

## **Simplex Half Duplex Full Duplex**

### **1. Simplex Channel-**

A simplex communication channel can send the signals only in one direction.

Thus, entire bandwidth of the channel can be used during the transmission.

Example-

Radio station

Radio station is a good example of a simplex communication channel.

A radio station always sends signals to its audience.

It never receives signals from the audience.

### **2. Half Duplex Channel-**

A half-duplex communication channel can send signals in both the directions but in only one direction at a time.

It may be considered as a simplex communication channel whose transmission direction can be switched.

Example-

Walkie-Talkie

Walkie-Talkie is a good example of a half-duplex channel.

Walkie-talkie has a push-to-talk button.

This button is used to turn on the transmitter but turn off the receiver.

When the button is pressed, transmitter cannot hear the receiver but receiver can hear the transmitter.

### **3. Full Duplex Channel-**

A full duplex communication channel can send signals in both the directions at the same time.

Full duplex communication channels greatly increases the efficiency of communication.

Example-

Telephone

Telephone is a good example of a full duplex channel.

Both the persons can speak as well as hear each other at the same time.

Channel Capacity-

The total number of bits a channel can hold is called as its capacity.

#### **Capacity of a half-duplex channel**

= Bandwidth x Propagation delay

#### **Capacity of a full duplex channel**

= 2 x Capacity of a half-duplex channel

= 2 x Bandwidth x Propagation delay