**Chapter-1**

**(Introduction to Networks)**

**1. What’s a Network?**

**Ans:** *network* is a group or system of interconnected people or things.

in the computer world, the term *network* means two or more connected  
computers that can share resources such as data and applications, offie machines, an Internet connection, or some combination of these.

**2. What are LAN and WAN?**

**Ans:** A LAN is used to connect a group of hosts together and

a WAN is used to connect various LANs together.

**3. Write about Common Network Components.**

**Ans:** There are three Common Network Components:

* **Workstations:** *Workstations* are often seriously powerful computers that run more than one central processing unit (CPU) and whose resources are available to other users on the network to access when needed.
* **Servers:** *Servers* are also powerful computers. They get their name because they truly are “at the service” of the network and run specialized software for the network’s maintenance and control known as the *network operating system*.
* **Hosts:** *host* means any network device with an IP address.

**4. Write about the difference between WAN and LAN.**

**Ans:**

* WANs usually need a router port or ports.
* WANs span larger geographic areas and/or can link disparate locations.
* WANs are usually slower.
* WANs can utilize either private or public data transport media such as phone lines.

**5. What are the advantages of MPLS(Multi-Protocol Label Switching) ?**

**Ans:**

* Physical layout flexibility
* Prioritizing of data
* Redundancy in case of link failure
* One-to-many connection

**6. Describe the network types.**

**Ans:** There are two main network types:

* **Peer-to-Peer Networks:** Computers connected together in *peer-to-peer networks* do not have any central, or special, authority—they’re all *peers*, meaning that when it comes to authority, they’re all equals.
* **Client-Server Networks:** *Client-server networks* are pretty much the polar opposite of peer-to-peer networks because in them, a single server uses a network operating system for managing the whole network.

**7. Write the names of network topologies.**

**Ans:**

* **Bus Topology:** A bus topology is a network setup in which each computer and network device are connected to a single able or backbone(coaxial cble).

Advantage: It’s easy to install and it’s not very expensive.

Disadvantage: It’s hard to troubleshoot, change or move

And it really doesn’t offer much in the way of fault tolerance.

* **Star Topology:** A star topology’s computers are connected to a central point(like hub, switch) with their own individual cables or wireless connections.

Advantage:

1. New stations can be added easily and quickly

2. A single cable failure won’t bring down the entire network.

3. It is relatively easy to troubleshoot.

Disadvantage:

1. The total installation cost can be higher because of the larger number of cables.
2. It has a single point of failure(the hub or other central device).

* **Ring Topology:** In this type of topology, each computer is directly connected to other computers within the same network in a circular shape.

Advantage:

1. This type of network topology is very organized.
2. There are no need for network server to control the connectivity between workstations.
3. Each computer has equal access to resources.

* **Mesh Topology:** In a mesh topology, each of the network node, computer and other devices are interconnected with one another.
* **Point-to-point Topology:** In appoint-to-point topology, it’s have a direct connection between two routers, giving a one communication path.
* **Point-to-Multipoint Topology:** A point-to-multipoint topology consists of a succession of connections between an interface on one router and multiple destination routers.
* **Hybrid Topology:** Hybrid topology means just that- a combination of two or more types of physical or logical network topologies working together within the same network.

**8. Write the measurement of right topology for the right network?**

**Ans:**

1. Cost
2. Ease of installation
3. Ease of maintenance
4. Fault-tolerance requirement.

**9. What is network backbone?**

**Ans:** Network backbone is a part of computer network infrastructure that interconnects various pieces of network.

**10. What is network Segments?**

**Ans:** A network segment is a portion of a computer network that is separated from the rest of the network by a device such as repeater, hub, bridge, switch or router.