

Chapter 3rd [Networking Concepts]

UNGUIDED MEDIA: WIRELESS:- Unguided media transport electromagnetic waves without using a physical conductor. This type of communication is often referred to as wireless communication. Signals are normally broadcast through free space and thus are available to anyone who has a device capable of receiving them. Unguided signals can travel from the source to the destination in several ways:

Ground propagation:- In this, radio waves travel through the lowest portion of the atmosphere, hugging the Earth. These low-frequency signals emanate in all directions from the transmitting antenna and follow the curvature of the planet.

Sky propagation:- In this, higher-frequency radio waves radiate upward into the ionosphere where they are reflected back to Earth. This type of transmission allows for greater distances with lower output power.

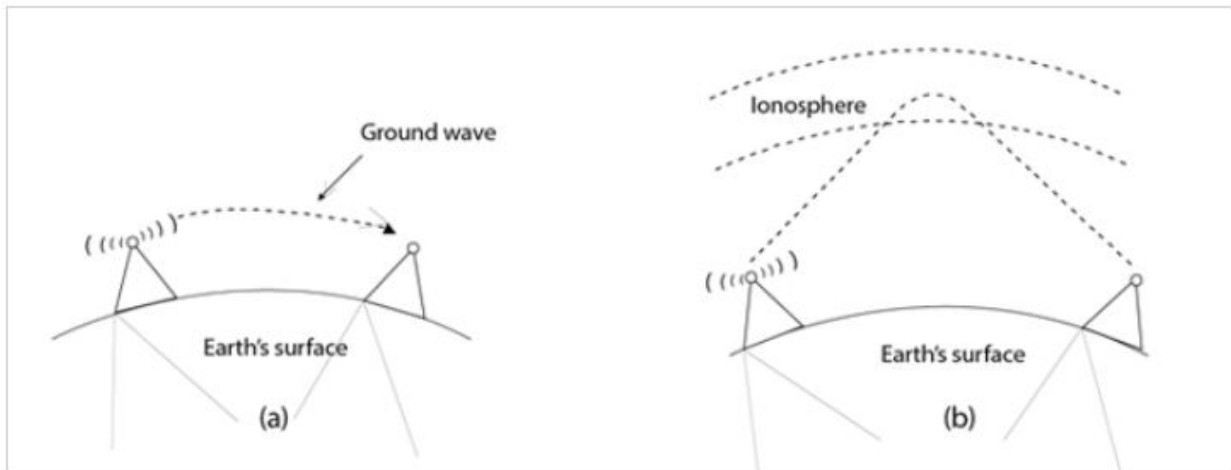
Line-of-sight propagation:- in this type, very high-frequency signals are transmitted in straight lines directly from antenna to antenna.

Wireless transmission can be divide into three broad groups

- Radio waves
- Micro waves
- Infrared waves

Radio Waves

Electromagnetic waves ranging in frequencies between 3 KHz and 1 GHz are normally called radio waves. Radio waves are omnidirectional. When an antenna transmits radio waves, they are propagated in all directions. This means that the sending and receiving antennas do not have to be aligned. A sending antenna send waves that can be received by any receiving antenna. The omnidirectional property has disadvantage, too. The radio waves transmitted by one antenna are susceptible to interference by another antenna that may send signal using the same frequency or band.



Applications Of Radio waves:

- A Radio wave is useful for multicasting when there is one sender and many receivers.
- An FM radio, television, cordless phones are examples of a radio wave.

Advantages Of Radio transmission:

- Radio transmission is mainly used for wide area networks and mobile cellular phones.
- Radio waves cover a large area, and they can penetrate the walls.
- Radio transmission provides a higher transmission rate.

Assignment:-

- 1- Explain wireless media.
- 2- What is Radio Waves & Advantages Of Radio transmission?