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Assignment - I

Title :-

setup a wired LAN using layer switch & then IP switch of minimum four computers. It includes preparation of cable, testing of cable using line tests configuration machine using IP addresses, testing using PING utility & demonstration of the PING packets captured using wireshark packet analyz tool.

Objectives :-

1) To understand the structure & working of various networks including interconnecting devices used in them.
2) To get hands on experience of making testing cables.

Types of networks :-

1] LAN :- (Local Area Network)

A LAN connects network devices over a relatively short dista A networked office building, school, or home usually contains single LAN, though sometimes one building will contain a few small LANS (

and occassionally a LAN will span a group of buildings.

2] MAN :- (Metropolitan Area Network)

A network spanning a physical area larger than a LAN but smaller than WAN, such as a city. A MAN is typically owned & operated by single entity such as a goverment body or large corporation.

3] WAN :- (Wide Area Network)

As the term implies a WAN spans a large physical distance. The Internet is the largest WAN, spanning the Earth.

Types of Cables :-

1] Unshielded Twisted Pair (UTP) cable :-

Twisted pair cable comes into two vesties ① Shielded ② Unshielded

UTP is the most popular & is generally the best option for school networks.

Category	Speed	Use
①	1 Mbps	Voice Only (Telephone wire)
②	4 Mbps	Local Talk & Telephone
③	16 Mbps	10 Base Ethernet
④	20 Mbps	Token Ring
⑤	100 Mbps	100 Base Ethernet
	1000 Mbps	Gigabit Ethernet
⑤e	1000 Mbps	Gigabit Ethernet
⑥	10,000 Mbps	Gigabit Ethernet

2] Coaxial cable :-

It has a single copper conductor at it's center. A plastic layer provides insulation between the center conductor & braided metal shield. The metal shield helps to block any outside interference from

Although, it is difficult to install, it is highly resistant to signal interference.

Network Topology :-

1) Point to point topology.
2) Bus topology.
3) Star topology.
4) Ring topology.
5) Tree topology.
6) Mesh topology.
7) Hybrid topology.

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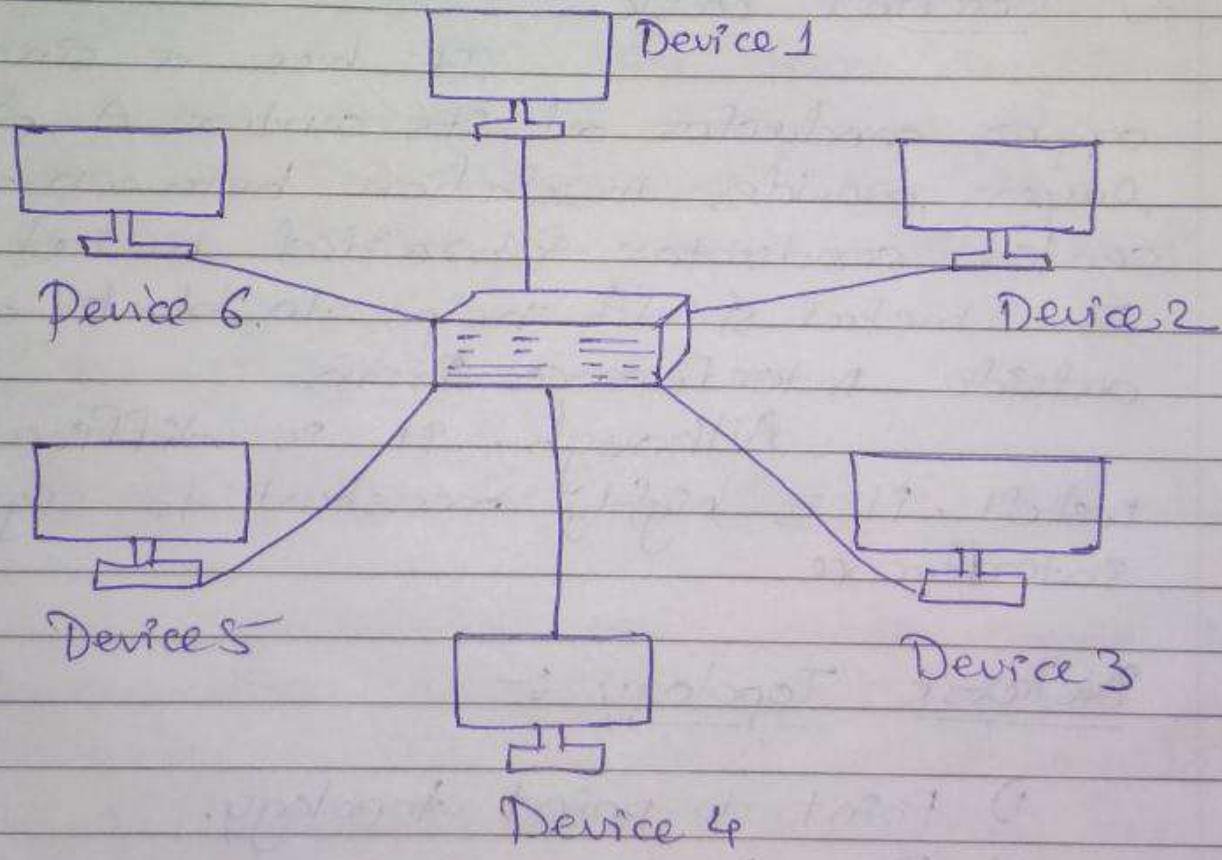
Star Topology :-

A star topology is designed with each node connected directly to a central network hub, switch or concentrator.

Data on a star network passes through the hub, switch or concentrator before continuing to its destination. The hub, switch or concentrator manages & controls all function of network.



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Advantages :-

1) Easy to install & wire.
2) No distruptions to the network when connecting or removing devices.
3) Easy to detect faults & to remove parts.

Disadvantages :-

1) Requires more cable length than a linear topology.
2) If the hub, switch or concentrator fails, nodes ~~add~~ immediately are disabled.
3) More expensive than linear bus.

Conclusion :-

We successfully learn the various networks & study of existing LAN.