CCA - 102 : DATA COMMUNICATIONS

ASSIGNMENT

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1). Different types of networks include:

* Local Area Network (LAN)
* Wide Area Network (WAN)
* Metropolitan Area Network (MAN)
* Wireless Local Area Network (WLAN)
* Virtual Private Network (VPN)
* Storage Area Network (SAN)
* System Area Network (SAN)
* Peer - to - Peer Network (P2P)
* Internet (IP) Network

2). * Shield twisted pair (STP) is a type of cabling used in wired networks that consists of pairs of twisted wires surrounded by shielding material to reduce electromagnetic interference. STP is typically used in environments where there is

a higher level of electromagnetic interference, such as factories & industrial complexes.

** Unshielded twisted pair (UTP) is a type of cabling used in wired networks that consists of pairs of twisted wires without any additional shielding material. UTP is typically used in environments where there is not a high level of electromagnetic interference, such as homes & offices. UTP is generally cheaper & easier to install than STP, & is more commonly used.

3) Difference between baseband & broadband transmission.

BASEBAND TRANSMISSION	BROADBAND TRANSMISSION
* Baseband transmission is the transmission of a single signal over a single communication channel at a time.	* Broadband transmission is the transmission of multiple signals over a single communication channel at a time.
* It sends the signal in a single frequency band.	* It sends the signals in multiple frequency bands.

BASEBAND TRANSMISSION	BROADBAND TRANSMISSION
* This type of transmission is used in applications such as Ethernet & token ring networks.	* This type of transmission is used in applications such as cable & DSL networks.

4). Difference between a hub, modem, router & a switch

* Hub: A hub is a device used for connecting multiple computers together. It does not make any decisions about where data is sent & does not filter traffic between connected devices.

* Modem: A modem is a device used to connect a computer to the internet. It converts the digital signals of a computer into analog signals that can travel over a telephone line.

* Router: A router is a device used to connect multiple computers together & direct traffic between them. It makes decisions about where data is sent based on its routing table.

* Switch: A switch is a device used to connect multiple computers together & filter traffic between

them. It makes decisions about where data is sent based on the destination address of the data.

5). Yes, the MAC address is associated with the NIC card & is non-changeable, so it will transfer with the card when moved to a different PC.

6). Common hardware related network problems can include:

* Faulty or damaged network cables or connectors.
* Bad network card or other hardware components.
* Device driver issues.
* Incorrect configuration settings.
* Outdated firmware or software.
* Poorly designed or implemented network topology.
* Overloaded network bandwidth.
* Power outages or other power supply.

7).

The best place to install an antivirus program is on all two servers & twenty workstations. Ensuring that each system has its own up-to-date

antivirus protection can help prent the spread of malicious software & reduce the risk of a network wide attack.

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8). * Static IP address is a permanent address that is assigned to a computer, printer, or other network device that is connected to a network. It never changes, even if the device is rebooted or powered off.

* Dynamic IP address is a temporary address that is assigned to a computer, printer, or other network device when it connects to a network. It can change each time the device is connected to the network.

* IPV4 is a 32 bit addressing system that uses 4 octets of 8 bits each to represent an IP address. It has a maximum limit of 4,294,967,296 possible addresses.

* IPV6 is a 128-bit addressing system that uses 8 groups of 16 bits each to represent an IP

address. It has a maximum limit of 340,282, 366,920,938,463,463,374,607,431,768,211,456 possible address.

9). TCP/IP model:

The TCP/IP model is a layered architecture that describes how data is transmitted over a network. It is the most widely used model of networking today. The model is composed of four layers, which are,

* Application layer - is the layer that provides applications with access to the network. It is responsible for the services such as file transfer, remote login & email.

* Transport layer - is the responsible for routing the data packets over the network. It is responsible for the addressing & routing of data packets.

* Link layer - is the layer that is responsible for the physical connection between two devices. It is responsible for providing media access control & the physical addressing of devices.

The TCP/IP model is used by many different types of networks & is the basis of the Internet. It is a very robust & reliable model & is used to connect computers, networks, & other devices.

10). Web browser:

A web browser (commonly referred to as a browser) is a software application for retrieving, presenting & transversing information resources on the world wide web.

Examples of some common browsers include Google chrome, Mozilla Firefox, Safari, Microsoft Edge, & Internet Explorer.

11). Search Engine:

A search engine is a type of program or software application used to search for information on the World wide web. Google, Bing & Yahoo are examples of popular search engines.

12). * Internet: The Internet is a global system of interconnected computer networks that use the internet protocol suite (TCP/IP) to link billions of devices worldwide. It is a network of networks that consists of millions of private, public, academic, business & government networks of local to global scope, that are linked by a broad array of electronic, wireless, & optical networking technologies.

* WWW: The world wide web (WWW) is a system of interlinked hypertext documents accessed via the Internet. It is an information sharing model that is built on the top of the Internet.

The Internet & WWW have become an integral part of our daily lives, allowing us to access information, communicate with one another, shop, bank & more. We use the Internet for research, education, entertainment, commerce & more. In addition, the internet has become an important tool for businesses & organizations, allowing them

to increase their reach & efficiency.

13. ISP

An Internet Service Provider (ISP) is a company that provides access to the Internet.

Examples: Examples of ISPs in India include Airtel, BSNL, Jio, Tata Sky, Spectranet, Hathway etc.

14.

* MAC - A MAC address (Media Access Control) is a unique identifier assigned to a network interface for communication on the physical network segment. It is used to identify a device on a local area network (LAN) & is usually written in hexadecimal notation.

* IP address - IP address (Internet Protocol) is a numerical label assigned to each device connected to a computer network that uses the Internet Protocol for communication. It is used to identify the source & destination of data packets sent over the network.

** Port address - A port address is a numeric -al label assigned to each end point of a communication connection on a computer. It is used to identify the application or service that is running on a computer & to enable two way communication between two applications or services.

15). To View our browser's history, we can open the browser & press Ctrl + H (on windows) or Command + Y (on Mac). This will open the history tab, which will show you a list of all your recently visited websites.