CCA – 102 Data Communication

Assignment

Q1. What are the different type of networks?

Ans: **7 Types of Computer Networks**

- PERSONAL AREA NETWORK (PAN)
- LOCAL AREA NETWORK (LAN)
- WIRELESS LOCAL AREA NETWORK (WLAN)
- METROPOLITAN AREA NETWORK (MAN)
- WIDE AREA NETWORK (WAN)
- STORAGE AREA NETWORK (SAN)
- VIRTUAL PRIVATE NETWORK (VPN)

Q2. Explain the Shielded twisted pair (STP) and Unshielded twisted pair (UTP).

Ans: Unshielded Twisted Pair (UTP)

Unshielded Twisted Pair or UTP are twisted pair cables and are used to transmit both data and voice as their frequency range is suitable for transmission. UTPs are more cost effective and are not needed to be grounded.

Shielded Twisted Pair (STP)

Shielded Twisted Pair or STP are also a twisted pair cables but are required to be grounded, wants more maintenance, have high data trasmission capacity and are more costly then UTP.

Q3. What is difference between baseband and broadband transmission?

Ans: The baseband transmits the digital signal using the physical medium like wires. The broadband transmits the analog signals using optical fibers and twisted cables as a medium of transmission. The baseband signaling is termed as bidirectional and is capable of sending digital signals in both directions.

Q4. What is the difference between hub, modem, router and switch?

Ans:

Device	**What is does**
Modem:	Stands for "modulating-demodulating": modems are hardware devices that allow a computer or another device, such as a router or switch, to connect to the Internet. They convert or "modulate" an analog signal from a telephone or cable wire to digital data (1s and 0s) that a computer can recognize. Simply send traffic from point A to piont B without further manipulation.
Routers:	Are responsible for sending data from one network to another.

	Work at Layer 3 (Network) of the OSI model, which deals with IP addresses. Typically, routers today will perform the functionality of both a router and a switch - that is, the router will have multiple ethernet ports that devices can plug into.
Switches:	They use the MAC address of a device to send data only to the port the destination device is plugged into. Work at Layer 2 (Data Link) of the OSI model, which deals with MAC addresses.
Hubs:	Unlike switches, hubs broadcast data to all ports, which is inefficient, so hubs are basically a multiport repeaters.

Q5.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.

Q6.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. Incorrectly hardware configuration is also one of those culprits to look into.

Q7. In a network that contains two server and twenty workstations,where is the best place to installan anti virus program?

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

Q8. Discuss Static IP and Dynamic IP . Discuss the difference between IPV4 and IPV6.

Ans: **Difference 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.
6.	Static ip address is more stable than dynamic ip address.	While dynamic ip address is less stable than static ip address.
7.	The cost to maintain the static ip address is higher than dynamic ip address.	While the maintaining cost of dynamic ip address is less than static ip address.

S.NO	Static IP Address	Dynamic IP address
8.	It is used where computational data is less confidential.	While it is used where data is more confidential and needs more security.

Difference Between IPv4 and IPv6:

IPv4	IPv6
IPv4 has a 32-bit address length	IPv6 has a 128-bit address length
It Supports Manual and DHCP address configuration	It supports Auto and renumbering address configuration
In IPv4 end to end, connection integrity is Unachievable	In IPv6 end to end, connection integrity is Achievable
It can generate 4.29×10^9 address space	Address space of IPv6 is quite large it can produce 3.4×10^{38} address space
The Security feature is dependent on application	IPSEC is an inbuilt security feature in the IPv6 protocol
Address representation of IPv4 is in decimal	Address Representation of IPv6 is in hexadecimal
Fragmentation performed by Sender and forwarding routers	In IPv6 fragmentation performed only by the sender
In IPv4 Packet flow identification is not available	In IPv6 packet flow identification are Available and uses the flow label field in the header
In IPv4 checksum field is available	In IPv6 checksum field is not available
It has broadcast Message Transmission Scheme	In IPv6 multicast and anycast message transmission scheme is available
In IPv4 Encryption and Authentication facility not provided	In IPv6 Encryption and Authentication are provided
IPv4 has a header of 20-60 bytes.	IPv6 has header of 40 bytes fixed
IPv4 consist of 4 fields which are separated by dot (.)	IPv6 consist of 8 fields, which are separated by colon (:)
IPv4's IP addresses are divided into five different classes. Class A , Class B, Class C , Class D , Class E.	IPv6 does not have any classes of IP address.
IPv4 supports VLSM(Variable Length subnet mask).	IPv6 does not support VLSM.

Q9. Discuss TCP/IP model in detail.

Ans: TCP/IP stands for Transmission Control Protocol/Internet Protocol and is a suite of communication protocols used to interconnect network devices on the internet. TCP/IP is also used as a communications protocol in a private computer network.

The entire IP suite -- a set of rules and procedures -- is commonly referred to as TCP/IP. TCP and IP are the two main protocols, though others are included in the suite. The TCP/IP protocol suite functions as an abstraction layer between internet applications and the routing and switching fabric.

Q10. What is a Web Browser (Browser)? Give some examples 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.

Q11. 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.

Q12.What is the Internet and WWW? What are the uses of Internet in our Daily life?

Ans: The world wide web, or web for short, are the pages you see when you're at a device and you're online. But the internet is the network of connected computers that the web works on, as well as what emails and files travel across.

There are various uses of the internet in different fields, which are given below.

- Online Booking
- Cashless Transactions
- Online Banking & Trading
- Web Browsing
- Electronic Mail
- Job Search
- Social Networking
- Communication
- Entertainment
- E-Commerce
- File Transfer
- Advertising
- Education
- Business
- Banking
- Research
- Finance & Accounting
- Bill Payment

Q13.What is an Internet service provider? Give some examples of ISP in India.

Ans: An ISP (internet service provider) is **a company that provides individuals and organizations access to the internet and other related services**. An ISP has the equipment and the telecommunication line access required to have a point of presence on the internet for the geographic area served.

Some examples of ISP in India

1. Airtel India
2. Beam Fiber
3. Bharti Airtel
4. Bharti Enterprises
5. BSNL Broadband
6. DEN Networks
7. Idea Cellular
8. Jio
9. Mahanagar Telephone Nigam
10. MTS M-Blaze
11. Sancharnet
12. Siti Cable

13. Spectranet
14. Spice Telecom
15. Tata Teleservices
16. Tikona Digital Networks
17. Uninor
18. Videocon
19. Vodafone India
20. You Broadband

Q14.Discuss the difference between MAC address, IP address and Port addrtess.

Ans: The IP address of a device mainly helps in identifying the connection of a network (using which the device is connecting to the network). The MAC Address, on the other hand, ensures the computer device's physical location. It helps us to identify a given device on the available network uniquely, while port numbers identify particular applications or services on a system.

Q15. How do we view my Internet browser history?

Ans: **Open Google Chrome.** It's a red, yellow, green, and blue circular icon.

Click ⋮**.** This option is in the top-right corner of the window.

Select History**.** You'll see this option near the top of the drop-down menu. Selecting it will prompt a pop-out menu.

Click History**.** It's at the top of the pop-out menu. Doing so will take you to your search history.

Review your browsing history. You can scroll down through your browsing history to see items from earlier in your history.