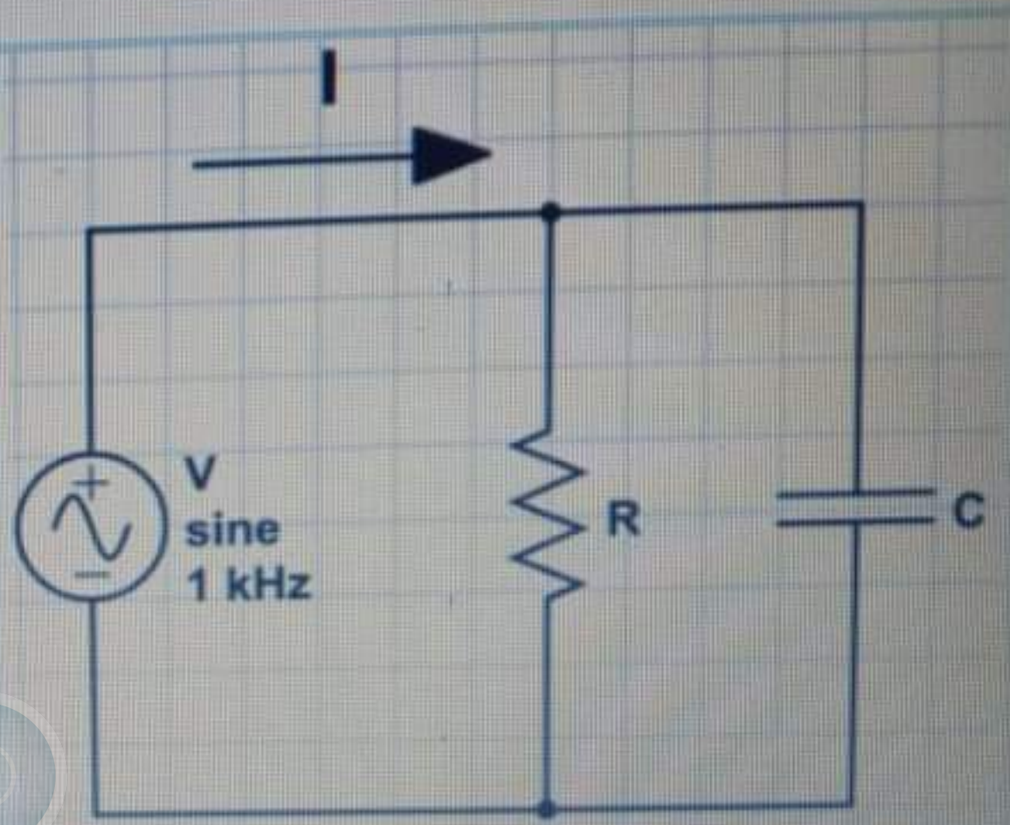
16

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

- None of these
- Lags
- Leads
- Remains in phase with

17

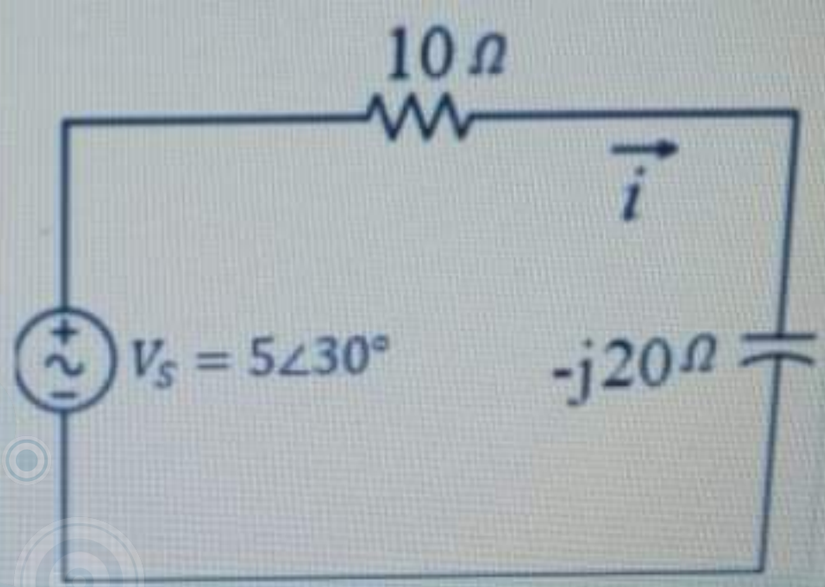
17



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)

- C. The current through 4 ohm is equal to the current through 3 ohm
- None of these
- B. The current through 4 ohm is higher than the current through 3 ohm
- Both A and C
- A. The voltage across 4 ohm is higher than the voltage across 5 ohm

3



For the series RC circuit shown, find the total current magnitude and phase.
(1 Point)

- |I| = 0.223 and its phase = 5.43 degree
- |I| = 0.223 and its phase = -33.4 degree
- |I| = 0.223 and its phase = 0 degree
- |I| = 0.223 and its phase = 33.4 degree
- |I| = 0.223 and its phase = 56.6 degree