

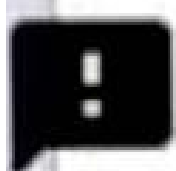
Blank Quiz

Your email address (**ta1247@srmist.edu.in**) will be recorded when you submit this form.
Not you? [Switch account](#)

1. At 0K, the pure semiconductor acts as a perfect insulator, since the _____ bonds are strong and no free electrons are available. 1 point

- ☐ a. Covalent
- ☐ b. Ionic
- ☐ c. Metallic
- ☐ d. Sigma

2. When $T = 0K$, the Fermi energy (E_F) of intrinsic semiconductor is equal to 1 point



2. When $T = 0K$, the Fermi energy (E_F) of intrinsic semiconductor is equal to _____ 1 point

- ☐ a. $E_V/2$
- ☐ b. $E_C/2$
- ☐ c. $E_V + E_C/2$
- ☐ d. $E_V - E_C/2$

3. The electrical conductivity of intrinsic semiconductor is equal to _____ 1 point

- ☐ a. $\sigma = n e e \mu_e + n h e \mu_h$
- ☐ b. $\sigma = n e e \mu_e / 2$
- ☐ c. $\sigma = n h e \mu_h / 2$
- ☐ d. $\sigma = n i e (\mu_e - \mu_h)$

4. The Fermi level of n-type semiconductor _____ with increase in temperature. 1 point

4. The Fermi level of n-type semiconductor _____ with increase in temperature.

1 point



9:05 PM

8:56

◀ Classroom



docs.google.com

semiconductor _____ with increase in temperature.

- ☐ a. Decreases
- ☐ b. Increases
- ☐ c. remains unchanged
- ☐ d. becomes zero

5. When silicon is mixed with an amount of pentavalent impurity elements _____ semiconductor crystal is formed.

1 point

- ☐ a. Pure
- ☐ b. p-type
- ☐ c. n-type
- ☐ d. Dilute magnetic

6. In n-type semiconductor, the donor level is so close to the bottom of the _____.

1 point

- ☐ a. Valence band
- ☐ b. Conduction band
- ☐ c. Bottom of valence band
- ☐ d. Top of conduction band

7. At relatively low temperatures, the _____ atoms get ionized taking electrons from the valence bond and thus giving to holes in the valence bond for conduction

1 point

- ☐ a. Donor
- ☐ b. Divalent
- ☐ c. Acceptor
- ☐ d. Pentavalent

8. The majority charge carriers in p-type semiconductor is

1 point

8. The majority charge carriers in p-type semiconductor is _____ 1 point

- ☐ a. Electrons
- ☐ b. Both electrons and holes
- ☐ c. Neutrons
- ☐ d. Holes

9. When $T = 0K$, the Fermi energy (E_F) of p-type semiconductor is equal to _____ 1 point

- ☐ a. $E_F/2$
- ☐ b. $E_V + E_a/2$
- ☐ c. $E_a/2$
- ☐ d. $E_V/2$

10. . _____ is a process by which electrons gain energy and move from the valence band to the conduction band, producing _____ 1 point

9:05 PM

10. . _____ is a process by which electrons gain energy and move from the valence band to the conduction band, producing two mobile carriers. 1 point

- ☐ a. Carrier recombination
- ☐ b. Spontaneous emission
- ☐ c. Stimulated emission
- ☐ d. Carrier generation

11. In _____ generation process, an electron and a hole recombine in a band-to-band transition, but the resulting energy is given off to another electron or hole. 1 point

- ☐ a. Auger
- ☐ b. band to band
- ☐ c. Impurity to band
- ☐ d. None of above



12. Impact ionization process is caused by avalanche multiplication in semiconductor diodes under high _____ bias. 1 point

- ☐ a. Forward
- ☐ b. Reverse
- ☐ c. Positive
- ☐ d. Negative

13. The random motion of holes and free electrons due to thermal agitation is called 1 point

- ☐ a. Diffusion
- ☐ b. Pressure
- ☐ c. Ionisation
- ☐ d. Drift



14. A p-type semiconductor material is doped with impurities whereas an n-type semiconductor material is doped with impurities.

1 point

- ☐ a. Acceptor, Donor
- ☐ b. Acceptor, Acceptor
- ☐ c. Donor, Donor
- ☐ d. Donor, Acceptor

15. Which of the below-mentioned statements is false regarding a p-n junction diode?

1 point

- ☐ a. Diode are uncontrolled devices
- ☐ b. Diodes are rectifying devices
- ☐ c. Diodes are unidirectional devices
- ☐ d. Diodes have three terminals

! 16.. When a physical contact between a ~~p-region~~ & n-region is

1 point

16.. When a physical contact

1 point

between a p-region & n-region is established which of the following is most likely to take place?

- ☐ a. Electrons from N-region diffuse to P-region
- ☐ b. Holes from P-region diffuse to N-region
- ☐ c. Both of the above mentioned statements are true
- ☐ d. Nothing will happen

17.What is the continuity equation 1 point
in words?

- ☐ a. Rate of increase = (inflow - outflow) + drift - diffusion
- ☐ b. Rate of increase = (inflow - outflow) + generation - recombination
- ☐ c. Rate of increase = (inflow - outflow)
- ☐ d. Rate of increase = (inflow + outflow)

18. When a reverse bias is applied to a diode, it will 1 point

- ☐ a. Raise the potential barrier
- ☐ b. Lower the potential barrier
- ☐ c. Increases the majority-carrier a current greatly
- ☐ d. None of these

19. For a PN junction diode, the current in reverse bias may be 1 point

- ☐ a. Few miliamperes
- ☐ b. Few mili amperes to several amperes
- ☐ c. Few amperes
- ☐ d. Few micro amperes to nano amperes

20. As a PN junction is forward biased 1 point



20. As a PN junction is forward biased

1 point

- ☐ a. Holes as well as electrons tend to drift away from the junction
- ☐ b. The depletion region decreases
- ☐ c. The barrier tends to breakdown
- ☐ d. None of the above

21. The rectifying metal-semiconductor junction is also called as

1 point

- ☐ a. Ohmic Junction
- ☐ b. Schottky Junction
- ☐ c. Conducting Junction
- ☐ d. PN Junction

22. When the work function of the metal is smaller than that of n-type semiconductor it forms

1 point



- ☐ a. Non rectifying Junction

9:05 PM

22. When the work function of the metal is smaller than that of n-type semiconductor it forms

1 point

- ☐ a. Non rectifying Junction
- ☐ b. Rectifying Junction
- ☐ c. Conducting Junction
- ☐ d. PN Junction

23. Whenever, the work function of metal is smaller than that of p type semiconductor it forms

1 point

- ☐ a. Ohmic Junction
- ☐ b. Schottky Junction
- ☐ c. Conducting Junction
- ☐ d. PN Junction

24. Which of the following junction conducts on both forward bias and reverse bias

1 point



24. Which of the following junction conducts on both forward bias and reverse bias

1 point

- ☐ a. Non rectifying Junction
- ☐ b. Schottky Junction
- ☐ c. Semiconductor-Insulator Junction
- ☐ d. Metal-Insulator Junction

25. The expression for drift current density due to electrons is given by

1 point

- ☐ a. $J = p\mu_e E$
- ☐ b. $J = p\mu_e V$
- ☐ c. $J = n\mu_e E$
- ☐ d. $J = n\mu_e V$

26. The expression for diffusion current density due to electrons is given by

1 point



26. The expression for diffusion current density due to electrons is given by

1 point

- ☐ a. $J = -eDnE(dn/dx)$
- ☐ b. $J = -ieDn(dn/dx)$
- ☐ c. $J = -eDnv(dn/dx)$
- ☐ d. $J = -eDn(dn/dx)$

27. Which of the following materials can be used to construct Photodiode?

1 point

- ☐ a. Indium Chloride
- ☐ b. Barium Chloride
- ☐ c. Tin oxide
- ☐ d. Arsenide Phosphide

28. A light emitting diode is
..... diode.

1 point



9:05 PM

28. A light emitting diode is diode.

1 point

- ☐ a. Heavily doped
- ☐ b. Lightly doped
- ☐ c. Intrinsic semiconductor
- ☐ d. None of the above

29. Photo diode acts as a

1 point

- ☐ a. Inductor
- ☐ b. Capacitor
- ☐ c. Sensor
- ☐ d. Insulator

30. Photo diode operates on

1 point

- ☐ a. Reverse Bias
- ☐ b. Forward Bias



30. Photo diode operates on

1 point

- ☐ a. Reverse Bias
- ☐ b. Forward Bias
- ☐ c. Without any Bias
- ☐ d. None of the above

31. Which process of the Electron-hole pair is responsible for emitting of light?

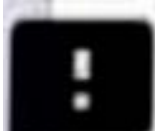
1 point

- ☐ a. Generation
- ☐ b. Ionisation
- ☐ c. Recombination
- ☐ d. Diffusion

32. Which of the following materials can be used to produce infrared LED?

1 point

- ☐ a. Si
- ☐ b. Ge



33. ...25 photos the critical angle if 1 point

the refractive index of the LED material is 2.9.

- ☐ a. 19
- ☐ b. 20
- ☐ c. 16
- ☐ d. 17

34. What is full form of AMOLED? 1 point

- ☐ a. Active matrix organic light emitting diode
- ☐ b. Array matrix organic light emitting diode
- ☐ c. Active motion organic light emitting diode
- ☐ d. Array motion organic light emitting diode

35. The color of the light depends on the type of organic molecule in the 1 point

35. The color of the light depends on the type of organic molecule in the 1 point

- ☐ a. Cathode
- ☐ b. Anode
- ☐ c. Conducting Layer
- ☐ d. Emissive Layer

36. the wavelength of radiation given out by an LED with an energy of 3 eV, given that $h = 6.626 \times 10^{-34} \text{ m}^2\text{kg/s}$ and $C = 3 \times 10^8 \text{ m/s}$. 1 point

- ☐ a. 345.6 nm
- ☐ b. 437.1 nm
- ☐ c. 548.2 nm
- ☐ d. 621.1 nm

37. In semiconductor transition takes place between valence 1 point

37. In semiconductor transition takes place between valence band and conduction band is called as

1 point

- ☐ a. Interband transition
- ☐ b. Intraband transition
- ☐ c. Impurity level transition
- ☐ d. Free carrier transition

38. . Photon flow per unit area per second

1 point

- ☐ a. Electron density
- ☐ b. Energy density
- ☐ c. Photon density
- ☐ d. Phonons density

39. In semiconductors if the transition takes place between a

1 point

39. In semiconductors if the transition takes place between a donor (or) acceptor level to a band called as

1 point

- ☐ a. Interband transition
- ☐ b. Intraband transition
- ☐ c. Intrinsic semiconductor
- ☐ d. Impurity level transition

40. . Free carrier transition also called as

1 point

- ☐ a. Interband transition
- ☐ b. Intraband transition
- ☐ c. Impurity level transition
- ☐ d. Free carrier transition
- ☐ Option 5

41..... is the process in which the photons are absorbed by the

1 point

9:05

41..... is the process in which 1 point
the photons are absorbed by the
semiconductor materials causes
transition of electron from
valence band to conduction
band.

- ☐ a. Absorption
- ☐ b. Emission
- ☐ c. Conducting Layer
- ☐ d. Emissive Layer

42.is the process where 1 point
electron hole pairs created and
recombined radiatively.

- ☐ a. Luminescence
- ☐ b. Cathodoluminescence
- ☐ c. Photoluminescence
- ☐ d. Electroluminescence

43. The annihilation of positively charged holes and negatively charged impurity or free electrons are called as 1 point

- ☐ a. Recombination
- ☐ b. Generation
- ☐ c. Absorption
- ☐ d. Phosphorescence
- ☐ Option 5

44. Optical processes directly involve _____ absorption and emission 1 point

- ☐ a. Electron
- ☐ b. Proton
- ☐ c. Photon
- ☐ d. neutron



45. ----- Statistics

1 point 05 PM

45. ----- Statistics 1 point
can be applied to identical,
indistinguishable particles of half
spin.

- ☐ a. Bose- Einstein
- ☐ b. Fermi-Dirac
- ☐ c. Maxwell-Boltzmann
- ☐ d. Bose-Dirac

46. The Einstein coefficient for
spontaneous and stimulated
emission is _____ 1 point

- ☐ a. $A_{21} / B_{21} = 8\pi k c / \lambda^5$
- ☐ b. $A_{21} / B_{21} = 8b h c / \lambda^5$
- ☐ c. $A_{21} / B_{21} = 8\pi r c / \lambda^5$
- ☐ d. $A_{21} / B_{21} = 8\pi h c / \lambda^5$

47. is the process of 1 point
radiative recombination of

9:05 PM

47. is the process of radiative recombination of electron-hole pairs created by electron bombardment.

1 point

- ☐ a. Luminescence
- ☐ b. Cathodoluminescence
- ☐ c. Photoluminescence
- ☐ d. Electroluminescence

48. The absorption coefficient of semiconducting materials strongly depends on the.....

1 point

- ☐ a. Properties of material
- ☐ b. Wavelength
- ☐ c. Amount of light
- ☐ d. Amplitude

49. takes place without interaction with other photons, and the direction and phase are

1 point

49.takes place without interaction with other photons, and the direction and phase are random.

1 point

- ☐ a. Spontaneous emission
- ☐ b. Stimulated emission
- ☐ c. Absorption
- ☐ d. Amplification

50. takes place when the excited electron interacts with another photon.

1 point

- ☐ a. Spontaneous emission
- ☐ b. Stimulated emission
- ☐ c. Absorption
- ☐ d. Amplification