CCA-102: Data Communications ASSIGNMENT

Q1: What are the different types of networks?

Ans: The different type of network are:

1. **LAN (Local Area Network):** It is a group of computers connected to each other in a small area such as building, office. It is used for connecting two or more personal computers through a communication medium such as twisted, pair, coaxial cable, etc.
2. **PAN (Personal Area Network):** It is a network arranged within an individual person, typically within a range of 10 meters. It is used for connecting the computer device of personal use in known as Personal Area Network.
3. **MAN (Metropolitan Network):** It is a network that cover a larger geographic area by interconnecting a different LAN to form a larger network. Government agencies use MAN to connect to the citizens and private industries.
4. **WAN (Wide Area Network):** It is a network that extends over a large geographical area such as states or countries. It is not limited to a single location, but it spans over a large geographical area through a telephone line, fibre optic cable or satellite links.

Q2: Explain the shielded twisted pair (STP) and unshielded twisted pair (UTP).

Ans: **STP (Shielded twisted pair):** A shielded twisted pair is a type of twisted pair cable that contains an extra wrapping foil or copper braid jacket to protect the cable from defects like cuts, losing bandwidth, noise, and signal to the interference. It is a cable that is usually used underground, and therefore it is costly than UTP. It supports the higher data transmission rates across the long distance. We can also say it is a cable with metal sheath or coating that surround each pair of insulated conductor to protect the wire from external users and prevent electromagnetic noise from penetrating.

UTP (Unshielded twisted pair): UTP is an unshielded twisted pair cable used in computer and telecommunication mediums. Its frequency range is suitable for transmitting both data and voice via a UTP cable. Therefore, it is widely in the telephone, computers, etc. It is a pair of insulated copper wires twisted together to reduce noise generated by external interference. It is a wire with no additional shielding, like aluminium foil, to protect its data from the exterior.

Q3: What is difference between baseband and broadband transmission?

Ans:

Baseband transmission	**Broadband 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. Ex: Ethernet is using Basebands for LAN.	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. Ex: Used to transmit cable TV to premises.

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

Ans: **HUB:** HUB is just a connector and connects the wires coming from different slides. There is no signal processing or regeneration.

Modem: A modem is short for modulator-demodulator code and its function is to facilitate the transmission of data, by converting an analogue signal to decoding digital information.

Router: Router is a network router directs the data packets along networks. A router has a minimum of two network, usually LANs or WANs or a LANs or its ISP.

Switch: Switch is a point to point communication device. It operators at the data link layer of OST model. It users switching table top find out the correct destination.

Q5: When you move the NIC cards from one PC to another PC, does the MAC address gets transferred as well?

Ans: Yes, that is because MAC addresses are hardwires into the NIC circuity, 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. Problem is these areas can range from malfunctioning hard drives, broken NICs and even hardware start up.

Q7: 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 the Anti-virus on all the computers in the network.

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

Ans: **Static IP:** A computer on the internet can have a static IP address, which means the address can change over time.

Dynamic IP: A Dynamic IP is a temporary address for devices connected to a network that continually changes over time.

IPV4 and IPV6 are internet protocol version 4 and internet protocol version 6. IP version 6 is a new version of internet protocol, which is way better than IP version 4 in terms of complexity and efficiency.

Q9: Discuss TCP\IP model in detail.

Ans: TCP\IP Reference model is a four-layered suite of communication protocols. It was developed by DOD (Development of Defence) in the 1960s. It is named after the two main protocols that are used in the model namely, TCP and IP. TCP stand for Transmission Control Protocol and IP stand for Internet Protocols.

Q10: What is Web Browser? Give some example of browsers.

Ans: A web browser is an application used to access and view websites.

Some example of browsers includes Microsoft Edge, Internet Explorer, Google Chrome, Mozilla Firefox and Apple Safari.

Q11: What is search engine? Give example.

Ans: A search engine is a web based tool that enables users to locate information on the World Wide Web (WWW).

Example: Google, Yahoo and MNS Search.

Q12: What is the internet and WWW? What are the uses of internet in our daily life?

Ans: Internet is a vast network that connects computer all over the world. Through the Internet, people can share information and communicate from anywhere with an Internet connection.

World Wide Web (WWW) is an interconnected system of public webpages accessible through the Internet.

Uses of Internet in our daily life: The Internet is very much useful in our daily routine task. For example, it help us to see our notification and emails. A part from this, people can use the internet for money transfer, shopping, order online food, etc.

Q13: What is internet service provider? Give some example of ISP in India.

Ans: An internet service provider is an organization that provides service for accessing using or participating in the internet.

Example of ISP in India are: BSNL, Airtel, etc.

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

Ans: A **MAC** address is assigned to the network interface card by the manufacture and used for communication within the local area network. It is globally unique address.

An **IP** address is used for communication within the local area network and for communication between internet. It is uniquely Identifies the connection of the network with that device takes part in a network.

Port address of the service within the system. A port number uniquely identifies a network based application on a computer.

Q15: How do we view my internet browser's history?

Ans: In the lower left corner of the browser window, tap and hold the back arrow. The page opens contains your browser history.