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)
2 Shielded Twisted Pair (STP)
3 Coaxial Cable
4 Fibre Optic Cable

Cable Type	Category	Max Data transmission	Adv/Disadv	Applications
UTP	Category 3	10 bps	Advs • Cheap • Easy to install Disadv • More prone to EMI	10Base-T Ethernet
	Category 5	Upto 100 Mbps		Fast Ethernet Gb Ethernet
	Category 5e	1 Gbps		
STP	Category 6, 6a	10Gbps	Adv • Shielded • Faster than UTP • Less susceptible to noise	Gb Ethernet 10Gb Ethernet (55 m) Widely used in data centers

SSTP	Category 7	10 Gbps	Disadv • Expensive • Intricate installation	Gb Ethernet, 10 Gb Ethernet (100 m)
Coaxial Cable	RG-6 RG-59 RG-11	10-100 Mbps	Adv • High BW • Immune to interference • Low loss BW Disadv • Limited distance • Cost • Size is bulky	Speed of signal is 500 m Television network High Speed Internet
Fibre Optics cable	Single mode Multi mode	100 Gbps	Adv • High Speed • High BW • High Security Disadv • Expensive • Requires skilled installers	Maximum distance of fibre optics cable is around 100 m

b) Make your own Ethernal Cross over Cable / Straight

- Ethernal cabling. CAT5e is certified for gigabit support, but CAT5 cabling works as well just over short distances
- A Crimping tool This is an all in one network tool shaped to push down the pins in the plug & strip
- Two RJ-45 plugs
- Optional 2 plug shields

Step 1 : Tostart construction of device, begin by threading shields onto the cable

Step 2 : Next, strip approximately 1.5cm of cable shielding from both ends. The crimping tool has a round area

Step 3 : After, you will need to untangle the wires there should be 4 'twisted pairs' Referencing back to the sheet,

Step 4 : Once the order is correct, bunch them together in a line, and if there are any that stick out farther than objects, snip them back to create even level.

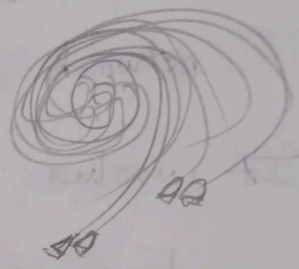
Steps: Next, push the cable right in. The notch at the end of the plug needs to be just over the cable shielding

Step 6: After the wires are securely sitting inside the plug insert it into crimping tool + push

Step 7: Lastly repeat for the other end using diagram B

Coaxial cable

Fibre Optics Cable



Optional two plug shields

TX	1
TX	2
RX	3
	4
	5
RX	6
	7
	8

Student observation

1) Straight cables are used for connecting different devices while cross over cables are used for connecting same devices

2) Grass Cable

3) Straight Cable

4) Star – All cables run to a common connection point. If one cable breaks or fails only the computer connected is unable to use the network

5) It involves carefully arranging wire pairs in the correct order, with challenges including maintaining proper wire alignment & avoid signal interference

Result

The Different types of Network Cables are studied.