CCA102-   Data Communication

Assignment

Q1. what are the different types of networs ?

ans. 1. Personal Area Network (PAN)- The smallest and most basic type of network, a PAN is made up of a wireless modem, a computer or two, phones, printers, tablets, etc., and revolves around one person in one building.

2. Local Area Network (LAN)- LANs are the most frequently discussed networks, one of the most common, one of the most original and one of the simplest types of networks. LANs connect groups of computers and low-voltage devices together across short distances (within a building or between a group of two or three buildings in close proximity to each other) to share information and resources. Enterprises typically manage and maintain LANs.

3. Wireless Local Area Network (WLAN)- Functioning like a LAN, WLANs make use of wireless network technology, such as Wi-Fi. Typically seen in the same types of applications as LANs, these types of networks don't require that devices rely on physical cables to connect to the network.

4.Campus Area Network (CAN)- Larger than LANs, but smaller than metropolitan area networks (MANs, explained below), these types of networks are typically seen in universities, large K-12 school districts or small businesses.

5.Metropolitan Area Network (MAN)- These types of networks are larger than LANs but smaller than WANs – and incorporate elements from both types of networks. MANs span an entire geographic area (typically a town or city, but sometimes a campus).

6.Wide Area Network (WAN)- a WAN connects computers together across longer physical distances. This allows computers and low-voltage devices to be remotely connected to each other over one large network to communicate even when they're miles apart.

7.Storage-Area Network (SAN)- these types of networks don't rely on a LAN or WAN. Instead, they move storage resources away from the network and place them into their own high-performance network. SANs can be accessed in the same fashion as a drive attached to a server. Types of storage-area networks include converged, virtual and unified SANs.

Q2.explain the shielded twisted pair and unshielded twisted pair

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.

Shielded cables are useful in any environments where there is a high chance of electronic interference, such as radio stations (telecom cable assemblies) and airports (aerospace cable assemblies). STP cables are also used in security systems to provide protection from power frequency and radio frequency interference, or in box builds where there are multiple different components operating in close proximity.

Unshielded cable (UTP) does not utilize shielding to reduce interference. UTP cables are designed to limit electromagnetic interference by the way the pairs are twisted inside the cable. UTP cable is most suitable for office LANS and similar network cabling systems. While offering less protection from interference, unshielded cables are popular because they are-

1.Versatile

2.Inexpensive

3.Easy to install

4.Lightweight

5.Flexible

Q3. what is the difference between baseband and broadband transmission ?

Ans. Baseband- Baseband refers to a communications channel in which information is carried in digital form and which uses the transmission medium as a single-channel device. This means a single channel is used to communicate with devices on a network, which allows computers to transmit and receive data on a single cable. Only one station can transmit at a time, and all stations must transmit and receive the same types of signals. The communication is bi-directional meaning the same channel is used to transmit and receive signals. Every device on a baseband system shares the same channel. When one node transmits data on a baseband channel, all other nodes on the network have to wait for the transmission to end before they are able to transmit data. The only problem with baseband LANs is their limited capacity over a limited distance which is no more than a couple miles.

2. Broadband- Broadband transmission is a digital electrical transmission in which signals are modulated as radiofrequency analog waves that use different frequency ranges. Unlike baseband, broadband technology does not encode information as digital pulses. It generates an

analog carrier frequency, which carries multiple digital signals or multiple channels. Each channel occupies a different frequency band out of the total bandwidth allocated (frequency-division multiplexing). Consequently, each channel can contain different modulation and encoding schemes and operate at different transmission rates. Through FDM, multiple independent channels can carry analog or digital information, depending on the interfaces. This is essentially the way cable television operates. The cable TV connection can carry at least 25 times as much data as a typical baseband system can carry. Broadband systems are generally more expensive to install and maintain because of the additional hardware involved. However, they span much longer distances than baseband.

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

Ans. 1. switch- A switch is a multicast networking device that works under the Datalink layer of the OSI model and connects a bunch of computers or devices in a network. It's mainly used to send a private message and it does not waste data.

2. Hub- A Hub is a simple and cheap networking device that works under the physical layer of the OSI model and connects a bunch of computers in a Local Area Network(LAN). It is considered less intelligent because it does not filter data and does not know where the data is to be sent.

3. Router- A Router is a networking device that operates under the network layer of the OSI model and is used to connect two or more networks. It is a device that establishes a common link between networks to enable data flow between them.

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

Q7. In a network that contains two servers and twwnty workstations, Where is the best place to install an Anti-virus program?

Ans. An anti-virus program must be installed on all servers and workstations to ensure protection. That's because individual users can access any workstation and introduce a computer virus. You can plug in their removable hard drives or flash drives.

Q8.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.

IPv4 and IPv6 are internet protocol version 4 and internet protocol version 6, IP version 6 is the 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. The OSI Model we just looked at is just a reference/logical model. It was designed to describe the functions of the communication system by dividing the communication procedure into smaller and simpler components. But when we talk about the TCP/IP model, it was designed and developed by Department of Defense (DoD) in 1960s and is based on standard protocols. It stands for Transmission Control Protocol/Internet Protocol. The TCP/IP model is a concise version of the OSI model. It contains four layers, unlike seven layers in the OSI model. The layers are:

1.Process/Application Layer

2.Host-to-Host/Transport Layer

3.Internet Layer

4.Network Access/Link Layer

Q10.What is Web browser? Give some examples of browser.

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. The primary function of a web browser is to render HTML, the code used to design or 'mark up' webpages"

Types of Browsers-

1.Google Chrome

2.Mozilla Firefox

3.Microsoft Edge

4.Internet Explorer

5.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. Search engines utilize automated software applications (referred to as robots, bots, or spiders) that travel along the Web, following links from page to page, site to site. The information gathered by the spiders is used to create a searchable index of the Web.

Google, Yahoo, Bing, Baidu, and DuckDuckGo are popular search engines. Google is one of the most used search engines worldwide that is used with the Chrome browser. So, almost everyone is familiar with it.

Q12.how do we view my internet browser's history ?

Ans. On your Android phone or tablet, open the Chrome app Chrome.

At the top right, tap More More and then History.

If your address bar is at the bottom, swipe up on the address bar. Tap History History.

To visit a site, tap the entry.

To open the site in a new tab, touch and hold the entry. At the top right, tap More More and then Open in new tab.