

QUESTIONS FROM COMPETITIVE EXAMS

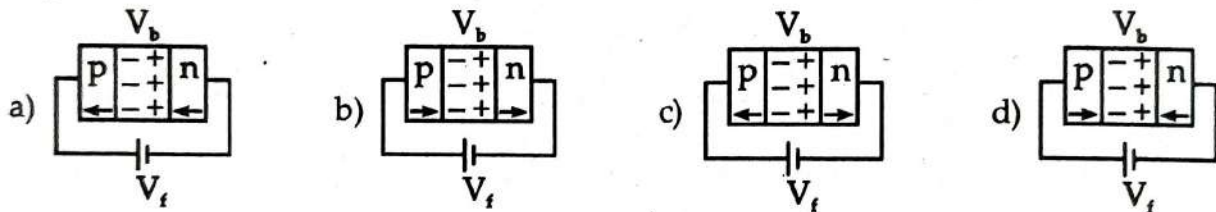
10.1 Introduction

(MHT-CET 2002)

1. A p-n junction diode is said to be forward biased, when a potential difference is applied across p and n-regions and making
 - a) p region positive and n region negative
 - b) making p region negative and n region positive
 - c) both p and n regions positive
 - d) both p and n regions negative
2. What is the process of introduction of impurity in semiconductor ?
 - a) Drooping
 - b) Doubling
 - c) Doping
 - d) Duping
3. Bond in n and p-type semiconductors is
 - a) covalent
 - b) ionic
 - c) metallic bond
 - d) co-ordinate bond

(MHT-CET 2003)

4. In the case of forward biasing of p-n junction, which one of the following figures correctly depicts the direction of flow of carriers ?



(MHT-ECET 2004)

5. p-type semiconductor and n-type semiconductor are formed by
 - a) metallic ions
 - b) molecular solids
 - c) covalent solids
 - d) ionic solids
6. To obtain n-type semiconductor, the impurity introduced is
 - a) Arsenic
 - b) Aluminium
 - c) Silicon
 - d) Indium

(MHT-CET 2007)

7. Increase in temperature of a semiconductor will
 - a) increase the conductivity
 - b) decrease the conductivity
 - c) not affect the conductivity
 - d) reduce the conductivity to zero

(MHT-CET 2008)

8. Which of the following is used as acceptor type impurity ?
 - a) antimony
 - b) arsenic
 - c) boron
 - d) phosphorus

(MHT-CET 2009)

9. The energy band gap (difference between conduction band and valence band) is
 - a) 0 eV
 - b) 1 eV
 - c) 5 eV
 - d) none of these

(MHT-CET 2012)

10. In an insulator
 - a) the valence band is partially filled with electrons
 - b) conduction band is partially filled with electrons
 - c) conduction band is empty and the valence band is filled with electrons
 - d) conduction band is filled with electrons and valence band is empty

10.2 p-n Junction Diode as a Rectifier

(MHT-CET 2003)

11. In a half-wave rectifier the r.m.s. value of A.C. component of the wave is
- a) less than zero
 - b) less than D.C. Value
 - c) equal to D.C. value
 - d) greater than D.C. value

(MHT-CET 2005)

12. Frequency of given ac signal is 50 Hz. When it is connected to half wave rectifier, number of output pulses given by rectifier within one second are
- a) 50
 - b) 25
 - c) 100
 - d) 150

(MHT-CET 2007)

13. A half-wave rectifier is being used to rectify an alternating voltage of frequency 50 Hz. The number of pulses of rectified voltage obtained in one second is
- a) 20
 - b) 30
 - c) 50
 - d) 150
14. Rectifier is used to
- a) convert dc to ac
 - b) amplify a weak signal
 - c) convert ac to dc
 - d) generate intermittent voltage

(MHT-CET 2011)

15. In reverse bias pn-junction diode, depletion layer width
- a) decreases
 - b) increases
 - c) remains constant
 - d) cannot be predicted

(MH-CET 2018)

16. With forward biased mode, the p-n junction diode
- a) is one in which width of depletion layer increases
 - b) is one in which potential barrier increases
 - c) acts as closed switch
 - d) acts as open switch

(MHT-CET 2021)

17. A rectifier is used to
- a) convert a.c. to d.c.
 - b) amplify a weak signal
 - c) generate intermittent voltage
 - d) convert d.c. to a.c.

10.3 Special Purpose Junction Diodes**Zener Diode**

(MHT-CET 2006)

18. Zener diode is used for
- a) rectification of voltage
 - b) stabilisation of voltage
 - c) amplification of current
 - d) producing electromagnetic oscillation

(MHT-CET 2009)

19. Zener breakdown occurs only when
- a) it is lightly doped
 - b) the temperature is increased
 - c) it is forward biased
 - d) it is reverse biased

(MHT-CET 2010)

20. LED is a pn junction diode which is
- forward biased
 - either forward biased or reverse biased
 - reverse biased
 - neither forward biased nor reverse biased

Photo Diode

(MHT-CET 2008)

21. A pn junction diode in which light is allowed to fall on its junction is
- zener diode
 - LED
 - solar cell
 - photo diode

(MH-CET 2017)

22. Photodiode is a device
- which is always operated in reverse bias
 - which is always operated in forward bias
 - in which photo current is independent of intensity of incident radiation
 - which may be operated in forward or reverse bias

LED & Solar Cell

(MHT-CET 2011)

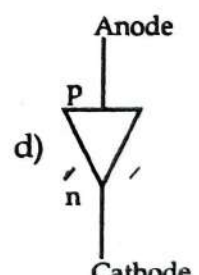
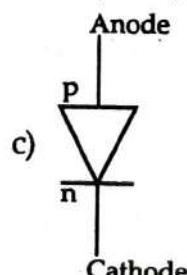
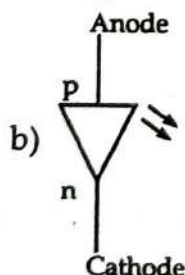
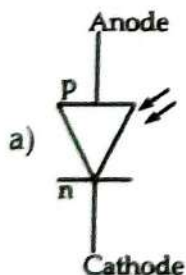
23. An LED is a
- forward biased p-n junction diode
 - reverse biased p-n junction diode
 - photodiode
 - pin diode

(MHT-CET 2012)

24. A solar cell works on the principle of
- photoelectricity
 - photographic camera
 - photovoltaic conversion
 - photosynthesis

(MH-CET 2016)

25. The schematic symbol of light emitting diode is (LED)



(MHT-CET 2020)

26. Photodiode is a device
- in which photo current is dependent on the reverse bias
 - which is always operated in forward bias
 - which is always operated in reverse bias
 - in which photo current is independent of incident radiation
27. In light emitting diode (LED), light is given out due to
- emission of holes and electrons
 - recombination of holes and electrons
 - diffusion of holes
 - drifting of electrons

(MHT-CET 2022)

28. For detecting light intensity we use
- photodiode in forward bias.
 - LED in forward bias.
 - photodiode in reverse bias.
 - curved path of electron and proton will be same. (Neglect sense of revolution)

10.4 Bipolar Junction Transistor

(MHT-CET 2001)

29. In the working of n-p-n transistor, the number of free electrons which recombine with holes in the base layer is about
- 97 % of the number injected into the base
 - 50 % of the number injected into the base
 - 3 % of the number injected into the base
 - 25 % of the number injected into the base

(MHT-CET 2002)

30. In a p-n junction, number of junctions is
- 1
 - 0
 - 2
 - 4
31. The carriers in base region of a p-n-p transistor are
- minority carriers
 - majority carriers
 - both 'a' and 'b'
 - electrons

(MHT-CET 2003)

32. In common emitter amplifier, the emitter base junction is
- forward bias
 - reverse bias
 - insulator
 - none of these

(MHT-CET 2005)

33. What is amount of doping in transistor ?
- Emitter is moderately doped, collector is heavily doped and base is lightly doped
 - Emitter is moderately doped, collector is lightly doped and base is heavily doped
 - Emitter is heavily doped, collector is lightly doped and base is moderately doped
 - Emitter is heavily doped, collector is moderately doped and base is lightly doped

(MHT-CET 2006)

34. Emitter base and collector base junctions in n-p-n transistor are
- forward biased and reverse biased respectively
 - reverse biased and forward biased respectively
 - both forward biased
 - both reverse biased

(MHT-CET 2007)

35. The emitter of a transistor is doped the heaviest, because it
- receives the input
 - is supplier of charge carriers
 - dissipates minimum power
 - should have low resistance

(MHT-CET 2007)

36. How many electrodes are there in a transistor ?
- 2
 - 3
 - 4
 - 5

(MHT-CET 2008)

37. In p-n-p transistor, what can the n terminal act as ?
- collector only
 - emitter only
 - base only
 - either collector or emitter