

1. What is the primary function of a diode in a circuit?

- a) To amplify signals
- b) To regulate voltage
- c) To control current flow
- d) To store energy

Answer: c) To control current flow

Explanation: A diode is primarily used to control the direction of current flow in a circuit, allowing current to flow in one direction while blocking it in the opposite direction.

2. What is the main difference between an ideal diode and a practical diode?

- a) Ideal diodes have infinite resistance in the reverse direction, while practical diodes have finite resistance.
- b) Ideal diodes only allow current flow in one direction, while practical diodes allow current flow in both directions.
- c) Ideal diodes have no voltage drop when conducting, while practical diodes have a small voltage drop.
- d) There is no difference between an ideal diode and a practical diode.

Answer: c) Ideal diodes have no voltage drop when conducting, while practical diodes have a small voltage drop.

Explanation: Ideal diodes are theoretical components with no voltage drop when conducting, while practical diodes have a small forward voltage drop typically around 0.7 volts.

3. In a clipper circuit, what is the main purpose of using diodes?

- a) To amplify the input signal
- b) To generate a square wave output
- c) To limit the amplitude of the input signal
- d) To filter out noise from the input signal

Answer: c) To limit the amplitude of the input signal

Explanation: Clipper circuits use diodes to limit or clip the amplitude of the input signal by conducting when the signal exceeds a certain threshold.

4. What is the function of a clamper circuit in electronics?

- a) To stabilize the DC voltage level
- b) To amplify the input signal
- c) To generate a sine wave output
- d) To shift the DC level of a waveform

Answer: d) To shift the DC level of a waveform

Explanation: A clamper circuit is used to shift the DC level of a waveform without distorting its shape. It adds or subtracts a DC level to the input waveform.

5. Which type of rectifier circuit produces a pulsating DC output?

- a) Half-wave rectifier
- b) Full-wave rectifier
- c) Bridge rectifier
- d) Voltage regulator

Answer: a) Half-wave rectifier

Explanation: A half-wave rectifier only conducts during one half-cycle of the input AC waveform, producing a pulsating DC output.

6. What is the advantage of a full-wave rectifier over a half-wave rectifier?

- a) Higher efficiency
- b) Lower cost
- c) Simplicity in design
- d) Smaller size

Answer: a) Higher efficiency

Explanation: A full-wave rectifier utilizes both halves of the AC input waveform, resulting in a higher efficiency compared to a half-wave rectifier.

7. Which rectifier circuit configuration is commonly used in high-current applications?

- a) Half-wave rectifier
- b) Full-wave rectifier
- c) Bridge rectifier
- d) Voltage doubler

Answer: c) Bridge rectifier

Explanation: Bridge rectifiers are commonly used in high-current applications due to their ability to handle larger currents and their compact design.

8. What is the purpose of a filter circuit in a power supply?

- a) To convert AC to DC

- b) To regulate the output voltage
- c) To smooth out the pulsating DC
- d) To amplify the output voltage

Answer: c) To smooth out the pulsating DC

Explanation: Filter circuits in power supplies are used to remove or reduce the ripple component from the rectified DC output, resulting in a smoother DC voltage.

9. Which type of voltage regulator circuit provides a constant output voltage by shunting excess current to ground?

- a) Shunt regulator
- b) Series regulator
- c) Zener regulator
- d) Darlington regulator

Answer: a) Shunt regulator

Explanation: Shunt regulators maintain a constant output voltage by shunting excess current to ground, thereby regulating the voltage across the load.

10. What is the advantage of using an integrated circuit (IC) for voltage regulation?

- a) Higher efficiency
- b) Lower cost
- c) Smaller size
- d) All of the above

Answer: d) All of the above

Explanation: Integrated circuits for voltage regulation offer advantages such as higher efficiency, lower cost, and smaller size compared to discrete component-based regulator circuits.