Electrical Engineering Fundamentals

Electrical Engineering · Practice Test · 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