UNIT 4: ANALOG ELECTRONICS

1. What is the working principle of a diode?

- a) Electromagnetic induction
- b) Rectification
- c) Capacitance
- d) Conductance

2. What is the function of a Zener diode?

- a) Rectification
- b) Voltage regulation
- c) Signal amplification
- d) High-frequency switching

3. What is the main application of a half-wave rectifier?

- a) Signal modulation
- b) Signal detection
- c) Power supply conversion
- d) Amplification

4. What does the forward characteristic of a diode indicate?

- a) The voltage at which current starts to flow
- b) The maximum reverse voltage
- c) The maximum forward voltage
- d) The breakdown voltage

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

- a) Higher efficiency
- b) Simpler design
- c) Lower cost
- d) Better voltage regulation

6. What is the role of a capacitor in a rectifier circuit?

- a) To smooth the output voltage
- b) To filter high-frequency noise
- c) To regulate voltage
- d) To block current

7. What is the basic function of a transistor?

- a) Amplification
- b) Rectification

- c) Modulation
- d) Switching

8. Which of the following is a major advantage of MOSFETs over BJTs?

- a) Faster switching speed
- b) Better efficiency
- c) Higher gain
- d) Simpler construction

9. In a voltage regulator, the Zener diode is used to:

- a) Filter the input voltage
- b) Provide a stable output voltage
- c) Rectify the input signal
- d) Amplify the signal

10. What type of rectifier uses two diodes and provides full-wave rectification?

- a) Half-wave rectifier
- b) Bridge rectifier
- c) Center-tapped full-wave rectifier
- d) Both b and c

11. What does the peak inverse voltage (PIV) represent in a diode?

- a) The maximum forward voltage
- b) The maximum reverse voltage
- c) The maximum current
- d) The maximum power

12. The efficiency of a full-wave rectifier is:

- a) 50%
- b) 60%
- c) 70%
- d) 80%

13. In a half-wave rectifier, the efficiency is:

- a) 50%
- b) 25%
- c) 75%
- d) 100%

14. What type of circuit is used to convert AC to DC?

- a) Rectifier
- b) Amplifier

- c) Modulator
- d) Oscillator

15. The input signal of a UPS is:

- a) AC
- b) DC
- c) Pulsating DC
- d) Both a and b

16. Which of the following devices can be used as a voltage regulator in DC power supplies?

- a) Transistor
- b) Zener diode
- c) Diode
- d) Both a and b

17. In a half-wave rectifier, the average output voltage is:

- a) Equal to the peak voltage
- b) Half the peak voltage
- c) Zero
- d) Double the peak voltage

18. The peak voltage in a rectified signal is:

- a) Higher than the RMS voltage
- b) Equal to the RMS voltage
- c) Lower than the RMS voltage
- d) Zero

19. Which rectifier has the highest efficiency?

- a) Half-wave
- b) Full-wave
- c) Bridge rectifier
- d) Both b and c

20. What does the term "biasing" refer to in the context of a transistor?

- a) Controlling the base current
- b) Providing the appropriate DC operating voltage
- c) Amplifying the signal
- d) Preventing signal distortion