

Electrical Engineering Fundamentals

Electrical Engineering · Answer Key · 15 Questions

1. What is the SI unit of electric current?

- A) Volt
- B) Ohm
- C) Ampere**
- D) Watt

2. Which law states that the voltage across a conductor is directly proportional to the current flowing through it, provided all physical conditions and temperature remain constant?

- A) Faraday's Law
- B) Ampere's Law
- C) Kirchhoff's Voltage Law
- D) Ohm's Law**

3. What component is used to store electrical energy in an electric field?

- A) Resistor
- B) Inductor
- C) Capacitor**
- D) Diode

4. The operational principle of a transformer is based on which phenomenon?

- A) Electrostatic induction
- B) Magnetic induction**
- C) Static electricity
- D) Piezoelectricity

5. What is the characteristic that opposes the flow of alternating current (AC) due to inductance and capacitance in a circuit called?

- A) Resistance
- B) Conductance
- C) Reactance
- D) Impedance**

6. Which type of semiconductor material typically has electrons as the majority charge carriers?

- A) P-type
- B) N-type**
- C) Intrinsic
- D) Extrinsic

7. What is the RMS value of a sinusoidal AC voltage with a peak voltage of 100V?

- A) 100V
- B) 70.7V**
- C) 141.4V
- D) 50V

8. A device that converts electrical energy into mechanical energy is called a:

- A) Generator
- B) Motor**
- C) Transformer
- D) Rectifier

9. What is the fundamental unit of electric charge?

- A) Ampere
- B) Coulomb**
- C) Joule
- D) Farad

10. What is the property of a material that opposes the flow of electric current?

- A) Conductivity
- B) Resistivity**
- C) Permeability
- D) Dielectric strength

11. In a DC circuit, what component limits the current flow and dissipates energy as heat?

- A) Capacitor
- B) Inductor
- C) Resistor**
- D) Diode

12. What does the symbol 'uF' represent in electrical engineering?

- A) Microvolt
- B) Microampere
- C) Microfarad**
- D) Microhm

13. Which phenomenon allows a varying magnetic field to induce an electromotive force (EMF) in a conductor?

- A) Ohm's Law
- B) Kirchhoff's Current Law
- C) Faraday's Law of Induction**
- D) Ampere's Circuital Law

14. What is the primary function of a diode?

- A) To amplify current
- B) To store charge
- C) To allow current flow in one direction**
- D) To resist current flow

15. What is the unit of electrical power?

- A) Joule
- B) Volt
- C) Ampere
- D) Watt**