

OBJECTIVE TYPE QUESTIONS

Q2. Give short Answers.

1. Define electronics.

Answer

Electronics is that branch of Physics in which different types of work can be done performed by controlling the flow of electrons.

2. Name two main branches of electronics.

Answer

Two main branches of electronics are:

- Analogue electronics
- Digital electronics

3. What is amplifier?

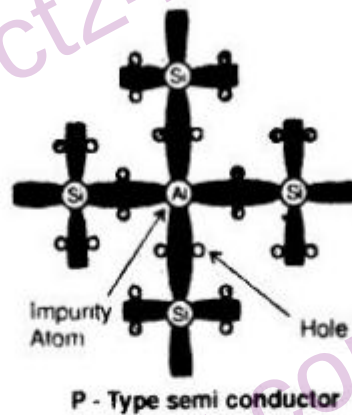
Answer

Amplifier is an analogue circuit. Which amplifies the signal without changing its shape to such an extent that it can operate a loudspeaker.

4. What is p-type substance?

Answer

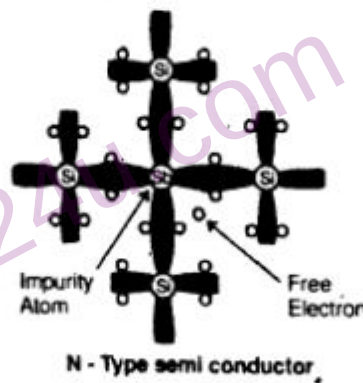
A single crystal of Ge or Si formed after the addition of an Impurity atom of a trivalent substance is called p-type substance



5. What is n—type substance?

Answer

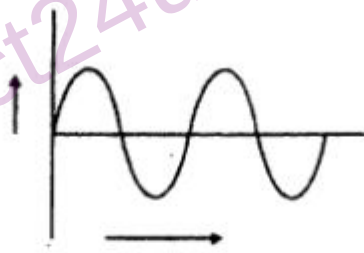
A single crystal of Ge or Si formed after the addition of an impurity atom of a pentavalent substance is called n-type substance. '



6. Define analogue quantities.

Answer

Those quantities, which increase or decrease continuously with time or remain constant are known as analogue quantities.



7. Give some examples of analogue quantities.

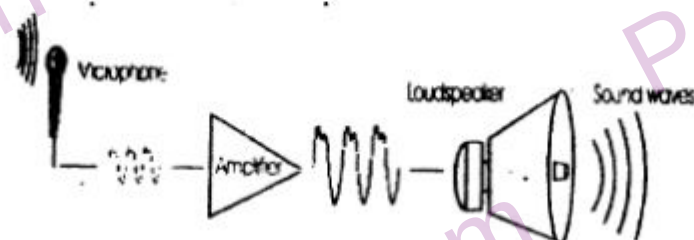
Answer

Temperature, time, pressure, distance etc.

8. What is public address system?

Answer

The public address system is an analogue system in which the microphone converts sound into a continuously varying electric potential. This potential is an analogue signal. Which is fed to an amplifier, which is analogue circuit. It amplifies the signal and a loud sound is produced out of the speaker.



9. What is analogue electronics?

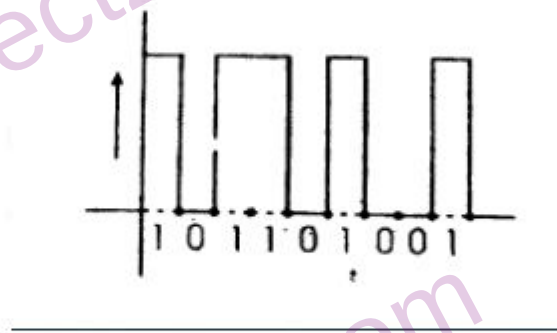
Answer

The part of electronics consisting of such circuits which process analogue quantities is called analogue electronics.

10. What is digital electronics?

Answer

The branch of electronics, which processes the data being provided in the form of digits, is known as digital electronics.



11. Differentiate between ADC and DAC.

Answer

The circuit, which converts the analogue signal into digital signal one in the form of digits, is called analogue to digital converter (ADC).

The digital output is converted into analogue form by a circuit known as digital to analogue converted (DAC).

12. Name the areas where digital technology is applied.

Answer

Modern telephone system, radar system, naval and other systems of military importance, devices to control the operation of industrial machines, medical equipment and many household appliances are all using digital technology.

13. What are conductors?

Answer

The substances through which electric current flow easily are called conductors.

Examples: gold, silver, copper.

14. Why conductors conduct electricity?

Answer

In conductors' free electrons are present in very large numbers due to which electric current can easily flow through them.

15. What are insulators?

Answer

These are the substances through which electric current does not flow.

Examples: mica, plastic, rubber, glass etc..

16. Why electric current does not flow through insulators?

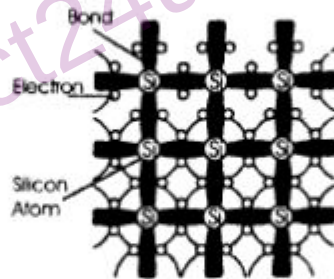
Answer

In insulators, all the electrons are bound with their respective atoms and cannot move freely. It is because of this reason that the electric current does not flow through them.

17. What are semi-conductors?

Answer

These are the substances, whose ability to conduct current at room temperature lies midway between conductors and insulators.

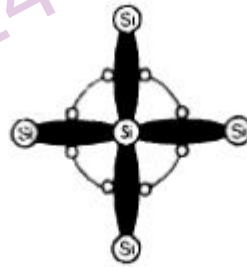


Examples: Ge and Si

18. How the crystal of Ge and Si behave as an insulator?

Answer

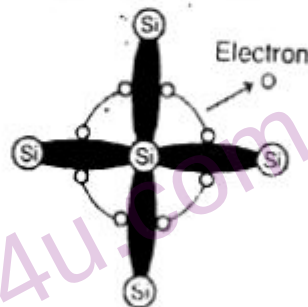
All the valence electrons present in crystals of Ge or Si are bound in their orbits by covalent bonds and no free electrons are available for the flow of electric current. So a crystal of Ge or Si in its purest form behaves as an insulator.



19. How the crystal Ge and Si behave as a conductor?

Answer

At ordinary temperature, the electrons have a kinetic motion due to thermal kinetic energy. The motion of some of the electrons is so vigorous that the covalent bonds are unable to keep them in their orbits. Such electrons break their

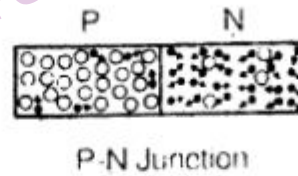


covalent bonds and create the electron-hole pairs. This motion becomes a mean of flow of current.

20. What is p-n junction?

Answer

When p-type and n-type substances are joined together the new arrangement is called p-n Junction. it is also called a semi-conductor diode.



21. How p—n junction is formed?

Answer

If a crystal of Si or Ge is doped in such a way that its one part becomes n-type and the other p-type and then p-n junction would be formed in between.

22. What are the majority charge carriers in p-n junction?

Answer

- In p-type region. There are free electrons as majority charge carriers;
- In n-type region. There are holes as majority charge carriers.

23. What is the net charge on the p-type and n-type substance?

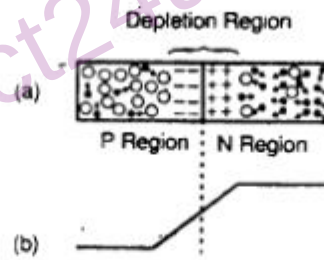
Answer

The net charge on p—type or n-type substance is zero.

24. What is depletion region?

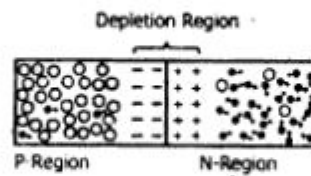
Answer

The region of the layers of positive and negative ions across the junction does not contain free electrons or holes so it is called as depletion region.



25. Draw the circuit diagram of p-n junction to depletion region.

Answer



26. What is potential barrier?

Answer

A potential difference at the common boundary of a p-n junction due to movement of electrons from n-type substance and the holes from the p-type substance is called potential barrier.

27. What is meant by doping?

Answer

The process by which impurity is added to pure semi-conductor is called doping.

28. Name the types of impurity added to crystals.

Answer

The impurities added to crystals are of two types:

- 1) n-type semi-conductor
- 2) p-type semi-conductor

29. What is the effect on the conductivity of a semi-conductor?

Answer

A semi-conductor in its purest form is not a good conductor. Doping increases the conductivity of a semi-conductor.

30. Name some trivalent impurities.

Answer

- The trivalent impurities are Aluminium, Boron, and Gallium etc..
- The trivalent impurity increases the number of holes in pure crystal.

31. Name some pentavalent impurities.

Answer

- The pentavalent impurities are Arsenic, Bismuth and Antimony etc..
- The pentavalent impurity increases the number of free electrons in pure crystal.

32. What is meant by biasing?

Answer

The application of some electric potential across the diode is known as biasing.

33. What is potential barrier of Ge and Si?

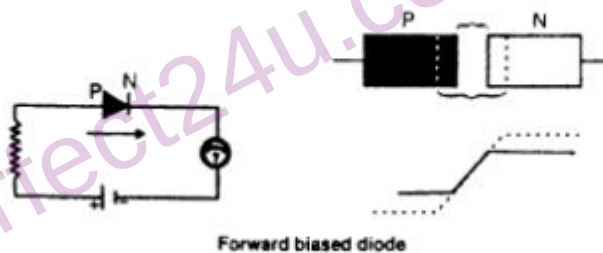
Answer

- The value of potential barrier for Ge is 0.3 V.
- The value of potential barrier for Si is 0.7 V.

34. What do you mean by forward biasing?

Answer

When p-type-substance is connected to the positive terminal and 'n-type substance is connected to the negative terminal of a battery, then p-n junction

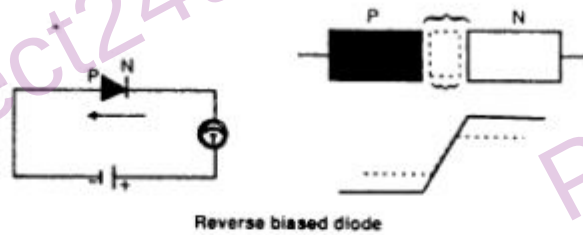


is said to be forward biased.

35. What do you mean by reverse biasing?

Answer

When p-type substance is connected to the negative terminal and n-type substance is connected to the positive terminal of a battery then p-n junction is

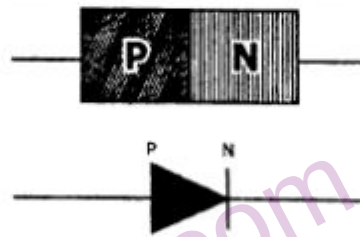


said to be reverse biased.

36. Draw the symbolic representation of p-n junction?

Answer

The p-n junction is represented by the following symbol.



37. What are holes?

Answer

The vacant space for an electron in the orbit is known as hole.

38. Why current does not pass through a reverse biased diode?

Answer

Since the width of depletion region in reverse biased diode is increased due to which the potential barrier becomes so high that the charge carriers are unable to overcome it.

Hence no current passes through this junction.

39. What is rectification?

Answer

The process of converting an alternating current to direct current is called rectification.

Semi-conductor diodes are used for this purpose.

40. Name the types of rectification.

Answer

There are two types of rectification:

- Half-wave rectification.
- Full-wave rectification.

41. How many diodes are used in half—wave rectification?

Answer

'A single diode can be used for half—wave rectification of A.C.

42. The Si junction diode is preferred to Ge for rectification. Why?

Answer

As rectifiers, Si junction diodes are preferred to Ge type because:

- Si diodes have much lower reverse current.
- Si also has a higher breakdown voltage:

43. What is transistor?

Answer.

A transistor is a three terminal electronic device. it consists of two p-n junctions.

44. How transistor is formed?

Answer

The transistor is formed by combined effect of n-type and p-type substances. in such a way that the central substance is sandwiched by an opposite substance at the either ends.

45. Name the types of a transistor.

Answer

There are two types of transistors:

- 1) p-n-p transistor
- 2) n-p-n transistor

46. What is a p—n-p transistor?

Answer

The central region is n-type, which is sandwiched between two p—type regions, then this type of transistor is called p-n-p transistor.

47. What is a n-p—n transistor?

Answer

The central region is p-type which is sandwiched between two n-type regions, then this type of transistor is called n-p-n transistor.

48. What are the main components of a transistor?

Answer

There are three main components of a transistor:

- Base
- Emitter
- Collector

49. What is the main function of a base of a transistor?

Answer

The central region is known as base.

The base is very thin.

The base has less concentration of impurity as compared to emitter and collector.

50. What the main function of emitter?

Answer -

- The region on one side of base is called emitter.
- The emitter has greater concentration of impurity as compared to collector.
- The collector is comparatively smaller than the emitter.

u.com

Perfect24u.com

Perfect24u

u.com

Perfect24u.com

Perfect24u

u.com

Perfect24u.com

Perfect24u

u.com

Perfect24u.com

Perfect24u

com

www.Perfect24u.com