Q1:

Answer:

- **Communication system:**

All electronic communication system have a transmitter a communication channel or medium and receiver. The process of a communication begins when a human generates some kind of messages, data or other intelligence they must be received by other. A message may also be generated by the electronic current or a computer.

- **Electronic component used in communication:**
- **Transmitter:**

The first step in the communication system transmitter work sending.

- **Receiver:**

A receiver is a collection of electronic components and circuit those accept the transmitted messages from the channel and convert it back to a form understandable by humans.

- **Transceiver:**

Most electronic communication is two way and so both parties must have both a transmitter and a receiver. as a result most communication equipment incorporates circuit that both send and receive.

- **Full duplex:**

The bulk of electronic communication is two way or duplex. People communicating with one another over the telephone can talk and listen simultaneously.

- **Half duplex:**
  the form of two way communication in which only one party transmit at a time is known as half duplex communication. Half communication are turns transmiting and receiving most radio transmition citizen band family radio and amateur radio communication are also half duplex.

Q2

Answer:

- **Working principle of P-N Junction Diode as forward biased condition:**

A PN junction is to forward biased if the positive plate of a battery is connected to the P and negative plate is connected to the N side.

So P and N side are connected to the positive and negative plate of the battery respectively, the positive plate will force the hole in p side similarly, the negative plate will push the electron in N side and will attract the hole in P side . so both the positive and negative plate are exerting a force for the flow of hole and electron it the battery voltage is more than the barrier potential the hole and electron will have enough energy to cross PN junction sub sequently flow of current will start through the PN junction diode it should also be noted that the width of the depletion region will decrease under the forward bias condition soothe forward biased diode current flow from anode to cathode or from p side to n side. To summarize a forward biased diode acts like a closed switch provide the forward biased voltage must be greater than the barrier potential. If the forward biasing voltage is less than the barrier potential the energy imparted by the battery to the hole will note enough energy to cross the PN junction , hence if will block the flow of current so we observe that a diode not a bilateral device is one which allows the of current in both direction.

- **Working principle of PN junction diode as reverse biased condition:**

A PN junction said to be reverse biased if the positive plate of a battery is connected to the N and negative plate is connected to the P side.

Under reverse biased condition the width of depletion region increase as the battery voltage pulls the holes in p side and electron in n side a ways form the junction there will not be any flow of holes and electrons a cross the junction sub sequently, there will not any flow of current through the PN junction diode but the flow of minority carries i.e electron in p side and hole in n side remain unaffected . it should be noted that the concentration. At minority carries is depend on the temperature these are thermally generated minority carrier in p n side. Due to flow of minority carrier across the junction a small current flow from cathode to anode this is called reverse saturation current.

A reverse biased PN junction diode acts like an open switch and block the flow of current from anode to cathode.

Q3:

Answer:

- **Intrinsic Semiconductor:**

The pure semiconductor is known is intrinsic semiconductor. the conductivity of intrinsic semiconductor become zero at room temperature while the intrinsic semiconductor is very little conductive at room temperature on the basis of the energy band phenomenon an intrinsic semiconductor at absolute zero temperature.

- **Doped Semiconductor:**

The process by which and impurity is add to a semiconductor is known as doping. The amount and type of impurity which is to a extrinsic semiconductor material. Generally on impurity atoms of semiconductor. The purpose of adding impurity in semiconductor crystal increase the number of free electron or holes to make at conductive. Doping depend upon the type of impurity added the intrinsic lattice that makeup the crystal structure of material.

- **Carriers movement:**

Carrier move freely about the semiconductor lattice in a random direction at a certain velocity determined by the temperature and the mass of the carrier. Carrier will continue in that direction until they Callide with another semiconductor lattice atom. There is no not overall movement of a carrier in any direction. Electron in the conduction band and holes in the valance band are considered free carriers in the sense that they can move thought out the semiconductor.