

Ex.-No: 02

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## STUDY OF DIFFERENT TYPES OF

## NETWORK CABLES.

Aim: To study the different types of Network cables.

To Study the different types of Network cables.

Q1. 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 Mbps	<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 &amp; Noise</li> </ul>	10 Base-T Ethernet Fast Ethernet, Gigabit Ethernet.
	Category 5	Up to 100 Mbps		
	Category 5e, 6, 6a	1 Gbps		
SSTP	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 &amp; interference</li> </ul>	Gigabit Ethernet, 10G Ethernet (55m) Widely used in data centers.
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, 10G Ethernet (100m)
Coaxial cable	RG-6 RG-59 RG-11	10 - 100 Mbps	<ul style="list-style-type: none"> <li>• High bandwidth</li> <li>• Immune to interference</li> <li>• Low loss bandwidth</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 of interface connection.

Fibre optic cable			Advantages	Disadvantages
Single mode	100 Gbps	• High speed • High bandwidth • High security • Long distance.	• Maximum distance • Fibre optic cable is around 100 meters.	• Expensive • Requires skilled installers
Multi mode				• Limited distance • Shorter lifespan • Higher signal loss • Propagation delay • Interference and noise

### STUDENT OBSERVATION

- 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].
- Which type of cable is used to connect two PCs?  
 [Straight / cross cable] A straight crossover cable.
- Which type of cable is used to connect a router / switch to your PC?  
 Straight-through cable.

- Find out the category of twisted pair cable used in your class to connect the laptop to the network socket?  
 The category of twisted pair cable used to connect the PC to the network socket in a LAN is

④  
Usually mounted on the cable jacket. common categories  
are Cat5e or Cat6, with Cat5e being the  
most widely used for standard Ethernet connections.

5. Write down your understanding, challenger faced <sup>Output</sup>  
received while making a twisted pair cross / straight  
cable.

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

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

Output received is a functional cable that successfully  
connects devices A & B. ~~using~~ <sup>After</sup> cable tester checks ~~it~~ <sup>it</sup> is  
working & helped ~~me~~ <sup>the</sup> address ~~the~~ <sup>the</sup> problem.

RESULT:

Thus the different types of cable is studied.

