Practical-2

Aim:

Study of different types of network cables.

a) understand different types of network cable.

different type of cables used in networking are:

1) unshielded Twisted pair (UTP) cable
2) Shielded Twisted pair (STP) cable
3) Coaxial cable.
4) Fibre optic cable.

cable Type	category	maximum data transmission	advantages / disadvantages	application / use
UTP	category 3	10 bps	advantages: • cheaper in cost • easy to install as they have a smaller overall diameter. disadvantages: • more prone to EMI	10 base-T ethernet
	category 5	up to 100 Mbps		Fast ethernet, gigabit ethernet
	category 5e	1 Gbps		fast ethernet gigabit ethernet
STP	category 6, 6a	10 Gbps	advantage • shielded • Faster than UTP • less susceptible to noise & interfere Disadvantage: • expensive • greater installation effort	gigabit ethernet 10G ethernet, (55 m) widely used in data centres
STP	category 7	10 Gbps		gigabit ethernet 10G ethernet (100 m)

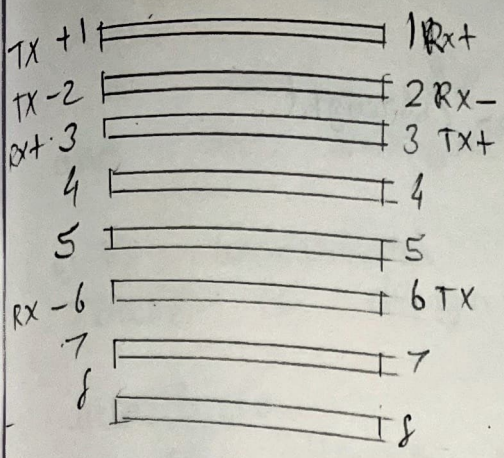
Coaxial cable	RG-6 RG-59 RG-11	10-100 Mbps	• high bandwidth • Immune to interferes • low loss bandwidth • versatile disadvantage: • Limited distance • cost • size is bulky	• speed of signal is 500 m. Television network high speed internet connections.
fibre optics cable	Singlemode multimode	100 Gbps	advantages: • high speed, bandwidth, security • long distance disadvantage: • expensive • Requires skilled installers	• maximum distance of fibre optics cable is around 100 meters.

b) make your own ethernet cross-over cable / straight cable

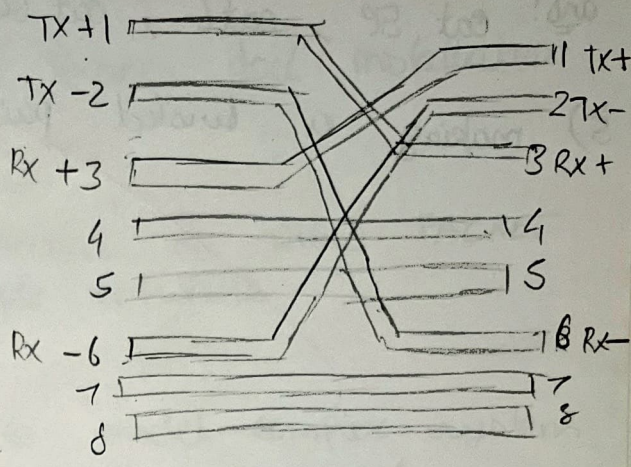
Tools and parts needed

- ethernet cabling, CAT5e is certified for gigabit support, but CAT5 cabling works as well, just over distances.
- Two RJ45 plugs
- optioned two plug shield

Straight throw cable:



X-over cable:



Student observation:

1) difference between cross cable & straight cable?

ans: Straight cable:

purpose: used to connect different types of devices

wiring: both ends of the cable have the same pin configuration

pin configuration: Follows the T568A or T568B wiring standard on both ends.

cross cable:

- purpose: used to connect similar devices directly
- wiring: one end follows T568A standard, the other follows T568B standard.

Pin configuration: the transmit and receive pins are swapped to enable direct communication.

2) Types of cable used to connect two PCs

ans cross cable.

3) Type of cable used to connect a Router / switch to your PC

ans: Straight cable.

4) category of Twisted p

ans: cat 5e, cat6, cat 6a

5) making a twisted pair cross / straight:

Result:

Therefore, the study of diffent types of network cables has been studied.