CCA-102: Data Communications

ASSIGNMENT

1) What are the different types of network?

- ❖ LAN (Local Area Network)
- ❖ WLAN (Wireless Local Area Network)
- ❖ Ethernet
- ❖ WAN (Wide Area Network)

2) Explain the shielded twisted pair (STP) and Unshielded twisted pair (UTP)?

Shielded Twisted Pair:

   STP is also the type of twisted pair which stands for shielded twisted pair. In shielded twisted pair ground cable is required. Much more maintenance is needed therefore it is costlier than UTP.

Unshielded Twisted Pair:

   UTP is also the type of twisted pair cables which stands for Unshielded twisted pair. Both data and voice are transmitted through UTP because the frequency range is suitable. In UTP ground cable is not necessary and much more maintenance is not needed. Therefore it is cost effective.

3) What is the difference between baseband and broadband transmission?

Base Band Transmission	Broad Band Transmission
Digital signaling.	Analog signaling.
Baseband transmission is bi-directional.	Transmission is uni-directional.
Signal travelling distance is short.	Signal travelling distance is long.
Single signal Transmission.	Multiple signals over different frequencies.
Example: Ethernet using baseband for LAN.	Example: Used to transmit cable TV to premises.

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

Modem	Router	Hub	Switch
Decodes the signal from ISP	Does not decodes the signal from ISP	Physical layer	Data link layer
Connect directly to the Internet	It requires Modem to connect to the internet	Maximum 4 ports	Switch can have 24 to 28
Doesn't set up a local network	Establishes a local network	Half-duplex transmission mode	Full-duplex transmission mode
It is not responsible for Wi-Fi	Creates and setup Wi-Fi	Cannot be used as a repeater	Used as a repeater

5) When you move the NIC cards from one PC to another PC, does the MAC address get transferred as well?

Yes, the MAC address get transferred that's because MAC address are hard-wired into the NIC circuitry, not the PC. This means that PC has different MAC addresses when the NIC card was replaced by another one.

6) When troubleshooting computer network problems, what common hard-ware related problem can occur?

A large percentage of network is hardware. Problems in these areas can lead to malfunctioning of hard drives, broken NIC's and even hardware startups.

7) In a network that contains two servers and twenty work stations, where is the best place to install an Anti-virus program?

In a network that contains two servers and twenty workstations, an anti-virus program must be installed on all servers and workstations because an individual user can access any workstation and can introduce a computer virus.

8) Define Static IP and Dynamic IP? Discuss the difference between IPV4 and IPV6?

Static IP:

A Static IP address makes it easier to work remotely using a Virtual Private Network (VPN) or Voice over Internet Protocol (VoIP). When an device to Static IP address, the address does not change.

Dynamic IP:

A Dynamic IP address is one which are assigned by the network when they connect and change over time.

IPV4	IPV6
Addresses are 32 bits	Addresses are 128 bits
Addresses are seperated by periods	Addresses are separated by colons
Used to identify machine connected networks	Used to identify machine connected networks

9) Discuss TCP/IP model in detail.

➢ Internet architecture is based on the specification of the standard TCP/IP, designed to connect to any two networks which may be very different in hardware, software and technical design.
➢ Once two networks are interconnected, communication with TCP/IP is enabled end-to-end, so that any node on the internet has the magical ability to communicate with any other no matter where they are.
➢ TCP/IP model has different layers such as Application layer, Transport layer, Internet layer, Network Access layer.
➢ TCP refers to Transmission Control Protocol and IP refers to Internet Protocol.
➢ TCP/IP is more reliable which does not have any strict boundaries.
➢ TCP/IP uses both presentation and session layer at application layer itself.
➢ It does not provide any assurance for the delivery of packets.
➢ In TCP/IP, Network layer provides only less connection.
➢ Protocols cannot be replaced easily in TCP/IP model.

10) What is a Web Browser? Give some examples for web browser?

A web browser is a software application for accessing information on the World Wide Web (WWW).It is an application used to access and view websites.

Examples: Some commonly used web browsers are Microsoft Internet Explorer, Google chrome, Mozilla fire fox, Apple safari etc…

11) What is search engine? Give examples.

A search engine is a web based tool that enables users to locate information on the World Wide Web (WWW).

Example: Google, Yahoo

12) What is the Internet and WWW? What are the uses of Internet in our daily life?

Internet:

The Internet is a vast network that connects computers all over the world. Through the Internet, people can share information and communicate from anywhere with an Internet connection.

World Wide Web (WWW):

Tim Berners-Lee invented the World Wide Web (WWW). The World Wide Web or simply web, is a way of accessing information over the medium of the internet. The www is the universe of the network accessible information. World Wide Web is also known as W3.

Internet in our daily life:

Internet is used in our daily purposes as,

➢ To send Electronic mail (E-mail).
➢ In research.
➢ To download files.
➢ In Education and Self – empowerment as online courses and workshops.
➢ To read Electronic newspapers and magazines.
➢ In job hunting and
➢ In shopping the products in online.

13) What is Internet Service Provider (ISP)? Give some examples of ISP in India.

- An Internet Service Provider (ISP) is an organization that provides services for accessing, using or participating in the internet.
- Internet services typically provided by ISP's include Internet access, Internet transit, Domain name registration, web hosting and Usenet services.

Types of ISP's:

❖ Dial –Up services.
❖ Broadband high-speed Internet.
❖ Digital Line Subscribers (DSL).

Examples of ISP's in India: Airtel, Vodafone, Reliance Jio, BSNL etc….

14) Discuss the difference between MAC address, IP address and Port address.

MAC address	IP address	Port address

Stands for Media Access Control	Stands for Internet Access Protocol	It is used to identify processes or services on your system
It is a six byte hexadecimal address.	It is a four byte(IPV4) or six byte (IPV6)	Port number is 16 bit numbers
Cannot be easily found by third party	Can be easily found by the third party	Port number for application is provided by kernel Os

15) How do we view my Internet's browsing history?

In Google Chrome, at the top right of its window select the history or press Ctrl + H on your keyboard to view your browsing history.