Electrical Engineering Essentials

Electrical Engineering · Answer Key · 20 Questions

1. Which subatomic particle is primarily responsible for the flow of electric current in a copper wire?

A) Proton
B) Neutron
C) Electron
D) Positron

2. What is the standard SI unit used to measure electrical resistance?

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

3. In an electrical circuit, what does a capacitor primarily store?

A) Magnetic energy
B) Chemical energy
C) Electric charge
D) Thermal energy

4. Which component is designed to allow current to flow in only one direction?

A) Resistor
B) Diode
C) Capacitor
D) Transformer

5. What is the primary function of a transformer in an electrical power grid?

A) To store excess electricity
B) To convert AC to DC
C) To change voltage levels
D) To measure current flow

6. Which material is considered a semiconductor commonly used to make computer chips?

A) Copper
B) Silicon
C) Rubber
D) Gold

7. What does the acronym LED stand for in electrical engineering?

A) Light Emitting Diode
B) Low Energy Device
C) Linear Electric Drive
D) Light Electric Display

8. According to Ohm's Law, what is the relationship between Voltage (V), Current (I), and Resistance (R)?

A) V = I / R
B) V = I * R
C) V = R / I
D) V = I + R

9. What is the purpose of a fuse in an electrical circuit?

A) To increase voltage
B) To store electricity
C) To break the circuit during an overload
D) To convert current to heat

10. Which device is used to measure the electric potential difference between two points?

A) Ammeter
B) Voltmeter
C) Ohmmeter
D) Galvanometer

11. In a series circuit, what remains constant across all components?

A) Voltage
B) Current
C) Resistance
D) Power

12. What is the unit of electrical power?

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

13. Which law states that the sum of currents entering a junction must equal the sum of currents leaving it?

A) Ohm's Law
B) Faraday's Law
C) Kirchhoff's Current Law
D) Coulomb's Law

14. What type of electricity flows in one constant direction?

A) Alternating Current (AC)
B) Direct Current (DC)
C) Static Electricity
D) Electromagnetic Pulse

15. What do we call a material that strongly opposes the flow of electric current?

A) Conductor
B) Insulator
C) Semiconductor
D) Superconductor

16. Which part of a circuit produces a magnetic field when current flows through it?

A) Resistor
B) Capacitor
C) Inductor
D) Switch

17. What is the primary metal used in most electrical wiring due to its high conductivity?

A) Iron
B) Copper
C) Aluminum
D) Lead

18. What happens to the total resistance in a circuit if you add more resistors in parallel?

A) It increases
B) It decreases
C) It stays the same
D) It doubles

19. What is the term for the opposition to the flow of alternating current in a capacitor or inductor?

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

20. Which frequency of alternating current is used in most Australian household outlets?

A) 50 Hz
B) 60 Hz
C) 100 Hz
D) 120 Hz