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CCA-102: Data Communications

ASSIGNMENT

1. What are the different types of networks?

Ans: A computer network is a system in which multiple computers are connected to share information and resources.

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 .

3. What is difference between baseband and broadband transmission?

Ans: **Baseband transmission :**

1. Digital signalling.
2. Frequency division multiplexing is not possible.
3. Baseband is bi-directional transmission.
4. Short distance signal travelling .
5. Entire bandwidth is for single signal transmission.
6. Example: Ethernet is using basebands for LAN.

broadband transmission:

1. Analog signalling.
2. Transmission of data is unidirectional.
3. Signal travelling distance is long.
4. Frequency division multiplexing possible.
5. Simultaneous transmission of multiple signals over different frequencies.
6. Example: Used to transmit cable TV to premises.

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

   Ans:

   Hub: A hub is to sent out a massage from one port to other ports. For example, if there are three computers of A,B,C , the massage sent by a hub for computer A will also come to the other computers. But only computer a will respond and the response will also go out to every other port on the hub there for all the computers can receive the message and computers themselves need to decided whether to accept the message.

   Router: Router is actually a small computer that can be programmed to handle and route the network traffic. It usually connects at least two networks together, such as two LANs, two WANs or a LAN and its ISP network. Routers can calculate the best route for sending data and communicate with each other by protocols.

Modem: A modem is a device that receives an analog signal from your internet service provider (ISP) and translates it into a digital signal that your devices can understand and vice versa.

This allows your devices to send and receive data over the internet.

Switch: A switch is able to handle the data and knows the specific addresses to send the message. It can decide which computer is the message intended for and send the message directly to the right computer. The efficiency of switch has been greatly improved, thus providing a faster network speed.

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

Ans: Yes, that's because MAC addresses are hard-wired into the NIC circuitry, not the PC. This also means that a PC can have a different MAC address when another one replaced the NIC card.

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**.

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

Ans: The best solution is **to install anti-virus on all the computers in the network**.

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

Ans: When a device is assigned a static IP address, **the address does not change**. Most devices use dynamic IP addresses, which are assigned by the network when they connect and change over time.

>The main difference between IPv4 and IPv6 is **the address size of IP addresses**. The IPv4 is a 32-bit address, whereas IPv6 is a 128-bit hexadecimal address. IPv6 provides a large address space, and it contains a simple header as compared to IPv4

9. Discuss TCP/IP model in detail.

Ans: The TCP/IP model consists of five layers: the application layer, transport layer, network layer, data link layer and physical layer. ... TCP/IP is a hierarchical protocol made up of interactive modules, and each of them provides specific functionality.

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

Ans: A web browser, or simply 'browser,' is an application used to access and view websites. Common web browsers include Microsoft Edge, Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari.

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 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 very much useful in our daily routine tasks. For example, it helps us **to see our notifications and emails**. Apart from this, people can use the internet for money transfers, shopping order online food, etc

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

Ans:

Rank	ISP	Net Addition (Wireline Subscribers)
1	Jio	253,823
2	Airtel	108,148
3	Vi	7870
4	BSNL	-90,851

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

Ans: IP Address stands for Internet Protocol Address. MAC Address ensure that **physical address of the computer is unique**. IP Address is a logical address of the computer and is used to uniquely locate computer connected via a network. MAC Address is of six byte hexadecimal address.

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

Ans: In any Chrome window, use the **keyboard shortcut Ctrl+H**, or navigate to the URL chrome://history . Or, click the Menu button, which is located near the top-right side of the

browser window, and choose History, then History again.