

EX-NO: 02

STUDY OF DIFFERENT TYPES OF NETWORK CABLES.

DATE: 17-7-25

NETWORK CABLES.

Aim:

To Study the different types of Network cables.

a) Understand different types of Network cable

- Unshielded Twisted pair cable.
- Shielded Twisted pair cable.
- Coaxial cable.
- Fibre optic cable.

Cable Type	Category	Maximum Data Transmission	Advantages/Disadvantages	Application / Use
UTP	Category 3	10 Gbps	<u>Advantages</u> <ul style="list-style-type: none"> • Cheaper in cost • Easy to install as they have a smaller overall diameter <u>Disadvantages</u> <ul style="list-style-type: none"> • More prone to [EMI] Electromagnetic Interference & Noise 	10 Base-T Ethernet
	Category 5	upto 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"> • Shielded • Faster than UTP • Less Susceptible to Noise & interference 	Gigabit Ethernet, 10G Ethernet (55m) widely used in data center.
SSTP	Category 7	10 Gbps	<u>Disadvantages</u> <ul style="list-style-type: none"> • Expensive • Greater Installation effort 	Gigabit Ethernet, 10G Ethernet (100m)
Coaxial cable	RG-6 RG-59 RG-11	10-100 Mbps	<ul style="list-style-type: none"> • High bandwidth • Immune to Interference • Low loss bandwidth <u>Disadvantages</u> <ul style="list-style-type: none"> • Limited distance • cost • size is Bulky 	Speed of signal is 500m Television network high Speed of internet connection.

Fibre optic cable	Single mode Multi mode	100 Gbps	<u>Advantages</u> <ul style="list-style-type: none"> High speed High bandwidth High security Long distance. 	<u>Disadvantages</u> <ul style="list-style-type: none"> Expensive Requires skilled installers 	Maximum distance of fibre optic cable is around 100 metres.
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STUDENT OBSERVATION:

1. What is the difference between cross & straight cable?

Crossover cable: Used to connect similar devices directly.

The transmit and receive pairs are crossed [pin 1 connects to pin 3, pin 2 to pin 6].

Straight through cable: Used to connect different types of devices. The wiring on both ends is identical [pin 1 to pin 1, pin 2 to pin 2].

2. Which type of cable is used to connect two PC?
[Straight / cross cable]

Crossover cable

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

Straight through cable

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

The category of twisted pair cable used to connect the PC to the network socket is Cat 5e.

Usually found on the cable jacket. Common categories are Cat 5e or Cat 6, with Cat 5e being the most widely used for standard Ethernet connections.

5. Write down your understanding, challenge faced, Output received while making a twisted pair cross / straight cable.

Understanding: Twisted pair cables use specific wiring patterns - straight cables connect different devices with identical wiring on both ends, while crossover cables swap transmit & receive wires to connect.

Challenge faced: Keeping wire colors in correct order, handling small wires carefully, and ensuring a proper crimp connection without loose contacts.

Output received: A functional cable that successfully connects devices. A patch cable tester checks.

RESULT:

Thus the different types of cable is studied.

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