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EXPERIMENT NO: 2

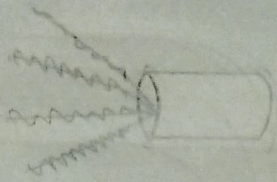
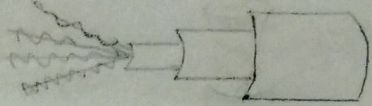
STUDY OF NETWORK CABLES


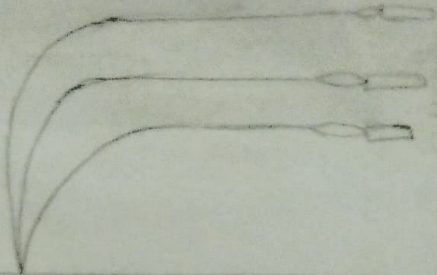
Aim:

Study of different types of network cables

a) Understand different types of network cables:

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

Cable Type	Category	Maximum Data Transmission	Advantages / Disadvantages	Application / Use	Image
UTP	Category 3 Category 5 Category 5e	10 Gbps upto 100 Mbps 4 Gbps	Advantages: <ol style="list-style-type: none"> 1) Cheaper in cost 2) Easy to install as they have a smaller overall diameter Disadvantages: <ol style="list-style-type: none"> 1) More prone to EMI and noise 	10 Base-T Ethernet Fast Ethernet Gigabit Ethernet Fast Ethernet Gigabit Ethernet	
STP	Category 6, 6A	10 Gbps	Advantages: <ol style="list-style-type: none"> 1) Shielded 2) Faster than UTP 3) Less susceptible to noise and interference. Disadvantages: <ol style="list-style-type: none"> 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	RG1-6 RG1-59 RG1-11	10 - 100 Mbps	<p>Advantages:</p> <ol style="list-style-type: none"> 1) High bandwidth 2) Immune to interference 3) Loss bandwidth is low 4) Versatile <p>Disadvantages:</p> <ol style="list-style-type: none"> 1) limited distance 2) cost 3) size is bulky 	<p>Speed of signal is 500m</p> <p>Television network</p> <p>High speed internet connections</p> 
Fibre optics cable	Single mode Multimode	100 Gbps	<p>Advantages:</p> <ol style="list-style-type: none"> 1) High speed 2) High bandwidth 3) High security 4) Long distance <p>Disadvantages:</p> <ol style="list-style-type: none"> 1) Expensive 2) Requires skilled technicians 	<p>Maximum distance of fibre optic cable is around 100 meters</p> 

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

Tools and parts needed:

1. Ethernet cabling:

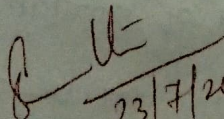
CAT5E is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.

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 shielding 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 and straight through cable using clamping/crimping tool.