<https://engineeringinterviewquestions.com/electronics-and-communication-engineering-questions-and-answers-pdf/>

**1. What is an ideal voltage source?**  
**Answer:** A device with zero internal resistance.

**2. What is an ideal current source?**  
**Answer:** A device with infinite internal resistance.

**3. What is a practical voltage source?**  
**Answer:** A device with small internal resistance.

**4. What is a practical current source?**  
**Answer:** A device with large internal resistance.

**5. The voltage out of an ideal voltage source is**  
A. Zero  
B. Constant  
C. Load resistance dependent  
D. Internal resistance dependent  
**Answer: B**

**6. The current out of an ideal current source is**  
A. Zero  
B. Constant  
C. Load resistance dependent  
D. Internal resistance dependent  
**Answer: B**

**7. The path between two points along which an electrical current can be carried is called**  
A. A network  
B. A relay  
C. A circuit  
D. A loop  
**Answer: C**

**8. The formula for current as per Ohm’s Law is**  
A. Voltage / Resistance  
B. Resistance \* Voltage  
C. Voltage + Resistance  
D. Resistance / Voltage  
**Answer: A**

**9. The unit of electrical resistance is**  
A. Volt  
B. Amp  
C. Ohm  
D. Coulomb  
**Answer: C**

**10. In a constant voltage DC circuit, when the resistance increases, the current will**  
A. Decrease  
B. Stop  
C. Increase  
D. Remains constant  
**Answer: A**

**Basic Semiconductor Theory Questions**

**1. Number of valence electrons in a silicon atom are**  
A. 1  
B. 4  
C. 8  
D. 16  
**Answer: B**

**2. The most commonly used semiconductor element is**  
A. Silicon  
B. Germanium  
C. Gallium  
D. Carbon  
**Answer: A**

**3. Copper is a**  
A. Insulator  
B. Conductor  
C. Semiconductor  
D. Super Conductor  
**Answer: B**

**4. Number of protons in the nucleus of a silicon atom are**  
A. 4  
B. 14  
C. 29  
D. 32  
**Answer: B**

**5. The valence electron of a conductor are also called as**  
A. Bound electron  
B. Free electron  
C. Nucleus  
D. Proton  
**Answer: B**

**6. An intrinsic semiconductor at room temperature has**  
A. A few free electrons and holes  
B. Many holes  
C. Many free electrons  
D. No holes  
**Answer: A**

**7. At room temperature, an intrinsic semiconductor has some holes in it due to**  
A. Doping  
B. Free electrons  
C. Thermal energy  
D. Valence electrons  
**Answer: C**

**8. The number of holes in an intrinsic semiconductor is**  
A. Equal to number of free electrons  
B. Greater than number of free electrons  
C. Less than number of free electrons  
D. None of the above  
**Answer: A**

**9. Holes act as**  
A. Atoms  
B. Crystals  
C. Negative charges  
D. Positive charges  
**Answer: D**

**10. Pick the odd one in the group**  
A. Conductor  
B. Semiconductor  
C. Four valence electrons  
D. Crystal structure  
**Answer: A**

**11. To produce P-type semiconductors, you need to add**  
A. Trivalent impurity  
B. Carbon  
C. Pentavalent impurity  
D. Silicon  
**Answer: A**

**12. Electrons are the minority carriers in**  
A. Extrinsic Semiconductors  
B. p-type Semiconductors  
C. Intrinsic Semiconductors  
D. n-type Semiconductors  
**Answer: D**

**13. A p-type semiconductor contains**  
A. Holes and Negative ions  
B. Holes and Positive ions  
C. Holes and Pentavalent atoms  
D. Holes and Donor atoms  
**Answer: A**

**14. How many electrons does pentavalent atoms have?**  
A. 1  
B. 3  
C. 4  
D. 5  
**Answer: D**

**15. Negative ions are**  
A. Atoms that obtained a proton  
B. Atoms that lost a proton  
C. Atoms that obtained an electron  
D. Atoms that lost an electron  
**Answer: C**

**Basic Semiconductor Diode Questions**

**1. Depletion layer is caused by**  
A. Doping  
B. Recombination  
C. Barrier potential  
D. Ions  
**Answer: B**

**2. The reverse current in a diode is usually**  
A. Very small  
B. Very large  
C. Zero  
D. In the breakdown region  
**Answer: A**

**3. Avalanche in Diode occurs at**  
A. Barrier potential  
B. Depletion layer  
C. Knee voltage  
D. Breakdown voltage  
**Answer: D**

**4. The potential barrier of a silicon diode is**  
A. 0.3 V  
B. 0.7 V  
C. 1 V  
D. 5V  
**Answer: B**

**5. The reverse saturation current in a Silicon Diode is \_\_\_\_\_ than that of Germanium Diode**  
A. Equal  
B. Higher  
C. Lower  
D. Depends on temperature  
**Answer: C**

**6. A Diode is a**  
A. Bilateral Device  
B. Nonlinear Device  
C. Linear Device  
D. Unipolar Device  
**Answer: C**

**7. The diode current is large for which condition**  
A. Forward Bias  
B. Inverse Bias  
C. Poor Bias  
D. Reverse Bias  
**Answer: A**

**8. The output voltage signal of a bridge rectifier is**  
A. Half-wave  
B. Full-wave  
C. Bridge-rectified signal  
D. Sine wave  
**Answer: B**

**9. If the maximum DC current rating of diodes in Bridge Rectifier is 1A, what is the maximum DC load current?**  
A. 1A  
B. 2A  
C. 4A  
D. 8A  
**Answer: B**

**10. Voltage multipliers produce**  
A. Low voltage and low current  
B. Low voltage and high current  
C. High voltage and low current  
D. High voltage and high current  
**Answer: C**

**11. What is a Clipper?**  
**Answer:** A circuit that removes a part (positive or negative) of a waveform so that it doesn’t exceed a certain voltage level.

**12. What is a Clamper?**  
**Answer:** A circuit that adds a DC voltage (positive or negative) to a wave.

**13. Zener diode can be described as**  
A. A rectifier diode.  
B. A device with constant – voltage.  
C. A device with constant – current.  
D. A device that works in the forward region.  
**Answer: B**

**14. If the Zener Diode is connected in wrong polarity, the voltage across the load is**  
A. 0.7 V  
B. 10 V  
C. 14 V  
D. 18 V  
**Answer: A**

**Basic Transistor Questions**

**1. Number of PN Junctions in a Transistor**  
A. One  
B. Two  
C. Three  
D. Four  
**Answer: B**

**2. The doping concentration of Base in NPN Transistor is**  
A. Lightly Doped   
B. Moderately Doped   
C. Heavily Doped   
D. Not Doped   
**Answer: A**

**3. The Base – Emitter Diode (Base – Emitter Junction) in an NPN Transistor is**   
A. Doesn’t conduct   
B. Forward Biased   
C. Reverse Biased   
D. Operates in breakdown region   
**Answer: B**

**4. The size comparison between Base, Emitter and Collector is**   
A. Base > Collector > Emitter   
B. Emitter > Collector > Base   
C. Collector > Emitter > Base   
D. All are equal   
**Answer: C**

**5. The Base – Collector Diode (Base Collector Junction) is usually**  
A. Reverse Biased  
B. Forward Biased   
C. Breakdown Region   
D. No Conduction   
**Answer: A**

**6. The DC Current Gain of a Transistor is**  
A. Ratio of Emitter Current to Collector Current   
B. Ratio of Base Current to Emitter Current   
C. Ratio of Collector Current to Base Current   
D. Ratio of Base Current to Collector Current   
**Answer: C**

**7. If base current is 100µA and current gain is 100, then collector current is**  
A. 1A   
B. 10A   
C. 1mA   
D. 10mA   
**Answer: D**

**8. The majority carriers in NPN and PNP Transistors are**  
A. Holes and Electrons   
B. Electrons and Holes   
C. Acceptor Ions and Donor Ions   
D. None   
**Answer: B**

**9. A Transistor acts as a**  
A. Voltage Source and a Current Source   
B. Current Source and a Resistor   
C. Diode and Current Source   
D. Diode and Power Supply   
**Answer: C**

**10. The relation between Base Current IB, Emitter Current IE and Collector Current IC is**  
A. IE = IB + IC   
B. IB = IC + IE   
C. IE = IB – IC  
D. IC = IB + IE   
**Answer: A**

**11. The total power dissipated by a transistor is a product of collector current and**  
A. Supply Voltage   
B. 0.7V   
C. Collector – Emitter Voltage   
D. Base – Emitter Voltage   
**Answer: C**

**12. The input impedance of Common Emitter Configuration is**  
A. Low   
B. High   
C. Zero   
D. Very High   
**Answer: A**

**13. The output impedance of Common Emitter Configuration is**  
A. Low   
B. Very Low   
C. High   
D. Zero   
**Answer: C**

**14. The current gain in Common Base configuration (α) is**  
A. Ratio of Base Current to Emitter Current (IB/IE)  
B. Ratio of Collector Current to Emitter Current (IC/IE)  
C. Ratio of Collector Current to Base Current (IC/IB)  
D. None   
**Answer: B**

**15. Relation between α and ß is**  
A. α = ß / (ß + 1)   
B. ß = α / (1 – α)   
C. α = ß \* (ß + 1)   
D. α = ß / (ß – 1)   
**Answer: Both A and B**