DATA COMMUNICATION

Assignment

1. Types of Networks:-

* LAN
* WLAN
* WAN

LAN(Local Area Network)

* A Local Area Network is usually privately owned and links the devices in a single office building or campus.
* currently LAN size is limited to a few kms
* LANS are designed to allow resources to be shared between personal computer or workstations.
* The resources to be shared can include hardware / Software or data.
* Software can be stored on this central server and used as needed by the whole group.
* The most common LAN topologies are bus, ring and star.
* Ethernet (IEEE 802.3) is one example of LAN.

WLAN(Wireless LAN)

* IEEE has defined the specifications for a wireless LAN, called IEEE 802.11, which cover 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.

WAN(wide Area Network):-

* A wide Area Network provides long distances transmission of data, image, audio and video information over large geographic areas that may compose 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 lines that connects a home computer to the internet.

* The switched WAN connects the end systems, which usually comprises a router that connects to another LAN or WAN.

2) Shielded Twisted Pair (STP):-

* shielded twisted pair (STP) is a special kind of copper telephone and local area network (LAN) wiring used in some business installations.

* Twisted pair is the ordinary copper wire that connects may computer networks.

* To reduce cross-talk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other.

Unshielded Twisted Pair (UTP):-

* UTP cables are mostly used for LAN networks

* They can be used for voice, low-speed data, high-speed data, audio and paging statement systems, and building automation and control systems.

* UTP cable can be used in both the horizontal and backbone cabling subsystems.

* UTP is a ubiquitous type of copper cabling used in telephone wiring and LANS.

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3) Baseband and broadband transmission:-

Base band transmission	Broadband transmission
* Baseband technology was digital signals in data transmission	Broadband technology uses analog signals in data transmission.
It sends binary values directly as pulses of different voltage levels.	It is uses a special analog waves known as the carrier wave.
Baseband supports bidirectional communication.	Broadband supports only unidirectional communications.
Baseband technolog is mainly used in Ethernet networks used in to exchange data between nodes	Broadband is typically used in an environment, that transmits audio, video, and data simultaneously.
use coaxial, twisted-pair and fiber-opticables	use radio waves, coaxial cables, and fiber opticcables.

4) Hub	Modem	Router	switch.
The passive hub connects the wires coming from different branches.	A modem modulates and demodulates electrical signals sent though Phone lines coaxial cables	Routers are conceptually similiar to bridges, except that they are found in the network layer.	When we use the term switch we must be careful because a switch can mean two different thing.
Active hubs or a multiport repeaters operate only at the physical layer	A modem modulates one or more carrier waves Signals to encode digital information.	A router is a layer-3 device that routes packets based on their logical addresses.	A 12 switch is a bridge and performs up to data link layers.

Passive hubs redirects the traffic on the connected machines	modems can be used with almost any means of analog signal	The routing tables are normally dynamic and are updated using routing protocol	A L3 switch and router is synonymous and more sophisticated

5) move the NIC cards from one PC to another PC, does the MAC address gets transferred?

* Yes, that's because MAC addresses are hardwired into the NIC writing, not the PC.

* This also means that a PC can have a different MAC addresses when another one replaced the NIC card.

* NIC is short for network Interface card.

* MAC Stands for media Access control.

6) When troubleshooting computer network problems, what common hardware - related problem 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.

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

7) where is the best place to install an Anti virus. Program?

* 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.

* An anti-virus program is installed in the best place.

5) Static IP:-

* A static IP is an IP address that always stays the same.

* A static IP address is usually more expensive than a dynamic IP address, and some ISPs do not supply static IP address.

Dynamic IP:-

* A dynamic IP is an IP address that an ISP lets you use temporarily.

* dynamic IP addresses are assigned using either DHCP or PPPOE

Distance between IPV4 and IPV6:-

IPV4	IPV6
IPV4 is 32 bit binary number.	IPV6 is 128 bit binary number.
IPV4 address are separated by periods.	IPV6 address are seperated by colons.
Unicast, broadcast and multicast of Addresses.	Unicast, multicast and anycast is type of addresses.

9) TCP/IP Model:-

* The Internet protocol suite, commonly known as TCP/IP, is the set of communications protocols used in the internet and computer network.

The current foundational protocols in the suite are the transmission control protocol (TCP) and the internet protocol (IP)

layers:-

1) Application layer, Network Interface Layer.
2) Transport layer.
3) Network Interface layer.
4) Internet layer.

Application layer:- * The application layer includes the protocols used by most applications for providing user services or exchanging application data over the network connections established by the lower level protocols.

Transport layer:- * The transport layer establishes basic data channels that applications use of task specific data exchange

Internet Layer:- * The Internet layer provides an unreliable datagram transmission facility.

Network Interface layer:- * A network layer is a combination of the data line and defined in the article of OSI reference model

10) Web browser:-

* A web browser is computer software application that functions at the application layer of an open system interconnection model and allow users to access the internet.

* A web browser is application software for accessing the world web.

Examples:-

Google Chrome, Mozilla Firefox, Apple Safari, Microsoft Edge, Opera, Internet Explorer.

11) Search engine:-

* A Search engine is a software program that helps people find the information they are looking for online using keywords or phrases.

* Search engines are able to deliver results quickly even with millions of websites online - by scanning the internet continuously and indexing every page they.

Examples:- Google, Bing, yahoo!, Baidu, AOL, DuckDuckGo, and MSN search.

12) Internet:-

* The Internet is a global networks of networks connecting millions of users world wide via many computer networks using a simple standard common addressing system and basic communications protocol called TCP/IP.

* Its evolution depends on rough consensus about technical proposals, and no running code

www:- * www stands for world wide web. The world wide web is the universe of network accessible information. www can be defined as "All resources and users on the Internet that are using the HTTP.

Uses of Internet in daily life:- Education, shopping, research and development, digital transactions, money management.

13) Internet Service Provider:-

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

Example:- BSNL, Airtel, Jio, and Vodafone.

14)

MAC address	IP address	Port address
MAC stands for Media Access Control.	IP stands for Internet Protocol	Ports are ranging from 0 to 65535
It consists of a 48-bit address	It consist of a 32-bit address	It consist of a 16-bit address
It is referred to as a physical address	It is referred to as logical address	Port is address of system
It works at the link layer of the osi model	It works at the network layer of osi model	Port address of the particular service on the particular system.
classes are not used in MAC address	in IP, IPV4 uses A, B, C, D and E classes.	Port address used for remote access

15) View my Internet browser's history:-

1) Open Google Chrome.
2) Click : This option is in the top-right corner
3) Select History.
4) Click History. It's at the top of the Pop-out menu.
5) Review your browsing history