

QUESTIONS AND ANSWERS ON WIRELESS TRANSMISSION

Q1. What is a wireless network?

Ans: A wireless network is any network which does not require the use of cables to connect computers and devices. A wireless network can connect computers to one another, share devices and internet connections. Wireless networks, as with traditional networks, can be simple or complex. The network topology can be suited to meet the physical needs of the network.

Q2. What is an IP and dynamic IP address?

Ans: An IP address is the numeric address of devices on a network. Static IP addresses means that the IP address does not change. A dynamic IP address means that the device will most likely have a different IP address every time it connects to the wireless network.

Every computer on the Internet has a unique numerical address, called an Internet Protocol (IP) address, used to route packets to across the Internet.

Example IP Address	
Decimal:	238. 17. 159. 4
Binary:	11101110 00010001 10011111 00000100

Q3. What is DNS?

Ans: DNS stands for Domain Name System and its job is to translate an IP address into a language, such as English. DNS is crucial to the internet's functioning. When you are setting up a wireless network, you will need to specify a DNS if you are using a static IP address.

Q4: Illustrate various differences between LAN, WAN and MAN?

Ans: A LAN (local area network) is a group of computers and network devices connected together, usually within the same building. By definition, the connections must be high speed and relatively inexpensive (e.g., token ring or Ethernet).

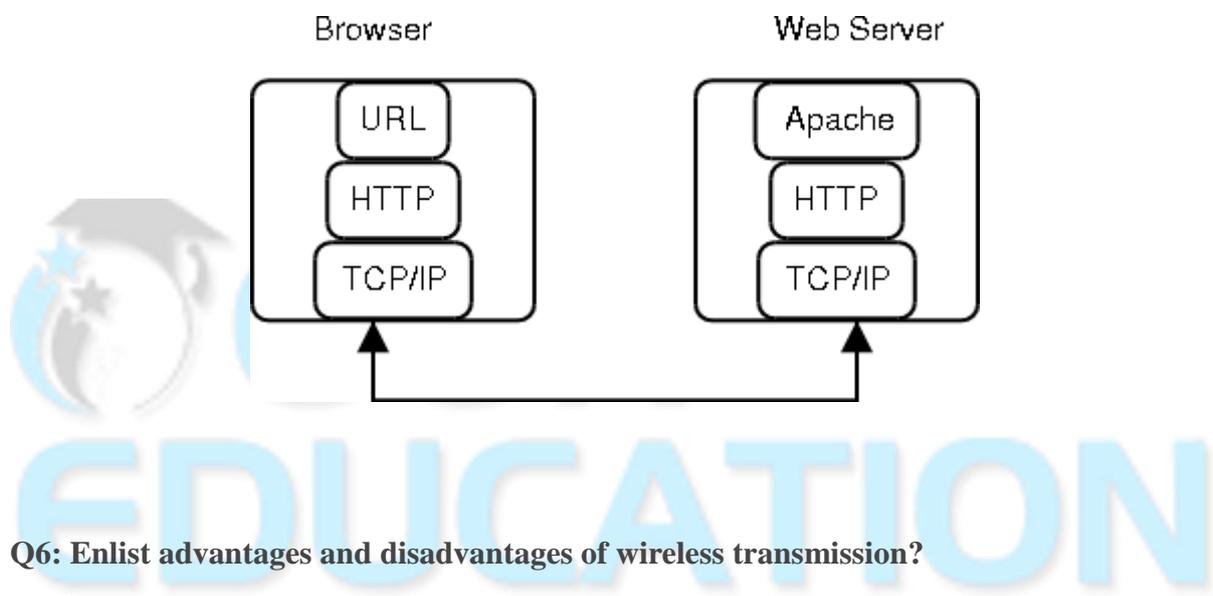
A LAN connection is a high-speed connection to the LAN. On the IUB campus, most connections are either Ethernet (10Mbps) or Fast Ethernet (100Mbps), and a few locations have Gigabit Ethernet (1000Mbps) connections.

A MAN (metropolitan area network) is a larger network that usually spans several buildings in the same city or town. The IUB network is an example of a MAN.

A **WAN** (wide area network), in comparison to a MAN, is not restricted to a geographical location, although it might be confined within the bounds of a state or country. A WAN connects several LANs, and may be limited to an enterprise (a corporation or an organization) or accessible to the public. The technology is high speed and relatively expensive. The Internet is an example of a worldwide public WAN.

Q5: Discuss in brief what is WWW?

Ans: WWW is a collection of internet resources (such as FTP, telnet, UseNet), hyperlinked text, audio, and video files, and remote sites that can be accessed and searched by browsers based on standards such as HTTP and TCP/IP. Also called the web, it was created in 1989 by the UK physicist Tim Berners, as an easier way to access information scattered across the internet.



Q6: Enlist advantages and disadvantages of wireless transmission?

Ans: Wireless communication has the following advantages:

1. Communication has enhanced to convey the information quickly to the consumers.
2. Working professionals can work and access Internet anywhere and anytime without carrying cables or wires wherever they go. This also helps to complete the work anywhere on time and improves the productivity.
3. Wireless networks are cheaper to install and maintain.

Disadvantages:-

Wireless network has led to many security threats to mankind. It is very easy for the hackers to grab the wireless signals that are spread in the air.

How to overcome: - It is very important to secure the wireless network so that the information cannot be exploited by the unauthorized users. This also increases the risk to lose information. Strong security protocols must be created to secure the wireless signals like WPA and WPA2. Another way to secure the wireless network is to have wireless intrusion prevention system.

Q7: What is Wi-Fi?

Ans: "Wi-Fi" is a type of wireless networking protocol that allows devices to communicate without cords or cables. Wi-Fi is technically an industry term that represents a type of wireless local area network (LAN) protocol based on the 802.11 IEEE network standard. It's the most popular means of communicating data wirelessly, within a fixed location, today.

Q8: Elaborate WEP and WPA relating to the term Wireless Transmission?

Ans: *WEP* (Wired Equivalent Privacy) is a security protocol for wireless networks. It was introduced as part of the original 802.11 wireless protocol in 1997 and intended to match the security level of the wired networks.

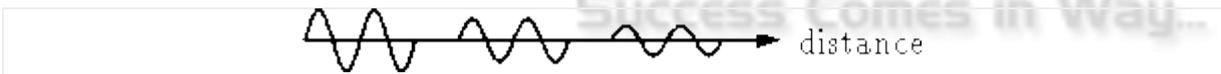
We know today that WEP is not a very secure protocol, easily cracked by software within minutes. It has since been replaced by stronger wireless encryption protocols, WPA and WPA2. Unfortunately, WEP is still being used on some wireless networks, likely creating a false sense of security.

WPA is a security technology for Wi-Fi wireless computer networks. WPA improves on the authentication and encryption features of WEP (Wired Equivalent Privacy).

WPA provides stronger encryption than WEP through use of either of two standard technologies: Temporal Key Integrity Protocol (TKIP) and Advanced Encryption Standard (AES). WPA also includes built-in authentication support that WEP does not offer. Overall, WPA provides comparable security to VPN tunnelling with WEP, with the benefit of easier administration and use.

Q9: Discuss some of the Wireless transmission impairments?

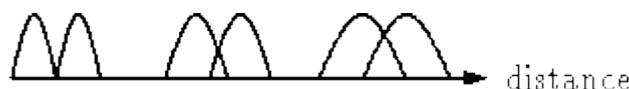
Ans: *Attenuation* signals loose power in time.



Issues:

1. Signals must be sufficiently strong so that the receiver will be able to detect and interpret them
2. they should maintain a sufficient high level to make them distinguishable from noise
3. Too strong signals can overload the circuitry of the transmitter and result in distortion.

Dispersion: Signals tend to spread as they travel, with the amount of spreading dependent on the frequency.



Delay distortion: Due to velocity of propagation that varies with frequency. Thus, various frequency components of a signal arrive at the receiver at different times.



Crosstalk: Foreign signal enters the path of the transmitted signal.

Q10: What do you mean by GSM?

Ans: (Global System for Mobile Communications)-A digital cellular phone technology based on TDMA that defines the entire cellular system, not just the TDMA air interface. In the early 1990s, GSM enabled roaming across European nations for the first time, and today, more than 1.5 billion GSM customers worldwide can phone each other via roaming agreements between the carriers.

GSM operates in several frequency bands, including 900 MHz and 1.8 GHz in Europe and 850 MHz and 1.9 GHz in the U.S. and Canada. GSM's TDMA technology is based on a circuit-switched system that divides each 200 kHz channel into eight 25 kHz time slots.

The SIM Card

GSM phones use a Subscriber Identity Module (SIM) smart card that contains user account information. Any GSM phone becomes immediately programmed after plugging in the SIM card, thus allowing GSM phones to be easily borrowed. SIM cards can also be programmed to display custom menus for personalized services.

