

## **TRANSISTORS Questions and Answers pdf :-**

**1. A transistor has .....**

- 1. one pn junction
- 2. two pn junctions
- 3. three pn junctions
- 4. four pn junctions

**ANS : 2**

**2. The number of depletion layers in a transistor is .....**

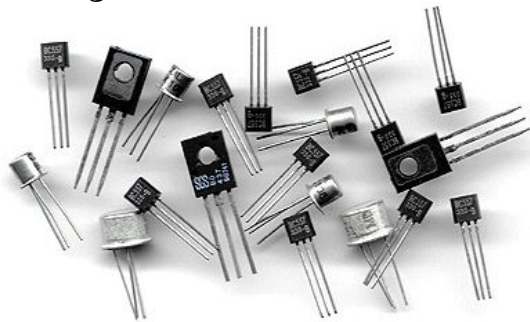
- four
- three
- one
- two

**ANS : 4**

**3. The base of a transistor is ..... doped**

- heavily
- moderately
- lightly
- none of the above

**ANS : 3**



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**4. The element that has the biggest size in a transistor is .....**

- collector
- base
- emitter
- collector-base-junction

**ANS : 1**

**5. In a pnp transistor, the current carriers are .....**

- acceptor ions
- donor ions
- free electrons
- holes

**ANS : 4**

**6. The collector of a transistor is ..... doped**

- heavily
- moderately
- lightly
- none of the above

**ANS : 2**

**7. A transistor is a ..... operated device**

current  
voltage  
both voltage and current  
none of the above

**ANS : 1**

**8. In a npn transistor, ..... are the minority carriers**

free electrons  
holes  
donor ions  
acceptor ions

**ANS : 2**

**9. The emitter of a transistor is ..... doped**

lightly  
heavily  
moderately  
none of the above

**ANS : 2**

**10. In a transistor, the base current is about ..... of emitter current**

25%  
20%  
35 %  
5%

**ANS : 4**

**11. At the base-emitter junctions of a transistor, one finds .....**

a reverse bias  
a wide depletion layer  
low resistance  
none of the above

**ANS : 3**

**12. The input impedance of a transistor is .....**

high  
low  
very high  
almost zero

**ANS : 2**

**13. Most of the majority carriers from the emitter .....**

recombine in the base  
recombine in the emitter  
pass through the base region to the collector  
none of the above

**ANS :3**

**14. The current  $I_B$  is .....**

electron current  
hole current  
donor ion current  
acceptor ion current

**ANS : 1**

**15. In a transistor .....**

$$I_C = I_E + I_B$$

$$I_B = I_C + I_E$$

$$I_E = I_C - I_B$$

$$I_E = I_C + I_B$$

**ANS : 4**

**16. The value of  $\alpha$  of a transistor is .....**

more than 1

less than 1

1

none of the above

**ANS : 2**

**17.  $I_C = \alpha I_E + \dots\dots\dots$**

$I_B$

$I_{CEO}$

$I_{CBO}$

$\beta I_B$

**ANS : 3**

**18. The output impedance of a transistor is .....**

high

zero

low

very low

**ANS : 1**

**19. In a transistor,  $I_C = 100$  mA and  $I_E = 100.2$  mA. The value of  $\beta$  is .....**

100

50

about 1

200

**ANS : 4**

**20. In a transistor if  $\beta = 100$  and collector current is 10 mA, then  $I_E$  is .....**

100 mA

100.1 mA

110 mA

none of the above

**ANS : 2**

**21. The relation between  $\beta$  and  $\alpha$  is .....**

$\beta = 1 / (1 - \alpha)$

$\beta = (1 - \alpha) / \alpha$

$\beta = \alpha / (1 - \alpha)$

$\beta = \alpha / (1 + \alpha)$

**ANS : 3**

**22. The value of  $\beta$  for a transistor is generally .....**

1

less than 1

between 20 and 500

above 500

**ANS : 3**

**23. The most commonly used transistor arrangement is .....**  
**arrangement**

common emitter

common base

common collector

none of the above

**ANS : 1**

**24. The input impedance of a transistor connected in .....**  
**arrangement is the highest**

common emitter

common collector

common base

none of the above

**ANS : 2**

**25. The output impedance of a transistor connected in .....**  
**arrangement is the highest**

common emitter

common collector

common base

none of the above

**ANS : 3**

**26. The phase difference between the input and output voltages in a**  
**common base arrangement is .....**

1800

900

2700

00

**ANS : 4**

**27. The power gain in a transistor connected in .....**  
**arrangement is the highest**

common emitter

common base

common collector

none of the above

**ANS : 1**

**28. The phase difference between the input and output voltages of a**  
**transistor connected in common emitter arrangement is .....**

00

1800

900

2700

**ANS : 2**

**29. The voltage gain in a transistor connected in .....**  
**arrangement is the highest**

common base  
common collector  
common emitter  
none of the above

**ANS : 3**

**30. As the temperature of a transistor goes up, the base-emitter resistance .....**

decreases  
increases  
remains the same  
none of the above

**ANS : 1**

**31. The voltage gain of a transistor connected in common collector arrangement is .....**

equal to 1  
more than 10  
more than 100  
less than 1

**ANS : 4**

**32. The phase difference between the input and output voltages of a transistor connected in common collector arrangement is .....**

180°  
0°  
90°  
270°

**ANS : 2**

**33.  $I_C = \beta I_B + \dots\dots\dots$**

$I_{CBO}$   
 $I_C$   
 $I_{CEO}$   
 $\alpha I_E$

**ANS : 3**

**34.  $I_C = [\alpha / (1 - \alpha)] I_B + \dots\dots\dots$**

$I_{CEO}$   
 $I_{CBO}$   
 $I_C$   
 $(1 - \alpha) I_B$

**ANS : 1**

**35.  $I_C = [\alpha / (1 - \alpha)] I_B + [\dots\dots\dots / (1 - \alpha)]$**

$I_{CBO}$   
 $I_{CEO}$   
 $I_C$   
 $I_E$

**ANS : 1**

**36. BC 147 transistor indicates that it is made of .....**

germanium  
silicon  
carbon

none of the above

**ANS : 2**

**37.  $I_{CEO} = (\dots\dots\dots) I_{CBO}$**

$\beta$

$1 + \alpha$

$1 + \beta$

none of the above

**ANS : 3**

**38. A transistor is connected in CB mode. If it is not connected in CE mode with same bias voltages, the values of  $I_E$ ,  $I_B$  and  $I_C$  will .....**

remain the same

increase

decrease

none of the above

**ANS : 1**

**39. If the value of  $\alpha$  is 0.9, then value of  $\beta$  is .....**

9

0.9

900

90

**ANS : 4**

**40. In a transistor, signal is transferred from a ..... circuit**

high resistance to low resistance

low resistance to high resistance

high resistance to high resistance

low resistance to low resistance

**ANS : 2**

**41. The arrow in the symbol of a transistor indicates the direction of .....**

electron current in the emitter

electron current in the collector

hole current in the emitter

donor ion current

**ANS : 3**

**42. The leakage current in CE arrangement is ..... that in CB arrangement**

more than

less than

the same as

none of the above

**ANS : 1**

**43. A heat sink is generally used with a transistor to .....**

increase the forward current

decrease the forward current

compensate for excessive doping

prevent excessive temperature rise

**ANS : 4**

**44. The most commonly used semiconductor in the manufacture of a transistor is .....**

germanium  
silicon  
carbon  
none of the above

**ANS : 2**

**45. The collector-base junction in a transistor has .....**

forward bias at all times  
reverse bias at all times  
low resistance  
none of the above

**ANS : 2**