

**QUESTION BANK**  
On  
**ANALOG ELECTRONICS**



Course code: Th4

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Chapter-1  
Multiple Choice Questions (MCQs)

- No. 1 A semiconductor is formed by \_\_\_\_\_ bonds  
a)  Covalent      b)  Electrovalent  
c)  Co-ordinate      d)  both (b) and (c)
- No. 2 A semiconductor has generally \_\_\_\_\_ valence electrons  
a)  2      b)  3      c)  6      d)  4
- No. 3 The most commonly used semiconductor is \_\_\_\_\_  
a)  Germanium      b)  Silicon  
c)  Carbon      d)  Sulphure
- No. 4 A semiconductor has \_\_\_\_\_ temperature  
co-efficient of resistance -  
a)  positive      b)  zero      c)  negative      d)  None of these
- No. 5 The strength of a semiconductor crystal comes  
from \_\_\_\_\_  
a)  forces between nuclei  
b)  forces between protons  
c)  Electron-pair bonds  
d)  None of the above
- No. 6 When a pure semiconductor is heated, its resistance \_\_\_\_\_  
a)  Goes up      b)  Goes down  
c)  Remains same      d)  can't say

No. 7 When a pentavalent impurity is added to a pure semiconductor, it becomes \_\_\_\_\_

- a) An insulator    b) An intrinsic semiconductor  
c) p-type semiconductor     d) n-type semiconductor

No. 8 Addition of pentavalent impurity to a semiconductor creates many \_\_\_\_\_

- a) Free electrons    b) holes  
c) valence electrons    d) Bound electrons

No. 9 A pentavalent impurity has \_\_\_\_\_ valence electrons.

- a) 3     b) 5    c) 4    d) 6

No. 10 An n-type semiconductor is \_\_\_\_\_

- a) positively charged  
b) Negatively charged  
 c) Electrically neutral  
d) None of the above

No. 11 A trivalent impurity has \_\_\_\_\_ valence electrons.

- a) 4    b) 5    c) 6     d) 3

No. 12 Addition of trivalent impurity to a semiconductor creates many \_\_\_\_\_

- a) holes    b) free electrons  
c) valence electrons    d) bound electrons

No. 13 A hole in a semiconductor is defined as

- a) a free electron     b) The incomplete part of an electron pair bond  
c) A free proton    d) A free neutron

No. 14 The impurity level in an extrinsic semiconductor is about \_\_\_\_\_ of pure semiconductor.

- a) 10 atoms for  $10^8$  atoms
- b) 1 atom for  $10^8$  atoms
- c) 1 atom for  $10^9$  atoms
- d) 1 atom for 100 atoms

No. 15 As the doping to a pure semiconductor increases, the bulk resistance of the semiconductor \_\_\_\_\_.

- a) Remains the same
- b) Increases
- c) Decreases
- d) None of the above

No. 16 A hole and an electron in close proximity would tend to \_\_\_\_\_.

- a) Repel each other
- b) Attract each other
- c) Have no effect on each other
- d) None of the above

No. 17 In a semiconductor, current conduction is due to \_\_\_\_\_.

- a) only holes
- b) only free electrons
- c) holes and free electrons
- d) None of the above

No. 18 In an intrinsic semiconductor, the number of free electrons \_\_\_\_\_

- a) equals the number of holes
- b) is greater than the number of holes
- c) is less than the number of holes
- d) None of the above.

No. 19 At room temperature, an intrinsic semiconductor has \_\_\_\_\_.

- a) many holes only
- b) A few free electrons and holes
- c) Many free electrons only
- d) No holes or free electrons.

No. 20 At room temperature, an intrinsic silicon crystal acts approximately as \_\_\_\_\_

- a) a battery
- b) a conductor
- c) an insulator
- d) a piece of copper wire

No. 21 One electron volt is equal to

- a)  $1.60 \times 10^{-19}$
- b)  $9.11 \times 10^{-11}$
- c)  $19.40 \times 10^{-10}$
- d)  $1.16 \times 10^{-19}$

No. 22 \_\_\_\_\_ is an example of acceptor material.

- a) Gallium                      b) Arsenide  
c) Bismuth                     d) Antimony

No. 23 A crystal diode has \_\_\_\_\_

- a) one pn junction            b) two pn junctions  
c) three pn junctions        d) four pn junctions

No. 24 A crystal diode has forward resistance of the order of \_\_\_\_\_

- a) ~~forward~~  $k\Omega$             b) ~~reverse~~  $\Omega$   
c) ~~either forward~~  $M\Omega$       d) None of the above

No. 25 If the arrow of a crystal diode has forward ~~resist~~ symbol is positive w.r.t. bar, then diode is \_\_\_\_\_ based.

- a) forward            b) reverse            c) either forward or reverse            d) None of these

No. 26 The forward voltage drop across a silicon diode is about \_\_\_\_\_

- a)  $2.5V$             b)  $3V$             c)  $10V$             d)  $0.7V$

No. 27 The reverse current in a diode is of the order of \_\_\_\_\_

- a)  $KA$             b)  $MA$             c)  $\mu A$             d)  $A$

No. 28 A crystal diode is used as \_\_\_\_\_

- a) an amplifier            b) rectifier  
c) an oscillator            d) a voltage regulator.

No. 29 A crystal diode is a \_\_\_\_\_ device.

- a) non-linear
- b) bilateral
- c) linear
- d) none of the above.

No. 30 The knee voltage of a crystal diode is approximately  
by equal to \_\_\_\_\_.

- a) applied voltage
- b) breakdown voltage.
- c) forward voltage
- d) none of the above barrier potential.

No. 31 An ideal crystal diode is one which behaves  
as a perfect \_\_\_\_\_ when forward biased.

- a) Conductor
- b) insulator
- c) resistance material
- d) None of these

No. 32 The dc resistance of a crystal diode is \_\_\_\_\_  
its ac resistance.

- a) the same as
- b) more than
- c) less than
- d) None of these.

No. 33 The leakage current in a crystal diode is  
due to \_\_\_\_\_.

- a) minority carriers
- b) majority carriers.
- c) junction capacitance
- d) none of the above.