24/1/24

PRACTICAL - 2

AIM :

Study of different types of network cables.

a) UNDERSTAND DIFFERENT TYPES OF NETWORK CABLE

Different types of cables used in networking are :

(i) Unsheilded Twisted Pair (UTP) cable
(ii) Sheilded Twisted Pair (STP) cable.
(iii) Coaxial cable
(iv) Fibre optic cable.

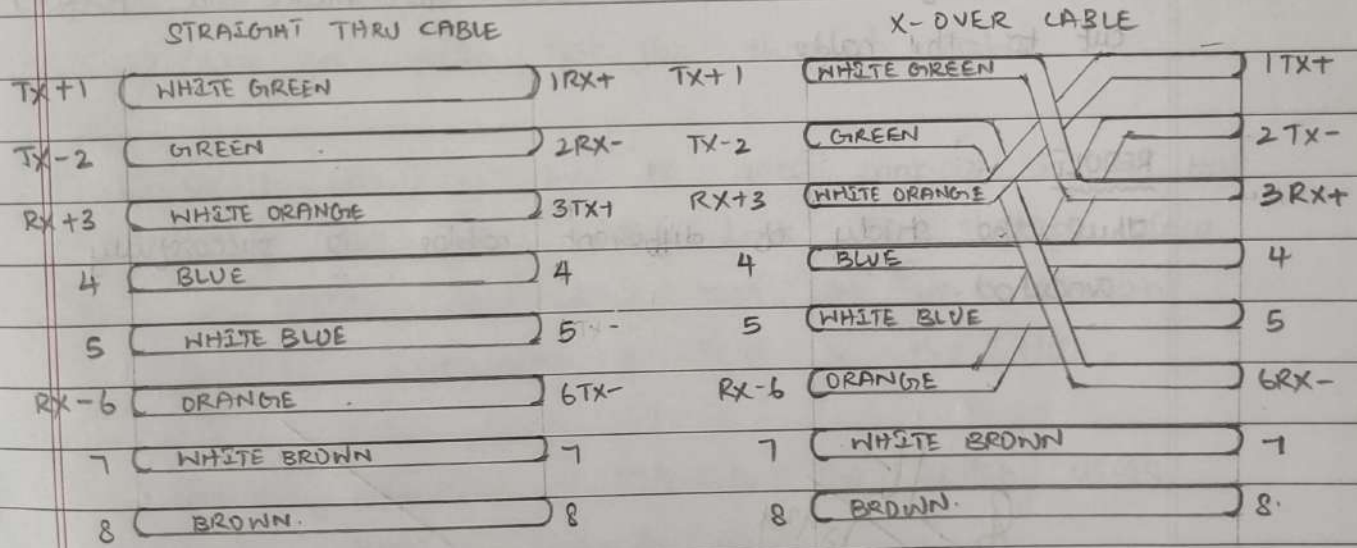
CABLE TYPE	CATEGORY	MAXIMUM DATA TRANSMISSION	ADVANTAGES / DISADVANTAGES	APPLICATION / USE
UTP	category 3	10 bps	Advantages : • cheaper in cost • Easy to install as they have a smaller overall diameter Disadvantages : • More prone to EMI ? Electromagnetic Interference and noise.	10 Base-T Ethern
	category 5	upto 100 Mbps		Fast Ethernet
	category 5e	1 Gbps		Fast Ethernet
STP	category 6, 6a	10 Gbps	Advantages : • shielded • Faster than UTP • Less susceptible to noise and Interference	Gigabit Ethernet, 10 G Ethernet (55 m) widely used in data centers

SSTP	category 7	10Gbps	Disadvantages: • Expensive • Greater installation effort.	Gigabit Ether-net 10G ethernet (100m)
Coaxial cable	RG6 RG 59 RG 11	10 - 100 MBPS	Advantages: • High bandwidth • Immune to interference • Low Loss bandwidth • versatile. Disadvantages: • limited Distance • cost • Size is bulky	Speed of signal is 500 m Television network High speed internet connections.
Fibre optics cable	Single mode Multi mode	100 Gbps	Advantages: • High speed • High bandwidth • High security • Long distance Disadvantages: • Expensive • Required skilled installers	Maximum distance of fibre optics cable is around 100 m

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 and strip and cut the sheilding off the cables.
- Two RJ 45 plugs.
- optional two plug sheilds.



STUDENT OBSERVATION:

1) What is the difference between cross cable and straight cable?

Cross over cables 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 Router, Hub to PC).

2) Which type of cable is used to connect two PC's?
Cross over cable.

3) Which type of cable is used to connect a router / switch to your PC?
Straight cable.

4) Find out the category of twisted pair cable used in your Lab to connect the PC to network socket.
RS-45 (UTP)

5) Write down your understanding / challenges faced and output received while making a twisted pair cross / straight cable.
The cripping tool must be used to make a perfect cut to the cable.

RESULT
Thus the study of different cables is successfully executed.

24/8/24