CCA-102: DATA COMMUNICATIONS

ASSIGNMENT

1. What are the different types of networks?

   ANSWER. The different types of networks are

   1. Local Area Network (LAN)

   ➢ A local area network (LAN) is usually privately owned and links the devices in a single office, building, or campus as shown in figure given below:

   ➢ Depending on the needs of an organization and the type of technology used, a
   LAN can be as simple as two PCs and a printer in someone's home office; or
   it can extend throughout a company and include audio and video peripherals.

   ➢ Currently, LAN size is limited to a few kilometers.

   ➢ LANs are designed to allow resources to be shared between personal
   computers or workstations.

   ➢ The resources to be shared can include hardware (e.g., a printer), software
   (e.g., an application program), or data.

   ➢ One of the computers may be given a large capacity disk drive and may
   become a server to clients.

   ➢ Software can be stored on this central server and used as needed by the whole
   group.

   ➢ In addition to size, LANs are distinguished from other types of networks by
   their transmission media and topology.

   ➢ The most common LAN topologies are bus, ring, and star.

➢ Early LANs had data rates in the 4 to 16 megabits per second (Mbps)
range. Today, however, speeds are normally 100 or 1000 Mbps

WLAN

➢ IEEE has defined the specifications for a wireless LAN, called IEEE 802.11,
which covers the physical and data link layers.

➢ A BSS without an AP is called an ad hoc network; a BSS with an AP is called an
infrastructure network.

Wide Area Network (WAN)

➢ A wide area network (WAN) provides long-distance transmission of data,
image, audio, and video information over large geographic areas that may
comprise a country, a continent, or even the whole world.

➢ A WAN can be as complex as the backbones that connect the Internet or as
simple as a dial- up line that connects a home computer to the Internet.

2. Explain the Shielded Twisted Pair (STP) and Unshielded Twisted Pair (UTP).
   Answer. Shielded twisted pair (STP) is a special kind of copper telephone and local area network (LAN) wiring used in some business installations. To Reduce cross talk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each Signal on twisted pair requires both wires.
   Unshielded Twisted Pair (UTP) is a ubiquitous type of copper cabling used in telephone wiring and local area networks (LANs).
3. What is difference between baseband and broadband transmission?
   Answer. The baseband transmission uses the complete bandwidth for transmitting the signals and occupy the whole cable while in

broadband transmission, at the same time, multiple signals can be transmitted using multiple frequencies using only.

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

Answer. 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 point 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.

5. What is a Web Browser (Browser)? Give some example of browsers.
   Answer. A Web Browser is application software for accessing the World Wide Web. When a user requests a web page from a particular website, the web browser retrieves the necessary content from a web server and then displays the page on the user’s device.
   Web browsers include Microsoft Edge. Internet Explorer, Google Chrome, Mozilla Firefox, and Apple Safari.
6. What is a search engine? Give example.
   Answer. A program that searches for and identifies items in a database that correspond to keywords or characters specified by the user, used especially for finding particular sites on the World Wide Web.

Popular examples of search engines are google, yahoo!, and MSN Search.

7. What is the Internet & WWW? What are the uses of internet in our daily life?
   Answer. Internet is a global network of networks. Internet is a means of connecting a computer to any other computer anywhere in the world.
   WWW stands for World Wide Web. World Wide Web which is a collection of information which is accessed via the internet.
8. What is an Internet Service Provider? Give some example of ISP in India
   Answer. An Internet Service Provider is an organization that provides a myriad of services for accessing, using, or participating in the internet. Internet service providers can be organized in various forms, such as commercial, community-owned, non-profit, or otherwise privately owned.

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.

9. Discuss the difference between MAC address, IP address and Port address.

Answer. The main difference between MAC and IP address and Port address are

A MAC address is assigned to the network interface card by the manufacturer and is used for communication within the local area network. It is a globally unique

An IP address is used for communication within the local area network and for communication between network (usually through the internet).

Port Address are used as part of IP communication to determine which program the communication is to or form.

10. How do we view my Internet browser's history?

Answer. Open it by pressing Alt to show the menu bar, then choosing view -> sidebar -> history. Or, you can use the keyboard shortcut, Ctrl+H. You can also view your history if you click the hamburger menu bbutton in the top right- hand corner of your window, then click history.