Date: 24/7/25.
Experiment: 2

AIM: Study of different types of Network cables

Different types 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 / Disadvantag	Application / Use
UTP	category 3	10 bps	Advantages • Cheaper in cost • Easy to install Disadvantage • More prone to EMI and noise	10Base-T Ethernet
	category 5	Upto 100 Mbps		Fast Ethernet Gigabit Ethernet
	category 5e	10 Gbps		Fast Ethernet Gigabit Ethernet
STP	category 6, 6a	10 Gbps	Advantages • Shielded • Faster than UTP • Less susceptible to noise and interference Disadvantages • Expensive • Greater installation effort	Gigabit Ethernet, 10G Ethernet (55m) Widely used in data centers
SSTP	category 7	10Gbps		Gigabit Ethernet, 10G Ethernet (100 m)

Cable Type	Category	Maximum Data Transmission	Advantages / Disadvantages	Application / Use
Coaxial cable	RG-6 RG-59 RG-11	10-100Mbps	Advantage • High bandwid-th • Immune to interference • Versatile Disadvantage • Limited distance • Cost	Speed of signal is 500m Television network high speed internet connections
Fibre optics cable	single mode Multimode	100Gbps	Advantages • High speed • High bandwidth • High security • Long distance Disadv: • Expensive • Required 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?

- Cross cable connects similar devices (e.g, PC to PC) while straight cable connects different devices (e.g., PC to switch)

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

- cross cable is used to connect two PCs directly

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

- Straight cable is used to connect a router or switch to a PC

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

- The commonly used category is Cat5e or Cat6 twisted pair cable.

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

- Straight cables link different devices, while cross cables connect similar ones.

Challenges: Proper wire alignment and crimping were tricky

Output: Successfully made a functional cable after testing.

RESULT:

Different types of networking cables are studied and observed.

3/7/26