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RC Circuits MCQ Test

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Q1. Which is the reference vector for parallel RC circuits?

- A. I
- **B. V**
- C. R
- D. None of the above

Q2. What is called the power that is measured in volt-amperes?

- A. True power
- B. Reactive power
- **C. Apparent power**
- D. Impedance power

Q3. Which of the following statement is true about a series circuit?

- A. The resistor voltage lags the current
- B. The current lags the source voltage.
- **C. The current leads the source voltage.**
- D. None of the above

Q4. What is the expression of current in the R- C circuit?

- A. $i = (V/R) \exp(-t/RC)$
- B. $i = (V/R) - \exp(-t/RC)$
- C. $i = (V/R) \exp(-t/RC)$
- D. $i = (V/R) - \exp(-t/RC)$

Q5. What do you mean by an RC circuit ?

- A. a circuit with both a resistor (R) and a capacitor (C)
- B. a resistor (R) and a capacitor (C).
- C. Voltage
- D. Current

Q6. The relationship between change in charge, current and the time interval is:

- A. $\Delta Q = I \Delta t$
- B. $\Delta Q = I / \Delta t$
- C. $\Delta Q = 2I / \Delta t$
- D. None of the above

Q7. Which one is the formula for Voltage, charge and capacitance of a capacitor in RC circuit?

- A. $V = Q/C$
- B. $V = QC$
- C. $V = 2Q/C$
- D. None of the above

Q8. What does RC circuit stands for?

- A. resistor–capacitor circuit
- B. resistor–conductor circuit
- C. rotator–capacitor circuit
- D. All of the above

Q9. The two most common RC filters are the ____.

- A. high-pass filters
- B. low-pass filters

- **C. Both A and B**
- D. None of the above

Q10. The relationship between the complex impedance, Z_C (in ohms) of a capacitor with capacitance C (in farads) and complex frequency s is ____.

- A. $Z_C=1/2sC$
- **B. $Z_C=1/sC$**
- C. $Z_C=2/sC$
- D. $Z_C=1/3sC$

Q11. A complex number represents a phasor quantity.

- **A. True**
- B. False

Q12. When the frequency of the source voltage decreases, the impedance of a parallel RC circuit:

- A. Decreases to zero
- **B. Increases**
- C. Does not change
- D. Decreases

Q13. When the frequency of the voltage applied to a series RC circuit is increased, the phase angle ____.

- A. increases
- **B. decreases**
- C. remains the same
- D. becomes erratic

Q14. The combination of reactive power and true power in RC circuit is called apparent power.

- **A. True**
- B. False

Q15. Is Apparent power is measured in the unit of Volt-Amps (VA)?

- **A. Yes**
- B. No

Q16. Total current in an RC circuit always leads the source voltage.

- **A. True**
- B. False

Q17. In an R-C circuit, when the switch is closed, the response ____.

- A. do not vary with time
- **B. decays with time**
- C. rises with time
- D. first increases and then decreases

Q18. When the frequency of the source voltage decreases, the impedance of a parallel RC circuit ____.

- **A. increases**
- B. decreases
- C. does not change
- D. decreases to zero

Q19. Positive numbers can be represented by points to the right of the origin on the horizontal axis of a graph.

- **A. True**
- B. False

Q20. The time constant τ for an RC circuit is defined as RC.

- **A. True**
- B. False

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