

Bipolar Junction Transistor (BJT)

1. The arrowhead on the transistor symbol points in the direction of
 - a. electron flow in the emitter region.
 - b. minority carrier flow in the emitter region.
 - c. majority carrier flow in the emitter region.
 - d. Conventional current flow in the emitter region.

2. The silicon transistor are more widely used than germanium transistors because
 - a. they have smaller leakage current
 - b. they have better ability to dissipate heat
 - c. they have smaller depletion layer
 - d. they have larger current carrying capacity

3. For an NPN transistor in normal bias
 - a. only holes cross the collector junction
 - b. only majority carriers cross the collector junction
 - c. the emitter junction has high resistance
 - d. emitter junction is forward biased and collector junction is reverse biased

4. The most commonly used transistor circuit arrangement is
 - a. common base
 - b. common emitter
 - c. common collector
 - d. none of the above

5. The emitter of the transistor is doped
 - a. heavily
 - b. lightly
 - c. moderately
 - d. none of these

6. For transistor action
 - a. the base region must be very thin and lightly doped.
 - b. the emitter junction must be forward biased and collector junction should be reverse biased.
 - c. the emitter should be heavily doped to supply the required amount of majority carriers.
 - d. all of these.

7. The I_{CBO} is the current that flows when some dc voltage is applied
- in the forward direction to the emitter junction with collector open
 - in the reverse direction to the emitter junction with collector open
 - in the reverse direction to the collector junction with emitter open
 - in the forward direction to the collector junction with emitter open
8. The magnitude of current I_{CBO}
- depends largely upon the emitter doping
 - depends largely upon emitter-base junction base potential
 - Increases with the increase in temperature
 - is generally greater in silicon than in germanium transistor
9. The current I_{CBO} flows in the
- | | |
|--------------------------------|-----------------------------|
| a. emitter and base leads | b. collector and base leads |
| c. emitter and collector leads | d. none of these |
10. In CE mode of transistor, the most noticeable effect of a small increase in temperature is
- the increase in output resistance
 - the increase in leakage current I_{CEO}
 - the decrease in current gain
 - the increase in ac current gain
11. In CE configuration, the output V-I characteristics are drawn by taking
- V_{CE} versus I_C for constant value of I_E
 - V_{CE} versus I_C for constant value of I_B
 - V_{CE} versus I_E for constant value of V_{CB}
 - None of these
12. In CE configuration, the input V-I characteristics are drawn by taking
- V_{CE} versus I_C for constant value of I_E
 - V_{BE} versus I_E for constant value of V_{CE}
 - V_{BE} versus I_B for constant value of I_C
 - V_{BE} versus I_B for constant value of V_{CEs}

13. The emitter current in a junction with normal bias
- is almost equal to the base current
 - is equal to the sum of I_B and I_C
 - changes greatly by a small changes in collector bias voltage
 - is equal to I_{CBO}
14. The β of a transistor may be determined directly from the curve plotted between
- V_{CE} and I_C for constant I_B
 - V_{CE} and I_C for constant I_E
 - V_{CE} and I_E for constant I_B
 - V_{BE} and I_E for constant V_{CE}
15. In CB configuration, the output V-I characteristics of a transistor are drawn by taking
- V_{CB} versus I_C for constant I_E
 - V_{CB} versus I_B for constant I_E
 - V_{CE} versus I_C for constant I_E
 - V_{CB} versus I_B for constant I_E
16. In which mode of BJT operation are both junction reverse biased
- active
 - saturation
 - cut off
 - revers active
17. In which mode of BJT operation are both junction forward biased
- active
 - saturation
 - cut off
 - reverse active
18. In a bipolar junction transistor the base region is made very thin so that
- recombination in base region is minimum
 - electric field gradient in base is high
 - base can be easily fabricated s
 - base can be easily biased

Answers

- | | | | |
|---------|---------|---------|---------|
| 1. (d) | 2. (a) | 3. (d) | 4. (b) |
| 5. (a) | 6. (d) | 7. (c) | 8. (c) |
| 9. (b) | 10. (b) | 11. (b) | 12. (d) |
| 13. (b) | 14. (a) | 15. (b) | 16. (c) |
| 17. (b) | 18. (a) | | |