CCA-102: Data Communications

ASSIGNMENT

Q:1 what are the different types of network.?

7 Types of Computer Networks Explained

- 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)

Q:2 explain the shielded twisted pair (STP) and unshielded twisted pair(UTP).?

When to Use Shielded Cable

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. As well as being protected from external interference, the shielding also keeps noise from exiting the cable, minimizing the chance of causing interference in other devices.

When to Use Unshielded Cable

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.

- Versatile
- Versatile
- Inexpensive
- Easy to install
- Lightweight
- Flexible

The main disadvantage of UTP cables is their susceptibility to electromagnetic interference and radio frequency interference. They also have a smaller bandwidth compared to coaxial cables or fiber optic cables.

Q:3 what is difference between baseband and broadband transmission.?

Difference Between Baseband and Broadband

S. No	Basis of Comparison	Baseband Transmission	Broadband Transmission
1.	Type of Signal	In baseband transmission, the type of signaling used is digital.	In broadband transmission, the type of signaling used is analog.
2.	Direction Type	Baseband Transmission is bidirectional in nature.	Broadband Transmission is unidirectional in nature.
3.	Signal Transmission	The Signal can be sent in both directions.	Sending of Signal in one direction only.
4.	Distance covered by the signal	Signals can only travel over short distances. For long distances, attenuation is required.	Signals can be traveled over long distances without being attenuated.
5.	Topology	It works well with bus topology.	It is used with a bus as well as tree topology.
6.	Device used to increase signal strength	Repeaters are used to enhance signal strength.	Amplifiers are used to enhance signal strength.
7.	Type of Multiplexing used	It utilizes Time Division Multiplexing.	It utilizes Frequency Division Multiplexing.
8.	Encoding Techniques	In baseband transmission, Manchester and Differential Manchester encoding are used.	Only PSK encoding is used.
9.	Transfer medium	Twisted-pair cables, coaxial cables, and wires are used as a transfer medium for digital signals in baseband transmission.	Broadband signals were sent through optical fiber cables, coaxial cables, and radio waves.
10.	Impedance	Baseband transmission has a 50-ohm impedance.	Broadband transmission has a 70-ohm impedance.

Q:4 what is the difference between a hub, modem, router and a switch.?

The Differences Between a Modem, a Router, a Switch and a Hub

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.

Q:5 when you move the nic cards from one pc to another pc does the mac address gets transferred as well.?

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.

Q:6 when troubleshooting computer network problems, what common hardware-related problems can occur.?

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**.

Common Hardware Problems and Expert Solutions

- Computer Freezing. The major reason for the hardware problem in a PC is overheating. ...
- System Error Blue Screen. The user often finds a blue screen when they start the computer. ...
- RAM Faults & Error. ...
- Liquid Spilled on PC. ...
- Noisy Computer.

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

Putting antivirus software on an **Internet border device**, whether the device is an email server or firewall, is the next best option. In today's world of email worms, Trojan horses, and infected Web pages, placing virus-scanning protection at the border offers excellent benefits for the cost.

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

What is the difference between a dynamic and static IP address

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 is an IP version widely used to identify devices on a network using an addressing system. It was the first version of IP deployed for production in the ARPANET in 1983. It uses a 32-bit address scheme to store 2^32 addresses which is more than 4 billion addresses. It is considered the primary Internet Protocol and carries 94% of Internet traffic.

.

IPv6 is the most recent version of the Internet Protocol. This new IP address version is being deployed to fulfill the need for more Internet addresses. It was aimed to resolve issues that are associated with IPv4. With 128-bit address space, it allows 340 undecillion unique address space. IPv6 is also called IPng (Internet Protocol next generation).
Internet Engineer Taskforce initiated it in early 1994. The design and development of that suite are now called IPv6.

Q:9 Discuss TCP/IP model in detail.?

TCP/IP Reference Model is **a four-layered suite of communication protocols**. It was developed by the DoD (Department of Defence) in the 1960s. It is named after the two main protocols that are used in the model, namely, TCP and IP. TCP stands for Transmission Control Protocol and IP stands for Internet Protocol.

Q:10 what is a web browser? give some example of browser.?

"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.

Q:11 what is a search engine? Give example.?

A search engine is **a web-based tool that enables users to locate information on the World Wide 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.

Q:12 What is the internet & WWW ? What are the uses of internet in our daily life?

The internet is a public network of network with a maze of wired and wireless connections between separate groups of servers computers and countless devices from around the world. The World Wide Web is distinguished from other systems through its use of HTTP (Hypertext Transfer Protocol).

Internet Use **to Speed Up Daily Tasks**

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.

Q:13 What is the Internet Service Provider ? Give some example of ISP in India.?

An Internet Service Provider (ISP) is **a company such as AT&T, Verizon, Comcast, or Spectrum that provides Internet access to companies, families, and even mobile users**. ISPs use fiber-optics, satellite, copper wire, and other forms to provide Internet access to its customers. The examples of some internet

service providers are **Hathway, BSNL, Tata teleservices, Verizon, Reliance Jio, ACT Fibernet** and many more working in India.

Q:14 Discuss the difference between MAC address, IP address and port address.?

The primary use of a MAC address is to ensure the physical address of a given device/ computer. The IP address, on the other hand, defines a computer's logical address. The MAC address primarily operates on the data link layer. The IP address primarily operates on the network layer.

Q:15 how do we view my internet browser's history.?

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

1. At the top right, tap More. History. If your address bar is at the bottom, swipe up on the address bar. Tap History .
2. 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. Open in new tab.