

Foundations of Electrical Engineering

Electrical Engineering · Answer Key · 12 Questions

1. Which law states that the current through a conductor between two points is directly proportional to the voltage across the two points and inversely proportional to the resistance between them?

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

2. What is the unit of electric charge?

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

3. In a series circuit, how does the total resistance compare to the individual resistances?

- A) It is less than the smallest individual resistance.
- B) It is equal to the smallest individual resistance.
- C) It is greater than the largest individual resistance.**
- D) It is the average of the individual resistances.

4. What is the function of a diode in an electronic circuit?

- A) To amplify voltage.
- B) To store electrical energy.
- C) To allow current to flow in only one direction.**
- D) To regulate voltage levels.

5. Which type of electrical component opposes the flow of electric current?

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

6. What does the symbol 'AC' stand for in the context of electricity?

- A) Advanced Current
- B) Alternating Current**
- C) Artificial Circuit
- D) Analog Control

7. According to Kirchhoff's Current Law, the sum of currents entering a junction is equal to the sum of currents exiting the junction. This is a statement of conservation of:

- A) Energy
- B) Charge**
- C) Momentum
- D) Power

8. What fundamental force is responsible for electromagnetic phenomena?

- A) Gravitational Force
- B) Strong Nuclear Force
- C) Weak Nuclear Force
- D) Electromagnetic Force**

9. Which of the following is a unit of power?

- A) Joule
- B) Watt**
- C) Hertz
- D) Farad

10. A transformer is used to change the:

- A) Frequency of AC voltage
- B) Magnitude of AC voltage**
- C) Direction of AC current
- D) Resistance of a circuit

11. What is the primary function of a capacitor?

- A) To convert electrical energy into heat.
- B) To store electrical energy in an electric field.**
- C) To create a magnetic field.
- D) To limit current flow.

12. In digital logic, what is the output of an AND gate if both inputs are '1' (high)?

- A) 0 (low)
- B) 1 (high)**
- C) Undefined
- D) Depends on the clock signal