**Basic Electrical Engineering Quiz Questions**

1. Which of the following elements of electrical engineering cannot be analyzed using Ohm’s law?

a) Capacitors

b) Inductors

c) Transistors

d) Resistance

Ans. c

Explanation: Ohm’s law cannot be used for unilateral networks as such networks only allow current flow in one direction. Transistor forms a unilateral network. Thus, Ohm’s law cannot be used on Transistors.

1. Which of the following is a correct representation of peak value in an AC Circuit?

a) RMS value/Peak factor

b) RMS value\*Form factor

c) RMS value/Form factor

d) RMS value\*Peak factor

Ans. d

Explanation: A peak factor in an AC circuit represents the ratio of the peak value to the RMS value. The peak factor also called the crest factor indicates how extreme the peaks are present in a waveform.

1. Which of the following according to fundaments of electrical energy is correct about alternating current?

a) Frequency is zero

b) Magnitude changes with time

c) Can be transported to larger distances with less loss in power

d) Flows in both directions

Ans. a

Explanation: An alternating current changes its value with time and flows in both directions. The loss in power is less due to alternating current properties and thus, can be transported to larger distances.

1. How many cycles will an AC signal make in 2 seconds if its frequency is 100 Hz?

a) 50

b) 100

c) 150

d) 200

Ans. d

Explanation: In electrical engineering, the frequency represents the ratio of the number of cycles to the total time. Since frequency is given as 100 Hz and the time is 2 sec thus a total of 200 cycles will be made.

1. What kind of quantity is an Electric potential?

a) Vector quantity

b) Tensor quantity

c) Scalar quantity

d) Dimensionless quantity

Ans. c

Explanation: Electric potential refers to the work done to bring a unit positive charge from a point with higher potential to a point with lower potential. Since electric potential only has magnitude but no direction, it is a scalar quantity.

1. What do crowded lines of force indicate?

a) Strong electric field

b) Weak electric field

c) Strong electric potential

d) Weak electric potential

Ans. a

Explanation: According to the principles of electric fields, when crowded lines of field are present the electric fields are very strong. The strong electric field can be witnessed near the poles of a magnet as the lines of force are crowded in this region.

1. Which of the following will happen in a transformer when the number of secondary turns is less than the number of primary turns?

a) The voltage gets stepped up

b The voltage gets stepped down

c) The power gets stepped up

d) The power gets stepped down

Ans. b

Explanation: The voltage transformation ratio is basically the ratio of the number of secondary turns to that of the number of primary turns. When the transformation ratio is less than 1, the step-down operation occurs.

1. Which of the following is a correct representation of average value in an AC Circuit?

a) RMS value/Form factor

b) RMS value\*Form factor

c) RMS value/Peak factor

d) RMS value\*Peak factor

Ans. a

Explanation: The form factor basically gives the expression for DC of equal power to a given AC. A form factor in an AC circuit represents the ratio of the RMS value to the average value. Thus, average value = RMS value/Form factor.

1. Who defined electric current and devised a method to measure current?

a) Michael Faraday

b) Andre-Marie Ampere

c) Nikola Tesla

d) Alessandro Antonio Volta

Ans. b

Explanation: Andre-Marie Ampere is a French physicist and mathematician who defined electric current and devised a method to measure current in the 1820s.

1. Which of the following is correct about direct current?

a) Magnitude is constant

b) Frequency is zero

c) Can be transported to larger distances with less loss in power

d) Flows in one direction

Ans. c

Explanation: A direct current has a fixed value and does not change with time. The frequency of the direct current is equal to zero as it does not change with time.

1. Who witnessed the effect of magnetism for the first time?

a) Hans Christian Orsted

b) Alexander Graham Bell

c) Michael Faraday

d) Gustav Robert Kirchhoff

Ans. a

Explanation: Hans Christian Orsted was a Danish physicist and chemist who witnessed the effect of magnetism for the first time. He discovered that electric current can create a magnetic field using an experiment.

1. Which of the following according is correct about electrical conductivity?

a) It is the ratio of current density to the electric field

b) It is the product of current density and electric field

c) It is the ratio of the electric field to current density

d) It is the reciprocal of the product of current density and electric field

Ans. a

Explanation: Electrical conductivity gives the ability of a conductor to conduct electric current. The point form of Ohm’s law says that the electrical conductivity (σ) is the ratio of current density (J) to electric field (E).

1. What is responsible for the current to flow?

a) Protons

b) Electrons

c) Nucleus

d) Protons and Electrons

Ans. b

Explanation: For the current to flow in a circuit electrons are required. Electrons are negatively charged and when the potential difference is applied these electrons flow to constitute a current. The current direction is opposite to the electron flow.

1. Which of the following according to KCL must be zero?

a) Algebraic sum of currents in closed-loop

b) Algebraic sum of power in closed-loop

c) Algebraic sum of currents entering and leaving a junction

d) Algebraic sum of voltages across the input and output

Ans. c

Explanation: KCL or Kirchhoff’s current law helps in finding the currents flowing in the circuit. KCL states that the current entering a junction is equal to the current leaving a junction.

1. Which of the following will happen in a transformer when the number of secondary turns is greater than the number of primary turns?

a) The voltage gets stepped up

b) The voltage gets stepped down

c) The power gets stepped up

d) The power gets stepped down

Ans. a

Explanation: The voltage transformation ratio is the ratio of the number of secondary turns to that of the number of primary turns. When the transformation ratio is greater than 1, the step-up operation occurs.