Data Communications

ASSIGNMENT2

1. What are the different types of networks?
   Ans:- There are many types of computer networks, the common types of area networks including those five: *LAN - Local Area Network, WAN - Wide Area Network, WLAN - Wireless Local Area Network, MAN - Metropolitan Area Network and CAN - Campus Area Network.*

2. Explain the Shielded twisted pair (STP) and Unshielded twisted pair(UTP)
   Ans:- Shielded twisted pair cable (STP) has the individual pairs of wires wrapped in foil, which are then wrapped again for double protection. Unshielded twisted pair cable (UTP) has each pair of wires twisted together. Those wires are then wrapped in tubing without any other protection. UTP cables are less expensive, and a more popular type of cabling.

3. What is difference between baseband and broadband transmission?

- Ans:- The major difference between broadband transmission and baseband transmission is that the baseband transmission uses the complete bandwidth for transmitting the signals and occupy the whole cable while in broadband transmission, at the same time, multiple signals can be transmitted using multiple frequencies using only one channel. In baseband transmission, the frequency cannot be divided or multiplexed, but time can be multiplexed as only one signal is transmitted in the cable. In broadband transmission, multiple signals can be transmitted, and one channel can transmit analog signals. The frequency multiplexing can be done in broadband transmission.
- The other difference between broadband transmission and baseband transmission in the direction of signals transmitted. In the baseband transmission, the signals can be transmitted in both directions at the

same time. In broadband transmission, the signals can be transmitted in a single direction. The baseband transmission uses digital signaling for transmitting the signals. The broadband transmission uses analog signaling for transmitting analog signals.

4. What is the difference between a hub, modem, router and a switch?

Ans:- Hub

Hub is commonly used to connect segments of a LAN (Local Area Network). A hub contains multiple ports. When a packet arrives at one port, it is copied to the other ports so that all segments of the LAN can see all packets. Hub acts as a common connection point for devices in a network.

Switch

A switch operates at the data link layer (layer 2) and sometimes the network layer (layer 3) of the OSI (Open Systems Interconnection) Reference Model and therefore support any packet protocol. LANs that use switches to join segments are called switched LANs or, in the case of Ethernet networks, switched Ethernet LANs. In networks, the switch is the device that filters and forwards packets between LAN segments. See more information on Network Switch and Selection Suggestions.

Router

A router is connected to at least two networks, commonly two LANs or WANs (Wide Area Networks) or a LAN and its ISP.s (Internet Service Provider.s) network. The router is generally located at gateways, the places where two or more networks connect. Using headers and forwarding tables, router determines the best path to forward the packets. In addition, router uses protocols such as ICMP (Internet Control Message Protocol) to communicate with each other and configures the best route between any two hosts. In a word, router forwards data packets along with networks.

5. When you move the NIC cards from one PC to another PC, does the MAC address gets

transferred as well?
Ans:- The MAC address is set by the manufacturer of the end-station (the system that the Ethernet is plugged in to).

If the network interface is integrated within a computer, for instance, then the MAC is set there. If, let's say, you installed a NIC within that computer and plugged the Ethernet cable into that NIC, then the MAC address would be the one on the NIC, not the one that's associated with the integrated network interface which, in this case, isn't used

6. When troubleshooting computer network problems, what common hardware-related
problems can occur?
Ans:- A large percentage of a network is made up of hardware. Problems in these areas can range from malfunctioning hard drives, broken NICs, and even hardware startups. Incorrect hardware configuration is also one of those culprits to look into.

7. In a network that contains two servers and twenty workstations, where is the best place
to install an Anti-virus program?

1. Ans:- A good firewall. This can stop intrusions, malware, unauthorized access, etc. before they reach the workstations.
2. Antivirus software on the servers and at the endpoint workstations. This software should be centrally managed to keep end users updated constantly and to minimize user meddling with the settings. Good antivirus will also protect email clients.
3. Educated and aware users who: do not casually install downloaded programs; don't click on unknown links; don't fall for phishing emails, etc. Establish a strong password policy for all users. You should consider not giving your users Administrative rights on their accounts. They will complain that they cannot install what they need and your workload will increase but, I guarantee you, your entire environment will be more reliable and secure

8. Define Static IP and Dynamic IP? Discuss the difference between IPV4 and IPV6.

Ans:- **fference between Static and Dynamic IP address:**

S.NO	Static IP Address	Dynamic IP address
1.	It is provided by ISP(Internet Service Provider).	While it is provided by DHCP (Dynamic Host Configuration Protocol).
2.	Static ip address does not change any time, it means if a static ip address is provided then it can't be changed or modified.	While dynamic ip address change any time.
3.	Static ip address is less secure.	While in dynamic ip address, there is low amount of risk than static ip address's risk.
4.	Static ip address is difficult to designate.	While dynamic ip address is easy to designate.
5.	The device designed by static ip address can be trace.	But the device designed by dynamic ip address can't be trace.

9. Discuss TCP/IP model in detail.

Ans:- The TCP/IP model was developed prior to the OSI model.

- The TCP/IP model is not exactly similar to the OSI model.
- The TCP/IP model consists of five layers: the application layer, transport layer, network layer, data link layer and physical layer.
- The first four layers provide physical standards, network interface, internetworking, and transport functions that correspond to the first four layers of the OSI model and these four layers are represented in TCP/IP model by a single layer called the application layer

10. What is a Web Browser (Browser)? Give some example of browsers.

Ans:- A web browser is a client machine software that is used to access website and web content available over the Internet or World Wide Web. The most popular types of Web browsers are:

- Firefox
- Chrome
- Opera
- Safari
- UC Browser

11. What is a search engine? Give example.

Ans:- A search engine is a web-based tool that enables users to locate information on the World Wide Web. Popular examples of search engines are Google, Yahoo!, and MSN Search.

12. What is the Internet & WWW? What are the uses of internet in our daily life?

Ans:- The **Internet** is a virtual networking medium that can be connected and used on various devices these days. ... A few of the **Internet's** major **uses** are e-commerce, e-learning, knowledge sharing, social connectivity, variety of media, file transfer, communication, etc.

13. What is an Internet Service Provider? Give some example of ISP in India.

Ans:- An Internet Service Provider (ISP) is a company that provides Internet access by using copper, fiber, or even satellite communications to the customer. In this lesson, we will cover exactly what an ISP is, how the ISP connects customers, and what type of services the ISPs provide.

14. Discuss the difference between MAC address, IP address and Port address.

Ans:- The main difference between MAC and IP address is that, MAC Address is used to ensure the physical address of computer. It uniquely identifies the devices on a network. While IP address are used to uniquely identifies the connection of network with that device take part in a network.

15. How do we view my Internet browser's history?

1. Ans:- Open the Google Chrome **Internet browser**.
2. In the upper-right corner of the screen tap the. icon.
3. In the drop-down menu that appears, select **history** and shown in the image.
4. The following page contains your device's **history**.