23/07/24

PRACTICAL - 2

AIM:

Study of different types of network cables.

a) Understand different types of network cable.

Different types of cable 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	Max data Transmission	Advantage / Disadvantage	Application / Use
UTP	Category 3	10 bps	Advantage • Cheaper in cost • Easy to install as they have a small Disadvantage • More prone to EMI	10 Base-T Ethernet
	Category 5	upto 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 Disadvantage • Expensive • Greater effort	Gigabit Ethernet 10G Ethernet Widely used in data center
SSTP	Category 7	10 Gbps		Gigabit Ethernet 10G Ethernet

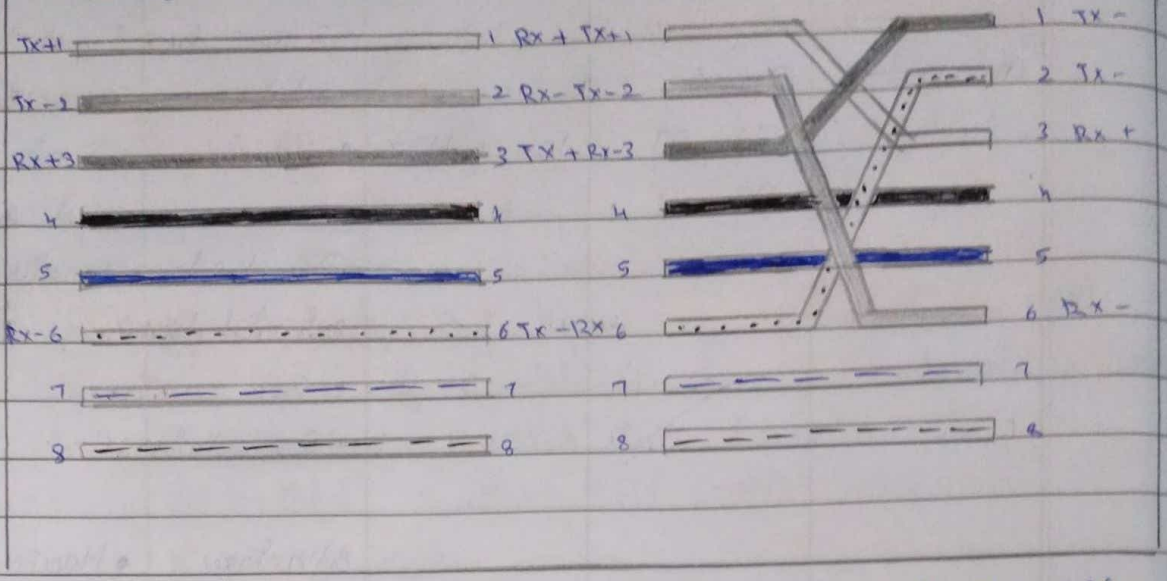
			• High bandwidth • Immune to interference • Versatile Dis-advantage • Limited data • Cost • Size is bulky	Speed of signal is 500m Television network High speed internet connections
Co-axial Cable	RG-6 RG-59 RG-11	10-100 Mbps		
fibre - optics Cable	Single mode multi mode	100 GBPS	Advantage • High-Speed • High-bandwidth • High-Security • Long distance Dis-advantage • Expensive • Require skilled installer	• 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. CAT 5e is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.
- A crimping tool. This is an all-in-one networking tool shaped to push down the pins in the plug & strip & cut the shielding off the cables.
- Two RJ45 plugs.
- optional two plug shields.

Straight thru cable



cross - over cable.

Difference b/w crossover cable & straight cable.

student observation

1. What is the difference b/w cross cable & straight cable?

Cross over cable are used to connect devices of the same nature (pc to pc, Router to Router, Switch to Switch, etc).

Straight through cables are used to connect devices of different devices (PC to Router, Hub to Route, Hub to PC)

2. Which type of cable is used to connect two PC (straight / cross cable).

Cross over Cable.

3. Which type cable is used to connect a route / Switch of your PC?

Straight Cable.

4. Find out the category of twisted pair cable used in your lab to connect the PC to the network socket.

RS-45 (UTP)

5. Write down your understanding, challenges faced & output received while making a twisted pair cross / straight cable.

The crimping machine should be perfect to cut the cable.

RESULT:

Thus the experiment study different types of network cables has been done successfully.