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23/07/2024

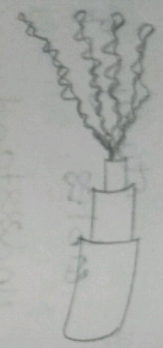
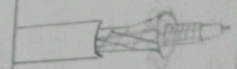
Experiment No.: Study of Network cables

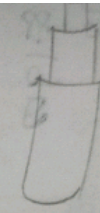
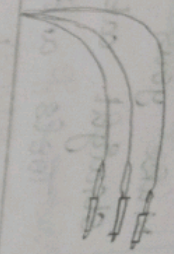
Aim:

study of different types of Network cables.

a) Understand different types of network cables:

1. Unshielded Twisted Pair (UTP) cable
2. Shielded Twisted Pair (STP) cable
3. Coaxial Cable
4. Fibre Optic cable

Cabel Type	Category	Maximum Data Transmission	Advantages / Disadvantages	Application / use	Image
UTP	category 3	10 bps	Advantages: 1) Cheaper in cost 2) Easy to install as they have a smaller overall diameter Disadvantages: 1) More prone to EMI and noise	10Base-T Ethernet Fast Ethernet Gigabit Ethernet Fast Ethernet, Gigabit Ethernet	
	category 5	upto 100 Mbps			
	category 5e	1 Gbps			
STP	Category 6, 6a	10 Gbps	Advantages: 1) Shielded 2) Faster than UTP 3) less susceptible to noise and interference Disadvantages: 1) Expensive 2) Greater installation effort	Gigabit Ethernet, 10G Ethernet (55m) Widely used in data centres Gigabit Ethernet, 10G Ethernet (100m)	
SSTP	Category 7	10 Gbps			
Coaxial cable	RG-6 RG-59	10-100 Mbps	Advantages: 1) High bandwidth 2) Immune to interferance 3) Less bandwidth is ...	Speed of signal is 500m Television network High ...	

SSTP	Category 7	10Gbps	and interference Disadvantages: 1) Expensive 2) Greater installation effort	data centres Gigabit Ethernet, 10G Ethernet (100m)	
Coaxial Cable	RG-6 RG-59 RG-11	10-100Mbps	Advantages: 1) High bandwidth 2) Immune to interferance 3) Less bandwidth is lose 4) versatile Disadvantages: 1) Limited distance 2) Cost 3) Size is bulky	Speed of signal is 500m Television network High speed internet connections.	
Fibre optics cable	Single Mode Multi mode	100 Gbps	Advantages: 1) High Speed 2) High Bandwidth 3) High security 4) Long distance Disadvantages: 1) Expensive 2) Requires skilled installers	Maximum distance of fibre optic cable is around 100 meters	

b) Make your own Ethernet cross-over cable/ straight cable:

Tools and parts needed:

1. Ethernet cabling: CAT5e is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.
2. A crimping tool. This is an all-in-one networking tool shaped to push down the pins in the plug and strip and cut the shieding off the cables.
3. Two RJ45 plugs.
4. optimal, two plug shields.

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Result:

The types of Network cables and making cross-wired cable & straight through cable using clamping/ crimping tool.

Experiment : 3

Aim:

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