

TWO mark questions with answers

1. What is an energy band?

The range of energies possessed by an electron in a solid is known as energy band.

2. What is a valence band?

The energy band occupied by the valence electrons are called valence band. It may be completely filled or partially filled with electrons but can never be empty.

3. What is a conduction band?

The electrons which have left from the valence band are called conduction electrons. The energy band occupied by these conduction electrons are called conduction band. It may be empty or partially filled with electrons but can never be completely filled.

4. What is a forbidden energy gap?

The valence band and the conduction band are separated by a gap is known as forbidden energy gap.

5. What is intrinsic semiconductor?

A semiconductor is an extremely pure form is known as intrinsic semiconductor.

(OR)

At higher temperature, the conductivity of semiconductor increases. These substances are known as Intrinsic (pure form) semiconductor

6. What is extrinsic semiconductor?

A semiconductor is an extremely impure form is known as extrinsic semiconductor.

7. What are conductors? Give examples.

The material which have plenty of free electrons and in which these electrons can move easily from one atom to another atom are called conductors.

Examples: Silver, copper.

8. What are insulators? Give examples.

The material which have few free electrons and in which electrons are tightly bound to the nucleus are called insulators.

Examples: Glass, Mica, Plastic.

9. What are semiconductors? Give examples.

The material whose resistivity lies between that of good conductors and insulators are called semiconductors.

Examples: Germanium, Silicon.

10. What is Zener diode?

A Zener diode is a silicon junction diode which is operated under reverse bias condition.

11. What is tunnel diode?

A tunnel diode is a pn junction that exhibits negative resistance between two values of forward voltage (ie., between Peak point voltage and valley point voltage).

12. What are the two types of semiconductors?

- N-type semiconductor
- P-type semiconductor

13. What is N-type semiconductor?

When a small amount of pentavalent impurity atoms (**Phosphorus ,arsenic**) are added to a pure semiconductor ,it is called N-type semiconductor.

14. What is P-type semiconductor?

When a small amount of trivalent impurity atoms (**gallium ,indium**)are added to a pure semiconductor ,it is called P-type semiconductor.

15. What is called doping?

The process of adding impurities to a semiconductor is called doping.

16. Define Fermi level.

Fermi level is defined as the uppermost filled energy level in a conductor at zero Kelvin (0K).

17. Define Fermi energy.

Fermi energy is defined as the maximum energy that an electron can have in a conductor at zero Kelvin (0K).

18. What is a transistor?

A transistor consists of two pn junctions formed by sandwiching either p- type or n- type semiconductor between a pair of opposite types.

19. What are the two types of transistors?

- PNP transistor
- NPN transistor.

20. What are the three regions of a transistor?

The three regions of a transistor is as follows

- Emitter
- Base
- Collector.

21. What are the basic circuit configurations (Connections) of a transistor?

- Common emitter configuration
- Common base configuration
- Common collector configuration.

22. Hall effect.

If a metal (or) a semiconductor carrying a current is placed in a transverse magnetic field B , a potential difference in the direction normal to both the current and magnetic field directions. This phenomenon is called Hall effect.

23. Mention any two applications of Hall effect

- Determine the sign of charge carriers.
- Determine the charge carrier concentration.

24. What are hybrid parameters?

Every linear circuit having input and output terminals can be analysed by four parameters (one measured in ohm, (one measured in mho and two dimensionless) called hybrid or h- parameters.

25. What is a FET?

A FET (Field Effect Transistor) is a three terminal unipolar semiconductor device in which current conduction is by one type of carrier (i.e) electrons or holes.

26. Types of FET

- JFET (Junction Field Effect Transistor)
- MOSFET (Metal Oxide Semiconductor Field Effect Transistor).

27. What is the expansion of LASER?

Light Amplification by Stimulated Emission of Radiation.

28. What is the expansion of MASER?

Microwave Amplification by Stimulated Emission of Radiation.

29. What is population inversion?

For laser action, the number of atoms in the higher energy state should be larger. So more atoms have to be pumped from lower energy state to higher energy state is called population inversion.

30. What is pumping in Laser?

The operation leading to population inversion is called pumping.

31. What is spontaneous emission?

It is the process of photon emission takes place immediately without any inducement during the transition of atoms from higher energy levels to lower energy levels and emits a quantised amount of energy in the form of photon.

32. What is spontaneous emission?

It is the process of photon emission takes place immediately by an inducement given by another photon incident on the atoms in higher energy levels. The energy of the photon emitted is equal to the energy of the photon incident.

33. What is photo diode?

A photo diode is a reverse biased silicon or germanium pn junction in which reverse current increases when the junction is exposed to light.

34. What is LED?

A light emitting diode is a diode that gives off visible light when forward biased.

35. Operational amplifier

An Operational amplifier is a high gain direct coupled amplifier with high input impedance and low output impedance to which feedback is added to regulate overall response.

36. Slew rate

It is defined as the maximum rate of change in output voltage per unit of time.

37. CMRR(Common Mode Rejection Ratio)

It is defined as the ratio of the differential voltage gain to the common voltage gain.

