Module 7 Quiz
Graded Quiz • 20 min

Due May 4, 12:29 PM IST

Congratulations! You passed!
TO PASS 70% or higher

Keep Learning

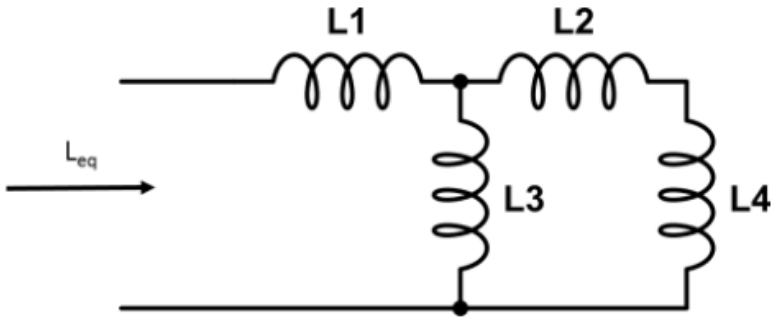
GRADE
90%

Module 7 Quiz

LATEST SUBMISSION GRADE
90%

1. What is the equivalent inductance for the following circuit if $L_1 = L_2 = L_3 = L_4 = 5mH$? Give your answer in **mH**, without entering the units.

1 / 1 point



8.33

Correct

2. What is the equivalent capacitance for the following circuit if $C_1 = C_2 = C_3 = 10pF$? Give your answer in **pF**, without entering the units.

1 / 1 point

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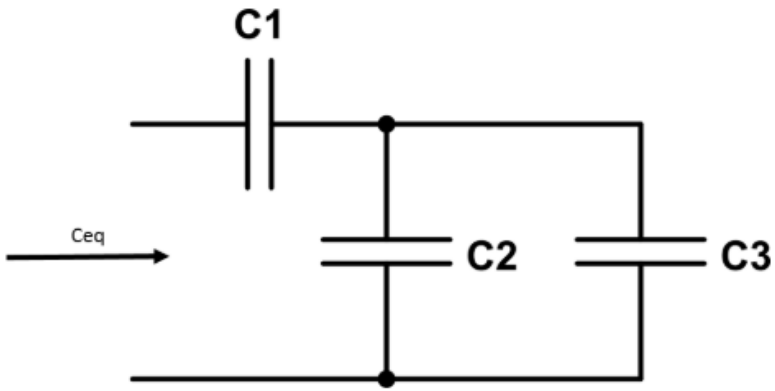
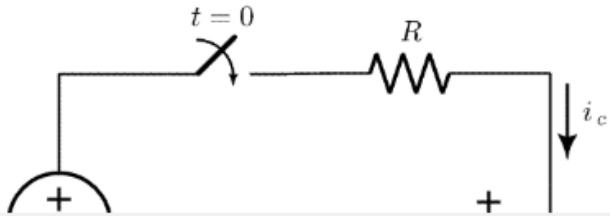
2. What is the equivalent capacitance for the following circuit if $C_1 = C_2 = C_3 = 10pF$? Give your answer in **pF**, without entering the units. 1 / 1 point



6.66

Correct

3. Use the following circuit for this problem. Let $R = 1000\Omega$, $C = 100\mu f$, $V_c(0) = 0V$ and $V_s = 10V$ 1 / 1 point



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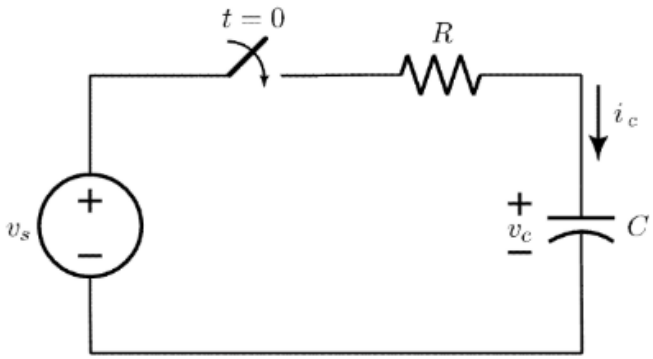
3. Use the following circuit for this problem. Let $R = 1000\Omega$, $C = 100\mu f$, $V_c(0) = 0V$ and $V_s = 10V$ — 1 / 1 point



What is the initial value of $V_c(t)$ just prior to the switch closing? Assume that the circuit had reached a steady-state value prior to the switch opening. Enter your answer in the box below without unit.

0

Correct

4. What is $V_c(t)$ at t = 5 seconds if $I_s = 4mA, C = 20mF$ and $V_c(0) = 0V$? Give your answer in V, without entering the units. — 1 / 1 point

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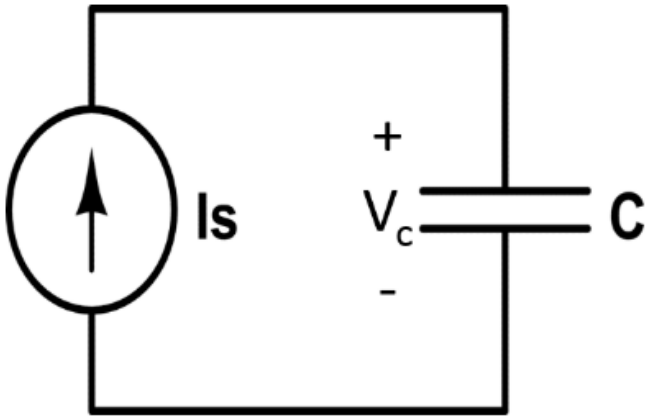
4. What is $V_c(t)$ at t = 5 seconds if $I_s = 4mA, C = 20mF$ and $V_c(0) = 0V$? Give your answer in **V**, without entering the units. **1 / 1 point**



1

Correct

5. What is $V_L(t)$ at t = 5 seconds if $I_s = -t^2 A$ and $L = 2mH$? Give your answer in **mV**, without entering the units. **1 / 1 point**

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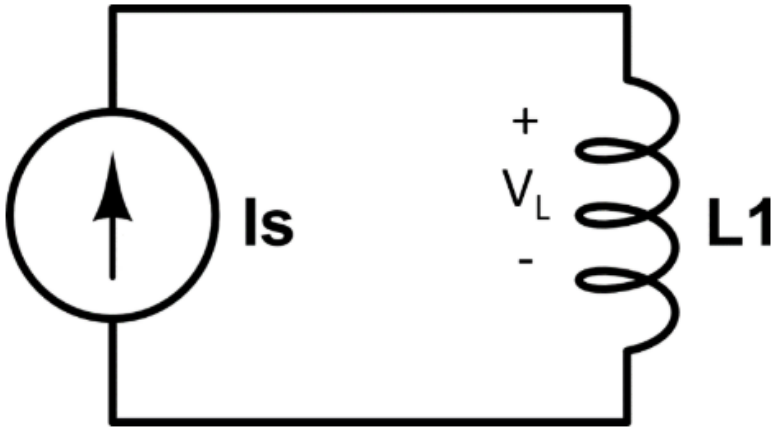
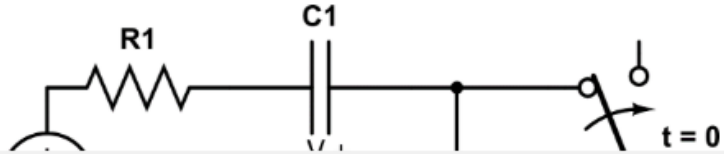
5. What is $V_L(t)$ at t = 5 seconds if $I_s = -t^2 A$ and $L = 2mH$? Give your answer in **mV**, without entering the units. 1 / 1 point



-20

Correct

6. In the circuit below, the switch is closed for a long time before time t = 0. $V_s = 24V, R_1 = 300\Omega, C_1 = 10\mu F$ and $C_2 = 20\mu F$. 1 / 1 point



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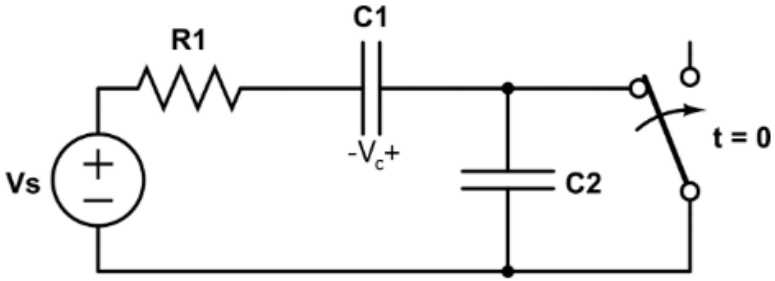
6. In the circuit below, the switch is closed for a long time before time t = 0. 1 / 1 point

$V_s = 24V, R_1 = 300\Omega, C_1 = 10\mu F$ and $C_2 = 20\mu F$.



What is the voltage V_c across capacitor C_1 when the switch is closed? Give your answer in **V**, without entering the units.

-24

Correct

7. Suppose you have the following circuit. The switch has been open for a long time, and is closed at time t = 0. 0 / 1 point

Assume $V_2 = 5V, R_2 = 10k\Omega, L_2 = 2mH, C_2 = 0.1\mu F$

The second order differential equation for the voltage across the capacitor is

$d^2V_c(t)/dt + a_1 dV_c(t)/dt + a_2 V_c = K$

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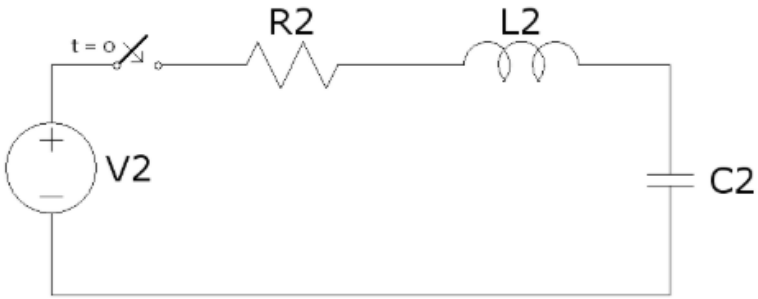
7. Suppose you have the following circuit. The switch has been open for a long time, and is closed at time t = 0. **0 / 1 point**

Assume $V_2 = 5V, R_2 = 10k\Omega, L_2 = 2mH, C_2 = 0.1\mu F$

The second order differential equation for the voltage across the capacitor is

$d^2V_c(t)/dt + a_1 dV_c(t)/dt + a_2 V_c = K$



What is the coefficient K of the 2nd order differential equation for this circuit? Do not use scientific notation.

10

! Incorrect

8. By rotating the dial of an antenna tuner, what are we manipulating within the circuit element? **1 / 1 point**

- [ ] Resistance
- [x] Capacitance

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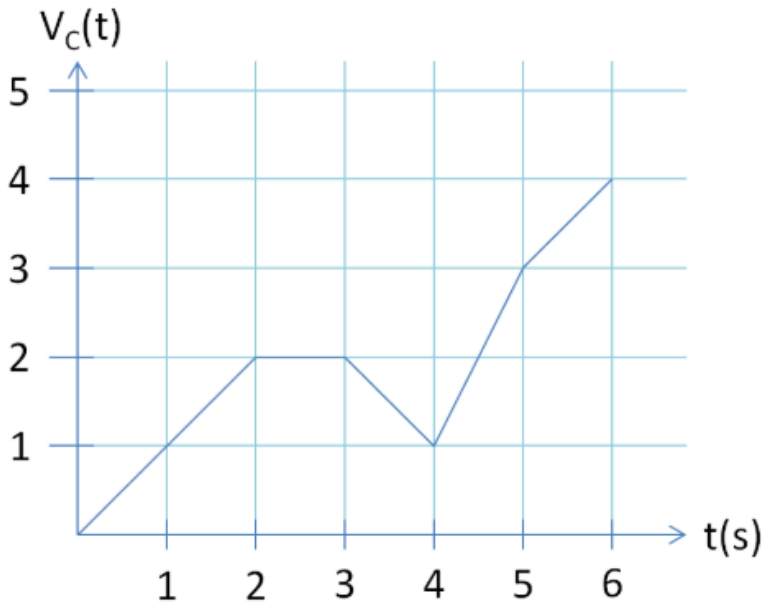
8. By rotating the dial of an antenna tuner, what are we manipulating within the circuit element? 1 / 1 point

- [ ] Resistance
- [x] Capacitance

✓ Correct

- [ ] Inductance

9. Suppose the following voltage is applied across the terminals of a $1\mu F$ capacitor. 1 / 1 point



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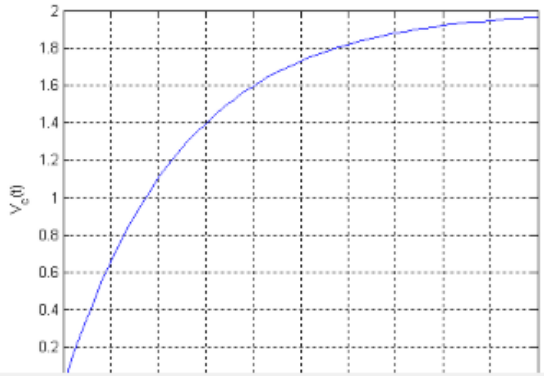
What is the current through the capacitor at time t = 4.5 sec? Give your answer in μA, without entering the units.

2

Correct

10. An RC circuit has the following response. The units on the time axis are in seconds, but note the scaling of 10^{-3} on the axis (so the first tick mark is 0.5 milliseconds). Determine the time constant, in milliseconds, and enter that value in the box below without the units.

1 / 1 point



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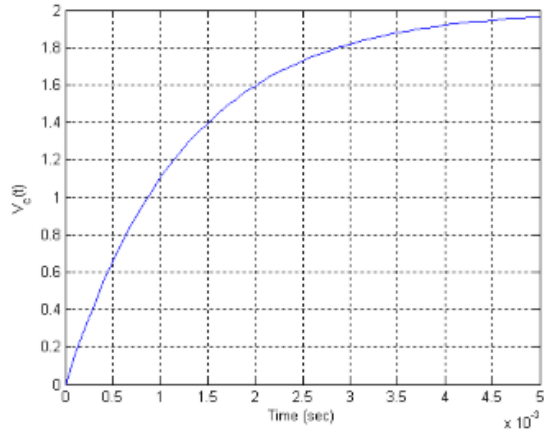
2

Correct

10. An RC circuit has the following response. The units on the time axis are in seconds, but note the scaling of 10^{-3} on the axis (so the first tick mark is 0.5 milliseconds). Determine the time constant, in milliseconds, and enter that value in the box below without the units.

1 / 1 point



1.264

Correct