

21/7/25

Experiment - 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	<u>Advantages</u> <ul style="list-style-type: none"> <li>• cheaper in cost</li> <li>• easy to install as they have a smaller overall diameter.</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• More prone to (EMI) electromagnetic interference and noise.</li> </ul>	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	<u>Advantages</u> <ul style="list-style-type: none"> <li>• Shielded</li> <li>• Faster than UTP</li> <li>• less susceptible to noise and interference</li> </ul>	Gigabit Ethernet, 10 G Ethernet (55 m) widely used in data centres.
SSTP	category 7	10 Gbps	<u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Expensive</li> <li>• Greater installation effort</li> </ul>	Gigabit Ethernet, 10 G Ethernet (100 m)

coaxial cable	RG-6 RG-59 RG-11	10-100 Mbps	<ul style="list-style-type: none"> <li>• High band width</li> <li>• Immune to interference</li> <li>• low loss bandwidth</li> <li>• versatile</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• limited distance</li> <li>• cost</li> <li>• size is bulky</li> </ul>	Speed of signal is 500m Television network High speed internet connections.
fibre optics cable	single mode multi mode	100 Gbps	<u>Advantages</u> <ul style="list-style-type: none"> <li>• High speed</li> <li>• High bandwidth</li> <li>• High security</li> <li>• long distance</li> </ul> <u>Disadvantages</u> <ul style="list-style-type: none"> <li>• Expensive</li> <li>• Requires skilled installers</li> </ul>	• Maximum distance of fibre optics cable is around 100 meters.

Student observation :

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

A) cross cable connects similar devices (eg PC to PC) while straight cable connects different devices (eg PC to switch)

2) which type of cable is used to connect two PC ?

A) To connect two PCs, a cross cable is used.

3) which type cable is used to connect a router / switch to your PC ?

A) To connect a router or switch to a PC, a straight cable is used.

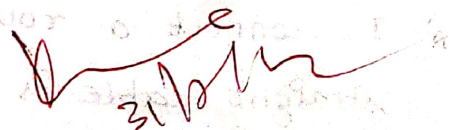
4) Find out the category of twisted pair cable used in your lab to connect the PC to the network socket.

\*) The common twisted pair cable used is Cat5e or Cat6.

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

\*) Making cables required careful pin alignment, challenge was crimping properly, but the output was a working connection.

Result : Thus the different types of network cables are studied.

  
31/12/20