

## (b) BJT CHARACTERISTICS

- In CE configuration the output V- I characteristics are drawn by taking
  - $V_{CE}$  vs.  $I_C$  for constant value of  $I_E$
  - $V_{CE}$  vs.  $I_C$  for constant value of  $I_B$
  - $V_{CE}$  vs.  $I_C$  for constant value of  $V_{CB}$
  - None of these
- In CE configuration the input V-I characteristics are drawn by taking
  - $V_{CE}$  vs.  $I_C$  for constant value of  $I_E$
  - $V_{BE}$  vs.  $I_E$  for constant value of  $V_{CE}$
  - $V_{BE}$  vs.  $I_B$  for constant value of  $I_C$
  - $V_{BE}$  vs.  $I_B$  for constant value of  $V_{CB}$
- The transistor is said to be in quiescent state when
  - it is unbiased
  - no current flows through it
  - no signal is applied to the input
  - emitter junction is just biased equal to collector junction
- In CB configuration, the output V- I characteristics of the transistor are drawn by taking
  - $V_{CB}$  vs.  $I_C$  for constant  $I_E$
  - $V_{CB}$  vs.  $I_B$  for constant  $I_E$
  - $V_{CB}$  vs.  $I_C$  for constant  $I_E$
  - $V_{CB}$  vs.  $I_B$  for constant  $I_E$
- When the collector junction in a transistor is biased in reverse direction and the emitter junction in the forward direction, the transistor is said to be is the
  - active region
  - cutoff region
  - saturation
  - none of them
- To avoid thermal runaway in the design of analog circuits, the operating point of the BJT should be such that it satisfies the condition
  - $V_{CE} = \frac{1}{2} V_{CC}$
  - $V_{CE} \leq \frac{1}{2} V_{CC}$
  - $V_{CE} > \frac{1}{2} V_{CC}$
  - $V_{CE} \leq 0.78 V_{CC}$

7. Thermal runaway will take place if the quiescent point is such that  
(a)  $V_{CE} > \frac{1}{2} V_{CC}$  (c)  $V_{CE} < 2V_{CC}$   
(b)  $V_{CE} < V_{CC}$  (d)  $V_{CE} < \frac{1}{2} V_{CC}$   
(UPSC Engg. Service 1999)
8. The power dissipated by a transistor approximately equals the collector current times  
(a) base emitter voltage (c) base supply voltage  
(b) collector emitter voltage (d) 0.7V
9. Leakage current in CE configuration is  
(a) very high (c) normal  
(b) very small (d) not present
10. The dc current gain in common collector configuration is given by  
(a)  $\alpha$  (c)  $\beta + 1$   
(b)  $\beta$  (d)  $\alpha + 1$

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### Answers

1. (b)            2. (d)            3. (c)            4. (a)  
5. (a)            6. (c)            7. (d)            8. (b)  
9. (a)            10. (c)

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