

Exp: no: 2

31/07/2025

Network cables

↳ logical layer 1: Unshielded optics

↳ physical layer 1: Optical fiber

Aim: To understand different types of Network cables.

Date: 31/07/2025

Time: 10:00 AM - 01:00 PM

J-3A / 100009

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10-09

Study of different types of Network cables

↳ physical layer 1: Optical fiber

cables (it's) formed:

↳ 1. Twisted pair

2. Coaxial cable

3. Fiber optic cable

4. Category 5 cable

5. Category 6 cable

6. Category 7 cable

7. Category 8 cable

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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 versatile <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Limited distance cost size is bulky, 	Speed of signal is 500m Television network High Speed internet connecting
Fibre optics	Single mode Multi mode	100 Gbps	<p><u>Advantages</u></p> <ul style="list-style-type: none"> High speed High bandwidth High security long distance <p><u>Disadvantages</u></p> <ul style="list-style-type: none"> Expensive Requires skilled installers 	• Maximum distance of fibre optics cable is around 100 meters

Student observation

1. what is the difference between cross cable and straight cable.

Feature

straight cable

cross cable

Same on both ends

Different wiring pattern

Used for

Connecting different types of devices (e.g. PC to switch)

Connecting similar devices (PC to PC)

Example devices

PC to Router, PC to Switch

PC to PC, Switch to Switch

Modern Devices

Many newer devices have Auto-MDIx and can auto-

still useful in some specific legacy setups.

Technology

adjust regardless

of port orientation.

2. Which type of cable is used to connect two PCs?

- Traditionally, a cross cable (twisted pair) connects two PCs directly without a switch or router in between.

3. Which type of cable is used to connect a
router / switch to your PC? - (a) straight cable (b) crossover

Ques 20) A straight cable is used to connect different devices, such as : Topic 2

- PC \leftrightarrow Switch (no address needed)
 - PC \leftrightarrow Router (address needed)

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

- cat5e (supports up to 1 Gbps)
 - Cat6 (Supports up to 10 Gbps over shorter distances)
 - catba, cat7, etc.,

~~Example: CAT 6 UTP 24AWG 4PR VERIFIED EIA/TIA
10 ft. old 568B PATCH CORD.~~

5. Write down your understanding, challenges faced,

and output received while making a twisted pair cross / straight cable.

Making a network cable involves arranging 8 color-coded wires in a specific sequence (T568A or T568B standard).

- For a straight cable, both ends use same standard.
- For a cross cable, one end uses T568A, the other uses T568B.

Result:

The various network cables are used in their connections are done successfully.