

### **11.3.2. Unguided Media**

- 1. Radio waves** - It transmits data at different frequencies ranging from 3 KHz. to 300 GHz.
- 2. Microwaves** - Microwave signals can travel in straight line if there is any obstacle in its path, it can't bend. So it uses tall towers instead of short one.
- 3. Infrared waves** : These waves are used for transmitting data in short distance and its frequency range is 300 GHz to 400 GHz.

### **11.3.3 Wireless communication technologies using radio waves**

- 1. Bluetooth** : This technology uses radio waves in the frequency range of 2.402 GHz to 2.480 GHz. And transmit data in short distance. Mobile phones, Laptops, tablets etc use Bluetooth technology to transmit data.
- 2. Wi Fi(Wireless Fidelity)** : It uses radio waves to transmit information across a network in a range 2.4 GHz to 5 GHz in short distance. Nowadays this technology is used to access internet in Laptops, Desktops, tablets, Mobile phones etc.
- 3. Wi MAX(Wireless Microwave Access)** : It uses micro waves to transmit information across a network in a range 2 GHz to 11 GHz over very long distance.
- 4. Satellites** - By using satellite we can communicate from any part of the world to any other. The ground stations are connected via the satellite. The data signals transmitted from earth to satellite (uplink) and from the satellite to the earth (downlink).