

## Ex No 2 Study of Different types of 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

SSTP

coaxial cable

Cable Type	Category	Maximum Data transmission	Advantages/ Disadvantages	Application Use
UTP	Category 3	10 Mbps	<u>Advantages</u> • cheaper in cost • Easy to install as they have a smaller overall diameter	10 Base T Ethernet
	Category 5	upto 100 Mbps		Fast Ethernet
	Category 5e	1 Gbps	<u>Disadvantages</u> • More prone to [EMI] Electromagnetic interference & noise	Gigabit Ethernet
STP	Category 6, 6a	10 Gbps	<u>Advantages</u> • Shielded • Faster than UTP • Less Susceptible to noise & Interference	Gigabit Ethernet, 10G Ethernet (55m) widely used in data centres

Fibre optics cable

STUDE

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# Network Cables

## of Network

### Network Cable

switches

to core

switches

Application/  
use

10 Base-T  
Ethernet

Fast Ethernet,  
Gigabit Ethernet

Fast Ethernet,  
Gigabit  
Ethernet

Gigabit  
Ethernet,  
10G Ethernet  
(55m)  
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, 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 Internet connections
Fibre optics cable	Single mode Multimode	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 & 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 to [straight/cross cable]

Crossover cable.

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

Straight through cable.

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

The category of twisted pair cable used to connect a PC to the network socket in a LAN is usually Cat5e or Cat6, with Cat5e being the most widely used for standard Ethernet connections.

5. Write down your understanding, challenges 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 and receive wires to connect similar devices.

challenges faced

handling &

crimp connection

output received

connects devices

RESULT:

thus the

Q 1891

- challenges 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 & passes cable tester checks.

### RESULT:

Thus the different types of cable is studied.

~~Ques. 8/28 B/0~~