Ex.no:02
Date: 23/07/24

Partical-2

Aim:

Study of different types of Network cables

a) Understand different types of network cable

Different type of cable 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	Advantage/ Disadvantages	Application/ Use
UTP	Category 3	10 bps	Advantage - Cheaper in cost - Easy to install as they have a smaller overall diameter Disadvantage - More prone to EMI	10Base-T Ethernet
	Category 5	Upto 100 Mbps		Fast Ethernet, Gigabit Ether
	Category 5e	1 Gbps		
STP	Category 6, 6a	10 Gbps	Advantage - Shielded - Faster than UTP - Less susceptible to noise and interference Disadvantage - Expensive - Greater installation	Gigabit Ethernet, 10G Ethernet (55m) Widely used in data centers
SSTP	Category 7	10 Gbps		Gigabit Ethernet, 10G Ethernet (100m)

Coaxial Cable	RG-6 RG-59 RG-11	10-100 Mbps	Advantage - High bandwidth - Immune to interference - Low loss bandwidth - Versatile Disadvantage - Limited distance - Cost - Size is bulky	Speed of signal is 500m Television network High speed Internet connections
Fibre Optics Cable	Single mode Multi mode	100Gbps	Advantage - High Speed - High bandwidth - High Security - Long distance Disadvantage - Expensive - Require skilled installers	Maximum distance of fibre optics cable is around 100 meters

Result: Thus the output is successfully verified

Student Observation

1)

Straight Cable	Cross Cable
Used to connect different types of devices, such as a computer to a switch or router.	Used to connect similar devices, such as a computer to another computer.
Follow the same wiring standard on both ends either T568A or T568B	One end follows the T568A standard and other end follows the T568B standard

2) Cross Cable are used to connect two PC's directly to each other

3) Straight Cable is used to connect a PC to a router or switch.

4) The category of twisted pair cable used in LAN is typically Cat 5e or Cat 6. These categories support high-speed data transmission and are commonly used in modern network setups

5)
My Understanding:

- Making a twisted pair cable involves properly arranged the internal wires and crimping the connectors.
- For straight cables, both ends will be followed the same wiring standard (T568A or T568B)
- For cross cable, one end of the wire uses T568A standard and other end uses T568B standard.

Challenges

- Precision in Wiring
- Crimping
- Testing

Output

- Straight Cable : Allow communication between types of devices
- Cross Cable : Enable direct communication between similar devices