Standard Questions

Diodes

1. What is the essential function of a diode?
   (a) To amplify signals
   (b) To control current flow
   (c) To store charge
   (d) To regulate voltage
2. In which direction does current flow through a diode?
   (a) Only forward
   (b) Only reverse
   (c) Both forward and reverse
   (d) None of the above
3. The voltage drop across a forward-biased silicon diode is approximately:
   (a) 0.1V (b) 0.3V
   (c) 0.7V (d) 1.5V
4. What happens to a diode when it is reversebiased?
   (a) It conducts heavily
   (b) It conducts lightly
   (c) It blocks current flow
   (d) It short circuits
5. The reverse saturation current of a diode:
   (a) Increases with temperature
   (b) Decreases with temperature
   (c) Remains constant with temperature
   (d) Depends on the material of the diode
6. Which of the following statements about Zener diodes is true?
   (a) They conduct in the reverse direction
   (b) They have a breakdown voltage
   (c) They are used for amplification
   (d) They have a positive temperature coefficient
7. What is the purpose of a flyback diode?
   (a) To regulate voltage
   (b) To prevent voltage spikes
   (c) To amplify signals
   (d) To convert AC to DC
8. When a diode is in breakdown region:
   (a) It has high resistance
   (b) It conducts heavily
   (c) It behaves like an open circuit
   (d) It generates heat
9. Which characteristic best describes an ideal diode?
   (a) Infinite forward resistance
   (b) Zero forward resistance
   (c) Infinite reverse resistance
   (d) Zero reverse resistance
10. What does the diode equation relate?
    (a) Voltage and current in forward bias
    (b) Voltage and current in reverse bias
    (c) Voltage and temperature
    (d) Current and temperature
11. What is the primary application of a Schottky diode?
    (a) Voltage regulation
    (b) Power amplification
    (c) High-speed switching
    (d) Signal detection
12. The knee voltage of a diode refers to:
    (a) The voltage at which it starts conducting
    (b) The voltage at which it breaks down
    (c) The voltage at which its current becomes significant
    (d) The voltage at which it stops conducting
13. Which type of diode has the fastest switching speed?
    (a) Zener diode (b) Schottky diode
    (c) LED (d) Silicon diode
14. What is the primary purpose of a rectifier diode?
    (a) To convert AC to DC
    (b) To amplify signals
    (c) To regulate voltage
    (d) To store charge
15. A photodiode is primarily used for:
    (a) Emitting light
    (b) Detecting light
    (c) Amplifying signals
    (d) Regulating voltage
16. Which material is commonly used in the construction of a diode?
    (a) Copper (b) Silicon
    (c) Aluminum (d) Gold
17. What happens to the resistance of a forward-biased diode as the forward voltage increases?
    (a) It decreases (b) It increases
    (c) It remains constant (d) It fluctuates

18. The breakdown voltage of a Zener diode is determined by:
    (a) The doping concentration
    (b) The diode's physical size
    (c) The operating temperature
    (d) The material used
19. What is the primary advantage of a PIN diode over a regular diode?
    (a) Faster switching speed
    (b) Higher breakdown voltage
    (c) Lower reverse leakage current
    (d) better temperature stability
20. The process of combining P-type and Ntype semiconductor materials to form a diode is called:
    (a) Doping (b) Diffusion
    (c) Junction (d) Bonding

Answer Key

1	B	11	C
2	A	12	A
3	C	13	B
4	C	14	A
5	A	15	B
6	B	16	B
7	B	17	A
8	B	18	A
9	A	19	C
10	A	20	C