قائمة الاسئلة

دوائر كهربائية 2 - كلية الهندسة - قسم الميكاترونكس- المستوى الثاني - 3 ساعات - درجة هذا الاختبار (50)

د.عادل راوع

1) Capacitive reactance is more when:
   1) - Capacitance is less and frequency of supply is more.
   2) + Capacitance is less and frequency of supply is less.
   3) - Capacitance is more and frequency of supply is more.
   4) - Capacitance is more and frequency of supply is less.
2) Pure inductive circuit:
   1) - Consumes some power on average.
   2) - Does not take power at all from a line.
   3) + Takes power from the line during some part of the cycle and then return back it during other part of the cycle.
   4) - None of the above.
3) In an RLC circuit, which of the following is always used as a vector reference?
   1) + Voltage.
   2) - Resistance.
   3) - Impedance.
   4) - Current.
4) What is the unit of admittance?
   1) - ohm.
   2) - henry.
   3) - farad.
   4) + ohm^-1
5) A sine wave a frequency of 50Hz, its angular frequency is _____ radian/second.
   1) + 100π
   2) - 50π
   3) - 25π
   4) - 75π
6) The period of a sine wave is 0.02 seconds, its frequency is:
   1) - 100 HZ
   2) + 50 HZ
   3) - 40 HZ
   4) - 20 HZ
7) A heater is rated as 230 V, 3 kW, A.C. The value 230 V refers to:
   1) - Average voltage.
   2) + r.m.s. voltage.
   3) - Peak voltage.
   4) - none of the previous.
8) ) If two sine waves of same frequency have a phase difference of pi radian, then:
   1) - both will reach their maximum values at same instant.
   2) - both will reach their minimum values at same instant.
   3) + when one wave reaches its maximum value, the other will reach its minimum value.
   4) - none of the above.
9) The r.m.s. value and mean value is the same in the case of:
   1) - triangular wave.
   2) - half wave rectified sine wave.
   3) + square wave.

4) - sine wave.

10) Power factor of an electrical circuit is equal to:
1) - R/Z.
2) + cosine of phase angle difference between current and voltage.
3) - kW/kVA.
4) - sine wave.

11) the time constant of an inductive circuit
1) + Increases with increase of inductance and decrease of resistance.
2) - Increases with increase of inductance and increase of resistance.
3) - Increases with decrease of inductance and decrease of resistance.
4) - Increases with decrease of inductance and increase of resistance.

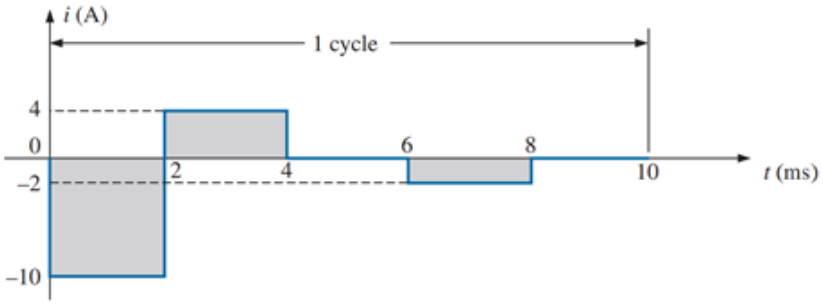
12) In a highly capacitive circuit the:
1) - Apparent power is equal to active power.
2) - Reactive power is more than to apparent power.
3) + Reactive power is more than to active power.
4) - Active power is more than to reactive power.

13) Power factor of the following circuit will be unity:
1) - Inductance.
2) - Capacitance.
3) + Resistance.
4) - Both Inductance ,Capacitance

14) In a pure resistive circuit:
1) - The current lags behind the voltage by 90°
2) - The current leads the voltage by 90°
3) - The current can lag or lead the voltage by 90°.
4) + The current is in phase with voltage.

15) The input of an A.C. circuit having power factor of 0.8 lagging is 40 kVA, the power drawn by the circuit is:
1) - 12 kW.
2) - 22 kW.
3) + 32 kW.
4) - 64 kW.

16) **as the next figure the average value of waveform is:**




1) - -10 A.
2) + -1.6 A.
3) - 4A
4) - 0A

17)

**The voltage across a 0.5 H coil is $v = 100\ sin\ (20t)$. Then the sinusoidal expression for the current is:**

a. $i = 10\ sin\ (20t - 90°)$.
b. $i = 10\ sin\ (20t + 90°)$.
c. $i = 10\ sin\ (20t)$.
d. $i = 10\ sin\ (20t - 60°)$.

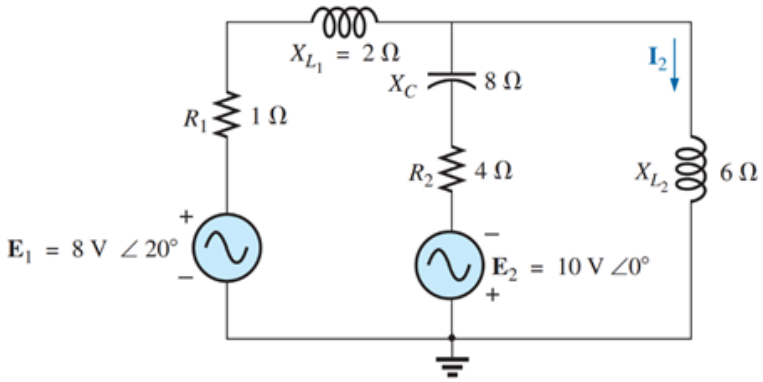
1) + a
2) - b
3) - c
4) - d

18) **With Conversion of the voltage-controlled source in next Figure to a current- controlled source $I$ =:**

a. $0.48\ A\angle 10°$
b. $4.82\ A\angle 0°$
c. $0.48\ A\angle 0°$
d. $0.40\ A\angle 0°$

1) - a
2) - b
3) + c
4) - d

19) **from the next figure $I_2$ =:**




1) - $-1.72\ A\angle -86.92°$.

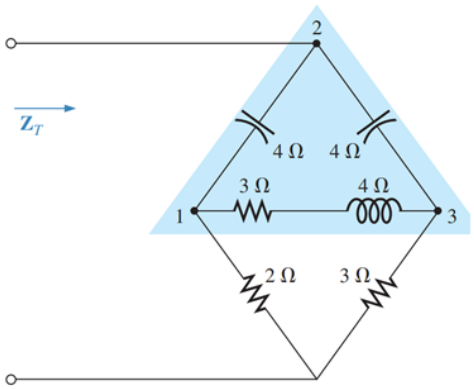
2) - $1.72\ A\angle -86.92°$.

3) - $-1.27\ A\angle -86.92°$.

4) + $1.27\ A\angle -86.92°$.

20)

from the next figure $Z_T$ = :



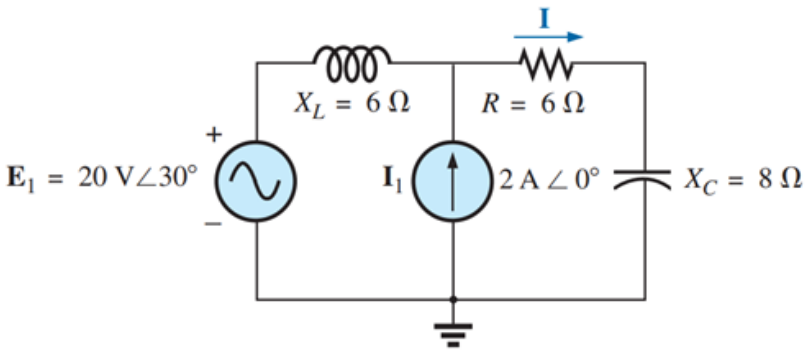

1) - $23.5\ \Omega\angle -58.41°$.

2) - $2.35\ \Omega\angle -68.41°$.

3) + $2.35\ \Omega\angle -58.41°$.

4) - $3.25\ \Omega\angle -85.41°$.

21) **from the next figure the current $I$ through the 6 Ω resistor is:**




1) - $2.24\ A\angle -70.2°$.

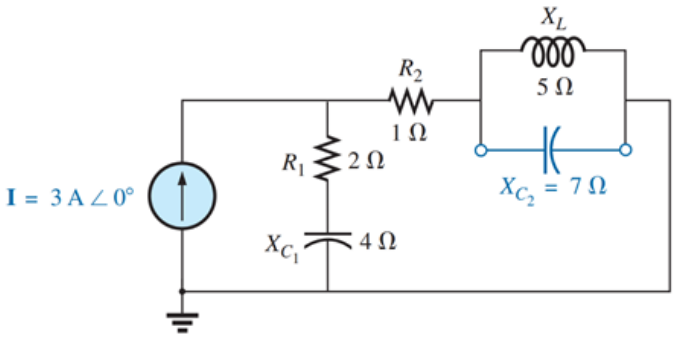
2) + $4.42\ A\angle 70.2°$.

3) - $44.2\ A\angle 7.02°$.

4) - $4.42\ A\angle 60.2°$.

22)

**from the next figure the Norton equivalent circuit for the network external to the 7 Ω capacitive reactance is:**



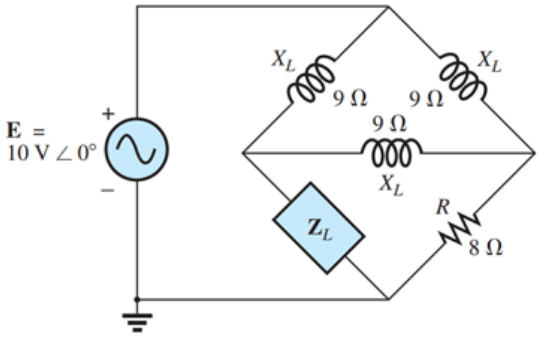

1) + $I_N = 2.68\ A\angle -10.3°$. and $Z_N = 7.50\ \Omega + j\ 2.50\ \Omega$.

2) - $I_N = 26.8\ A\angle -20.3°$. and $Z_N = 7.50\ \Omega + j\ 2.50\ \Omega$

3) - $I_N = 2.68\ A\angle -10.3°$. and $Z_N = 5.70\ \Omega + j\ 25.0\ \Omega$

4) - $I_N = 2.68\ A\angle -10.3°$. and $Z_N = 2.50\ \Omega + j\ 7.50\ \Omega$

23) **from the next figure the for maximum power delivering to the load the impedance $Z_L$ must be:**




1) - $Z_L = -0.72\ \Omega - j\ 5.46\ \Omega$

2) + $Z_L = 0.72\ \Omega - j\ 5.46\ \Omega$

3) - $Z_L = 5.2\ \Omega - j\ 3.6\ \Omega$

4) - $Z_L = 7.2\ \Omega - j\ 54.6\ \Omega$