CCA-102: Data Communications ASSIGNMENT

Question.1:-What are the different types of networks?

Answer:- A computer network can be divided into the following types:

- based on the geographical area :-
  a) LAN(Local Area Network)
  b) Man(Metropolitan Area Network)
  c) WAN(Wide Area Network)

- based on functionality:-
  a) Client-server network
  b) Peer-to-peer network and etc.

Question.2:-Explain the Shielded twisted pair (STP) and Unshielded twisted pair(UTP).

Answer:-UTP(Unshielded Twisted Pair) and STP(Shielded Twisted Pair) are the types of twisted pair cables which act as a transmission medium and imparts reliable connectivity of electronic equipment. Although the design and manufacture are different but both serve the same purpose.

The basic difference between UTP and STP is **UTP (Unshielded Twisted Pair)** is a cable with wires that are twisted together to reduce noise and crosstalk. On the contrary, **STP (Shielded Twisted Pair)** is a twisted pair cable confined in foil or mesh shield that guars the cable against electromagnetic interference.

Question.3:-What is difference between baseband and broadband transmission?

Answer:-

S.No	Baseband Transmission	Broadband Transmission
1.	In baseband transmission, the type of signalling used is digital.	In broadband transmission, the type of signalling used is analog.
2.	Baseband Transmission is bidirectional in nature.	Broadband Transmission is unidirectional in nature.
3.	Signals can only travel over short distances.	Signals can be travelled over long distances without being attenuated.
4.	It works well with bus topology.	It is used with a bus as well as tree topology.
5.	In baseband transmission, Manchester and Differential Manchester encoding are used.	Only PSK encoding is used.

Question.4:-What is the difference between a hub, modem, router and a switch?

Answer:- **Modem**: 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 or 0s) that a computer can recognize.

Routers: 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.

Hubs : Unlike switches, hubs broadcast data to all ports, which is inefficient, so hubs are basically a multiport repeaters.

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) ,which deals with MAC addresses.

Question.5:- When you move the NIC cards from one PC to another PC, does the MAC address gets transferred as well?

Answer:- yes, that's because of MAC addresses is hard-wired into the NIC circuitry, not to the PC. This also means that a PC can have a different MAC address when other one replaced NIC card.

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

Answer:- 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.

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

Answer:- The best solution to install an Anti-virus program on all the computer in the network. This will protect each device from the other in case some malicious user tries to insert to the virus to the server or degitimate user.

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

Answer:- Static IP – A static IP address is always stays the same. If you have a web server, FTP server, or other Internet resource that must have an address that cannot change. It is more expensive than a dynamic IP.

Dynamic IP – A dynamic IP is an address that an ISP lets you use temporarily. If a dynamic address is not in use, it can be automatically assigned to a different device. Dynamic IP addresses are assigned using either DHCP or PPPoE.

Difference between IPv4 and IPv6-

IPv4&IPv6 are both IP addresses that are binary numbers. IPv4 is 32 bit binary number while IPv6 is 128 bit binary address. IPv4 address are separated by periods while IPv6 address are separated by colons.

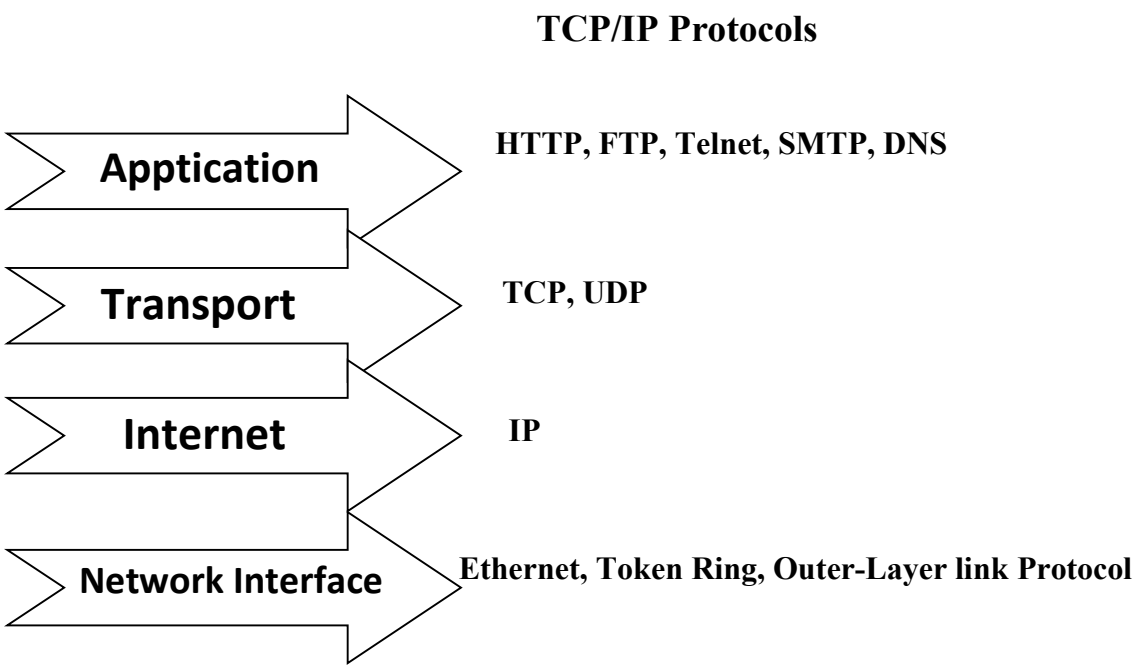
Both are used to identify machines connected to a network. In principle, they are the same, but they are different in how they work.

EX.-12.244.233.165(IPv4), 2001:0db8:0000:0000:ff00:0042:7879(IPv6

Question.9:- Discuss TCP/IP model in detail

Answer:-The TCP/IP Model is a compressed version of the OSI Model. This Model contains 4 layers unlike the OSI Model which are:

1. Process(Application Layer)
2. Host-to Host(Transport Layer)
3. Internet Layer(Network Layer)
4. Network Access(Combination of Physical and Data Link Layer)



Question.10:- What is a Web Browser (Browser)? Give some example of browsers.

Answer:- A web browser, or simply "browser", is an application used to access and view websites. Common web browsers include Microsoft Internet Explorer, Google Chrome, Mozilla etc.

Question.11:- What is a search engine? Give example.

Answer:- 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!, MSN Search etc.

Question.12:- What is the Internet & WWW? What are the uses of internet in our daily life?

Answer:- The Internet is a global network of networks while the Web, also referred formally as World Wide Web(WWW) is collection of information which is accessed via Internet. Another way to look at this difference is; the internet can be viewed as a big book-store while the Web can be viewed as collection of books on the store. The most common use of internet is**; for shopping, in education, gamming, communication, in traveling etc.**

Question.13:- What is an Internet Service Provider? Give some example of ISP in India.

Answer:- An Internet service provider(ISP) is a company that provides customers with Internet access. It is often referred to as just "The Provider". Data may be transmitted using several technologies, including dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects.

Reliance Jio, Airtel, Vi, BSNL, ACT Fiber net etc. are some popular ISP in India.

Question.14:- Discuss the difference between MAC address, IP address and Port address.

Answer:- Both MAC Address(6 byte hexadecimal address) and IP Address(4 or 16 byte) are used to uniquely identify a machine on the internet. MAC address is provided by the chip maker while IP Address is provided by the Internet Service Provider. The IP address is a numerical label that helps to identify a specific device in the network and the Port address(16 byte) is a numerical value assigned to a process in the device.

Question.15:- How do we view my Internet browser's history?

Answer:- We can view Internet browser's history by the following

1- Open the browser and press Ctrl+H to view history and
2- a) Open Internet browser → b) click the three(dot or horizontal line) icon in the upper-right corner → c) a drop – down list is appear →d)select History option.