

Electronics & Communication

Electronics Sample Questions :

Q-8 A circuit has a resistance of 11Ω , a coil of inductive reactance 120Ω , and a capacitor with a 120Ω reactance, all connected in series with a 110-V , 60-Hz power source. What is the potential difference across each circuit element?

- A) (a) $V_R = 110 \text{ V}$, (b) $V_L = V_C = 1.2 \text{ kV}$
- B) (a) $V_R = 120 \text{ V}$, (b) $V_L = V_C = 2.4 \text{ kV}$
- C) (a) $V_R = 4.8 \text{ V}$, (b) $V_L = V_C = 0 \text{ kV}$
- D) (a) $V_R = 5.0 \text{ V}$, (b) $V_L = V_C = 8.0 \text{ V}$

Q-2 Applying DeMorgan's theorem to the expression , we get

- A) $(A+B)+C$
- B) $A(B + C)$
- C) Both A & B
- D) None of above

Q-4 Refer Below figure to Determine the resonant frequency...

- A) 123.4 kHz
- B) 61.7 kHz
- C) 45.97 kHz
- D) 23.1 kHz

Q-4 Express the decimal number 57 in binary.

- A) 100101
- B) 111010
- C) 110010
- D) 111001

Q-5 A vertical electric dipole antenna

- a) radiates uniformly in all directions.
- b) radiates uniformly in all horizontal directions, but more strongly in the vertical direction.
- c) radiates most strongly and uniformly in the horizontal directions
- d) does not radiate in the horizontal directions

Q-6 A particle oscillates according to the equation $y=5.0 \cos 23 t$, where y is in centimeters. Find its frequency of oscillation and its position at $t=0.15$ s.

- a) $f = 23$ Hz, $y = -4.8$ cm
- B) $f = 3.7$ Hz, $y = -5.0$ cm
- C) $f = 3.7$ Hz, $y = -4.8$ cm
- D) $f = 3.7$ Hz, $y = +4.8$ cm

Q-7 A $10.0\text{-}\mu\text{F}$ capacitor is in series with a $40.0\text{-}\Omega$ resistance, and the combination is connected to a 110-V , 60.0-Hz line. Calculate (a) the capacitive reactance, (b) the impedance of the circuit, (c) the current in the circuit, (d) the phase angle between current and supply voltage

- A) (a) 0.0038Ω (b) 305Ω (c) 0.415 A (d) voltage lags by 8.58°
- B) (a) 266Ω (b) 269Ω (c) 0.409 A (d) voltage lags by 81.4°
- C) (a) 16 k Ω (b) 72 k Ω (c) 2.75 A (d) voltage lags by 6.63°
- D) (a) 2.6 k Ω (b) 262Ω (c) 0.256 MA (d) voltage leads by 81.4°

Q-8 A circuit has a resistance of 11 Ω , a coil of inductive reactance 120 Ω , and a capacitor with a $120\text{-}\Omega$ reactance, all connected in series with a 110-V , 60-Hz power source. What is the potential difference across each circuit element?

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- D) (a) $V_R = 5.0$ V, (b) $V_L = V_C = 8.0$ V

Q-9 What is the primary function of multiplexing?

- A) To match the frequency range of a signal to a particular channel.
- B) To reduce the bandwidth of a signal.
- C) To select one radio channel from a wide range of transmitted channels.
- D) To allow a number of signals to make use of a single communications channel.

Q-10 A second step to further increase system capacity is a digital access method called TDMA (Time Division Multiple Access). Using the same frequency channelization and reuse as FDMA analog but adding a time sharing element, the effective capacity is:

- A) Doubled
- B) Tripled
- C) Reduced by one third
- D) Unchanged

Q-11 What are Pseudo-Random noise sequences, or P/N Sequences?

- A) P/N Sequences are known sequences which exhibit the properties or characteristics of

random sequences

- B) P/N Sequences can be used to logically isolate users on the same physical (frequency) channel
- C) P/N Sequences appear as random noise to everyone else, except to the transmitter and intended receiver
- D) All of the above

Q-12 An op-amp integrator has a square-wave input. The output should be

- A) a sine wave.
- B) a triangle wave
- C) a square wave.
- D) pure DC.

Q-13 What is the relationship between the series and parallel resonant frequencies of a quartz crystal?

- A) They are equal.
- B) Parallel resonant frequency is approximately 1 kHz higher than series resonant frequency
- C) Series resonant frequency is approximately 1 kHz higher than parallel resonant frequency.
- D) none of the above

Q-14 Refer Below figure to Determine the resonant frequency...

- A) 123.4 kHz
- B) 61.7 kHz
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- D) 23.1 kHz

Q-15 Which FET amplifier(s) has (have) a phase inversion between input and output signals?

- A) common-gate
- B) common-drain
- C) common-source
- D) all of the above