Semiconductor diodes

Multiple Choice Questions for one mark

1. The arrow direction in the diode symbol indicates…….

   a) Direction of electron flow.

   b) Direction of hole flow (Direction of conventional current)

   c) Opposite to the direction of hole flow

   d) None of the above

2. The knee voltage (cut in voltage) of Si diode is…….

   a) 0.2 V **b) 0.7 V** c) 0.8 V d) 1.0 V

3. When the diode is forward biased, it is equivalent to…….

   a) An off-switch **b) An On-switch** c) A high resistance d) None of the above

4. Under normal reverse bias voltage applied to diode, the reverse current in Si diode…….

   a) 100 mA **b) order of μA** c) 1000 μA d) None of these

5. Avalanche breakdown in a diode occurs when…….

   a) Potential barrier is reduced to zero. b) Forward current exceeds certain value.

   c) Reverse bias exceeds a certain value. d) None of these

6. Reverse saturation current in a Silicon PN junction diode nearly doubles for very…….

   a. 20 rise in temp. b. 50 rise in temp. c. 60 rise in temp. **d. 10 rise in temp**.

7. A forward potential of 10V is applied to a Si diode. A resistance of 1 KΩ is also in series with the diode. The current is…….

   a. 10 mA **b. 9.3 mA** c. 0.7 mA d. 0 Ma

   Id=(10-0.7)/1000

8. Barrier potential at the room temperature (25 C) is 0.7V, its value at 125 C is…….

   a. 0.5 V b. 0.3 V c. 0.9 V d. 0.7 V

9. When a reverse bias is applied to a diode, it will……...

a. Raise the potential barrier b. Lower the potential barrier

c. Increases the majority-carrier a current greatly d. None of these

10. The best description of zener diode is that …….

a. it operates in reverse region b. it is a constant voltage device

c. it is a constant current device d. none of the above

11. The LED is usually made of……

a. GeSi b. C and Si **c. GaAs** d. none of the above

12. Testing a good diode with an ohmmeter should indicate …….

a. high resistance when forward or reverse biased

b. low resistance when forward or reverse biased

c. high resistance when reverse biased and low resistance when forward biased

d. high resistance when forward biased and low resistance when reverse biased

13. A P-N junction allows current flow when……

a. both the n-type and p-type materials have the same potential

b. the n-type material is more positive than the p-type material

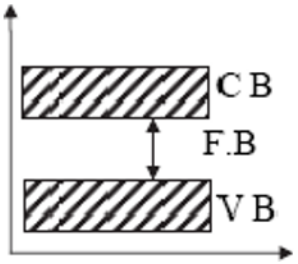
c. the p-type material is more positive than the n-type material

d. there is no potential on the n-type or p-type materials

14. The diode used in seven segment display is…….

a. zener diode b. Photo diode **c. LED** d. LASER diode

15. The diagram shown below corresponds to,



(a) the single energy level of an electron.

(b) the discrete energy level of an electron.

(c) the energy transfer diagram.

(d) the energy band diagram.

16. The space between the outermost filled energy band and the next empty band is called …….

(a) valence band (b) conduction band **(c) forbidden zone** (d) none of these

17. The forward biased resistance of the diode is ..... than its reverse biased resistance.

(a) larger (b) double **(c) smaller** (d) none of these

18. A zener diode is operated in …….

(a) breakdown region (b) forward characteristics region

(c) zero biasing (d) none of these

19. If the p-n junction diode is heavily doped then breakdown voltage will ……

(a) increases **(b) decreases** (c) remains same (d) none of these

20. The barrier potential for an unbiased silicon junction diode at room temperature is……

a. 0.2 V **b. 0.7 V** c. 0.8 V d. 1.0 V

21. A zener diode is used as a……

(a) half wave regulator (b) half wave rectifier

(c) voltage regulator (d) amplifier

22. The acronym LED stands for …….

(a) light energized diode **(b) light emitting diode**

(c) low energy device (d) low energy dynamo

23. When the diode is forward biased, it is equivalent to …….

a. An off-switch **b. An On-switch** c. A high resistance d. None of the above

24. By adding……impurity in intrinsic semiconductor P type semiconductor is made.

a. trivalent b. pentavalent c. quadra valant d. divalent

25. The charge on P-type semiconductor is…….

a. positive **b. neutral** c. negative d. either positive or negative

n type is also neutral

Bipolar Junction Transistors

1) A transistor has .....PN junctions.

a. one **b. two** c. three d. four

2) The emitter is .....doped.

a. heavily b. lightly **c. moderately** d. not

3) The base is .....doped.

a. heavily **b. lightly** c. moderately d. not

4) The collector is.....doped.

a. heavily b. lightly c. moderately d. not

5) The value of α is _____.

a. less than 1 b. greater than1 c. less than 0 d. equal to 0

6) The main function of a transistor is to do.....

a. rectification **b. amplification** c. light emission d. heat emission

7) Transistors would be classified as. .....electronic devices.

a. active b. passive c. both active and passive d. neither active nor passive

8) The emitter- base junction of a bipolar transistor is.....

a. always reverse biased b. forward biased or reverse biased

c. always forward biased d. neither forward or reverse biased

9) From working of transistor operation one can write _____.

a. IB =IC+IE b. IC =IB+IE c.IE =IC-IB **d. IE =IC+IB**

10) For CE transistor configuration o/p characteristics is graph of _____.

a. IB verses VBE b. IB verses VCE c.IE verses VCE **d. IC verses VCE**

11) For proper working of transistor_____.

a) EB junction should be forward biased and CB junction should be reverse biased

b) EB junction should be reverse biased and CB junction should be forward biased

c) EB junction and CB junction should be reverse biased

d) EB junction and CB junction should be forward biased