

Introduction to Networks.

Date _____ No. _____

Computer Network.

A network is the interconnection of set of devices capable of communication where devices are connected via transmission media.

A device can be,

01. A host (an end system)

such as large computer, desktop, laptop, workstation, cellular phone or security system.

02. A connecting device.

such as a router (connects networks to other networks), a switch (connects devices together), a modem (modulator-demodulator)

Connecting Devices.

Connecting Devices

Networking Devices

Repeaters Bridges

Internetworking Devices

Routers Gateways

Repeater.

- * Regenerates the original signal where it used to extend the physical length of a network.

Bridge.

- * A bridge in a computer network is one kind of network device, used to separate a network into sections.
- * Bridge also used as a traffic controller.

Switch.

- * A switch is device which capable of connecting number of devices where it can use to expand the network.

Categories of Networks.

01. LAN - Local Area Network.
02. MAN - Metropolitan Area Network.
03. WAN - Wide Area Network.

LAN (Local Area Network)

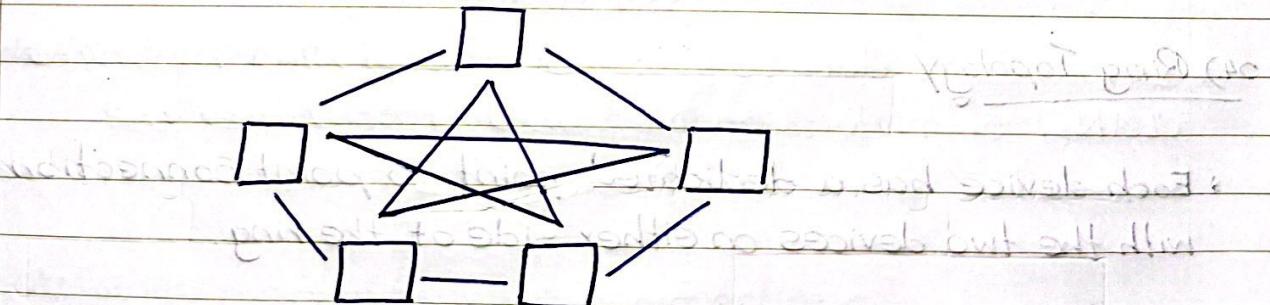
- * A local area network is a computer network that interconnects computers within a limited area such as a residence, school, laboratory, university campus or office building.
- * LAN allows resource sharing between computers.
 - Computers
 - Printers
 - Scanners

Physical Topology.

- * This is the physical layout of a network. Two or more devices connect to a link.
- * The geometric relationship between the links and linking devices (called nodes) is the topology.
- * There're 4 basic topologies.
 01. Mesh Topology.
 02. Star Topology.
 03. Bus Topology.
 04. Ring Topology.

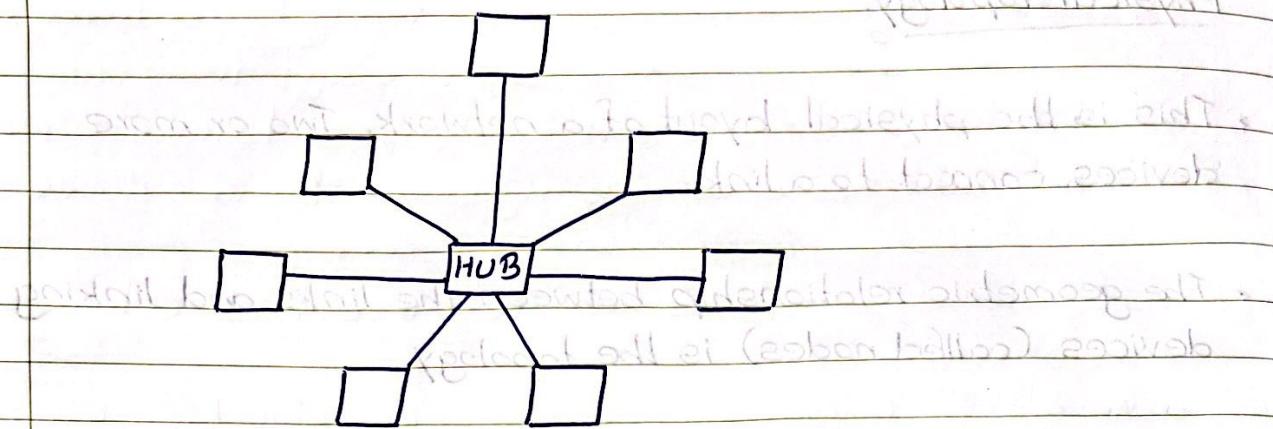
01) Mesh Topology.

- * Every device has a dedicated point to point link with every other device.



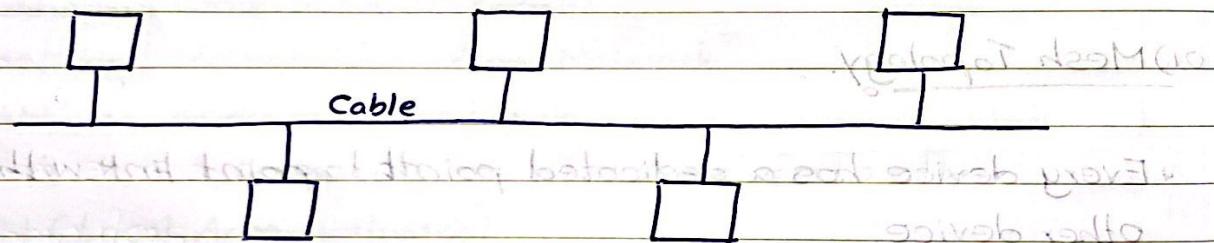
02) Star Topology.

- * Each device has a point to point dedicated connection to a central controller called hub.
- * The controller act as an exchange.



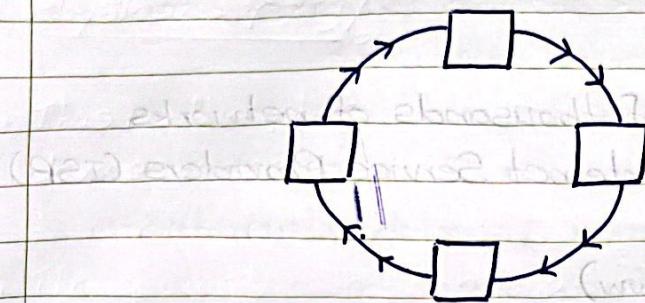
03) Bus Topology.

- * A multipoint connection where a single cable (called a backbone) runs through linking all the devices.



04) Ring Topology

- * Each device has a dedicated point to point connection with the two devices on either side of the ring.
- * Signals only travels in one direction. (clockwise or counter-clockwise)
- * When a device receives a signal intended for another device, it simply regenerates it and passes it to the next device.



MAN (Metropolitan Area Network)

- * MAN connects a number of LANs into a larger network so that resources may be shared LAN to LAN as well as device to device.
- Ex: A company uses a MAN to connect the LANs in all of its offices throughout a city.

- * MAN is designed to extend over an entire city.

WAN (Wide Area Network)

- * As the name suggests, a WAN spans a wide geographical area.
Ex: a town, a state or even the world.
- * A WAN interconnects connecting devices such as switches, routers or modems.

The Internet.

- * The internet is composed of thousands of networks which connected through Internet Service Providers (ISP)

World Wide Web (www)

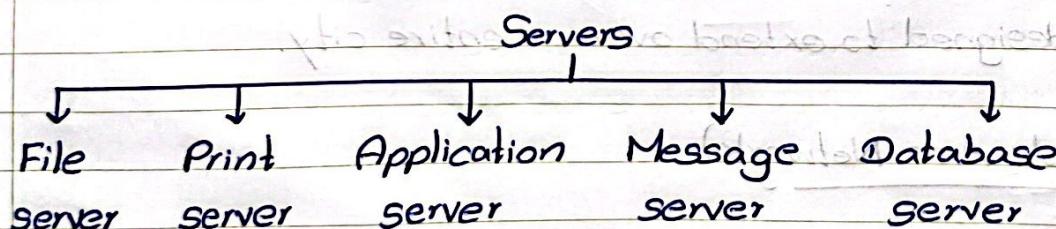
- * The world wide web (www) is a system of internet servers that support specially formatted documents.

- * The documents are formatted in a markup language called HTML (Hyper Text Markup Language) that supports links to other documents, graphics, audio and video files.

Server.

(should work with all operating systems) NAME:

- * A server is a computer that provides data to other computers.
- * It may serve data to systems in Local Area Networks (LANs) or Wide Area Networks (WANs) over the internet.



Quiz

Date _____

No. _____

Q1) What is networking and internetworking?

Networking : Interconnection of computers / devices.

Internetworking : Interconnection of networks.

Q2) What is LAN, MAN & WAN?

* LAN is a group of network devices that allow communication between various connected devices. It covers small areas.

- * MAN connects a number of LANs into a large network.
- * WAN spans a large geographical area such as country / continent etc.

Q3) What is file server, print server, application server, message server & database server?

- * File server hosts all kinds of files usually through a different protocol with web servers.
- * Print server is just a device used to allow multiple users to queue their print jobs to the printer.
- * Application server runs the programs and processes the data.
- * Message server sends, receives and relays messages.
- * Database server hosts databases.

Q4.) What is computer network and what are the different types of networks available.

* A network refers to 2 or more connected computers that can share resources such as data, a printer, an internet connection, applications or a combination of these resources.

types of networks are LAN, MAN, WAN

Local Area Network (LAN)

Wide Area Network (WAN)

Metropolitan Area Network (MAN)

Q5.) What is client server architecture?

In client server architecture, clients request services from servers.

Ex:- In a bank, customers are the clients and the bank is the server.

client sends requests to server.