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**Exp no:3a)** **Study of different types of network cables**

**Date:03.08.24**

**AIM:**

To study the different types of network cables

**1.Unshielded Twisted Pair (UTP) Cable**

Category 3:

- Data Transmission: 10 bps
- Application: Used in 10Base-T Ethernet

Category 5:

- Data Transmission: Up to 100 Mbps
- Application: Used in Fast Ethernet, Gigabit Ethernet

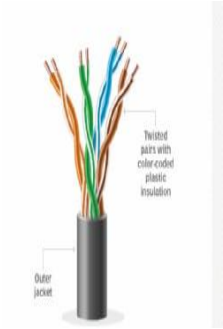
Category 5e:

- Data Transmission: 1Gbps
- Application: Used in Fast Ethernet, Gigabit Ethernet

Advantages: Cheaper in cost, Easy to install due to smaller diameter

Disadvantages: More prone to Electromagnetic interference (EMI) and noise

Image:



**2. Shielded Twisted Pair (STP) Cable**

Category 6, 6a:

- Data Transmission: 10Gbps
- Application: Used in Gigabit Ethernet, 10G Ethernet (55m), Widely used in data centres

Category 7:

- Data Transmission: 10Gbps
- Application: Used in Gigabit Ethernet, 10G Ethernet (100m)

Advantages: Shielded, Faster than UTP, Less susceptible to noise and interference

Disadvantages: Expensive, Greater installation effort

Image:


**3.Coaxial Cable**

RG-6, RG-59, RG-11:

- Data Transmission: 10-100Mbps
- Application: Used in Television network, High-speed internet connections

Advantages: High bandwidth, Immune to interference, Low loss bandwidth, Versatile

Disadvantages: Limited distance, Cost, Size is bulky

Image:

**4.Fibre Optic Cable**

Single mode, Multi mode:

- Data Transmission: 100Gbps
- Application: Maximum distance of fibre optics cable is around 100meters

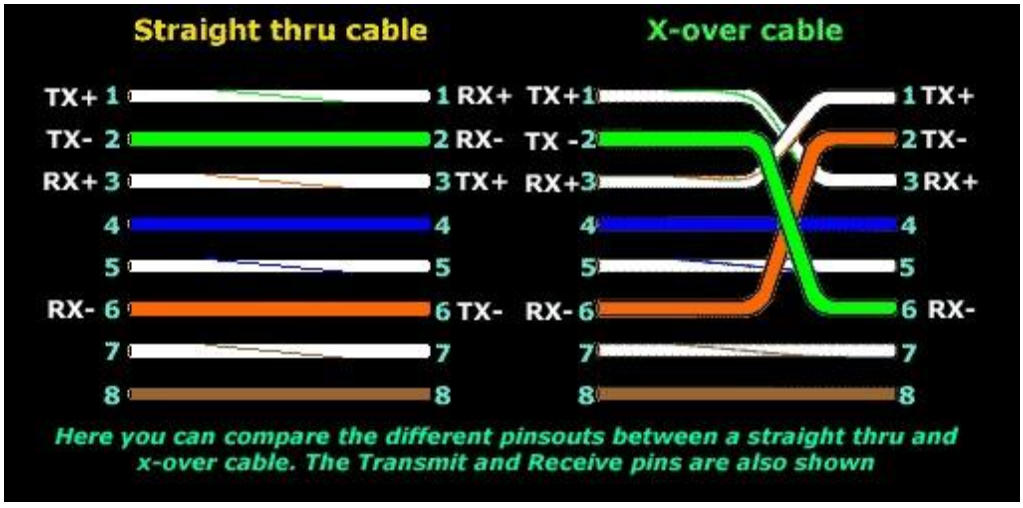
Advantages: High speed, High bandwidth, High security, Long distance

Disadvantages: Expensive, Requires skilled installers, Maximum distance around 100 meters
Image:

**Make Your Own Ethernet Cross-Over Cable/ Straight cable**

Tools and parts needed:

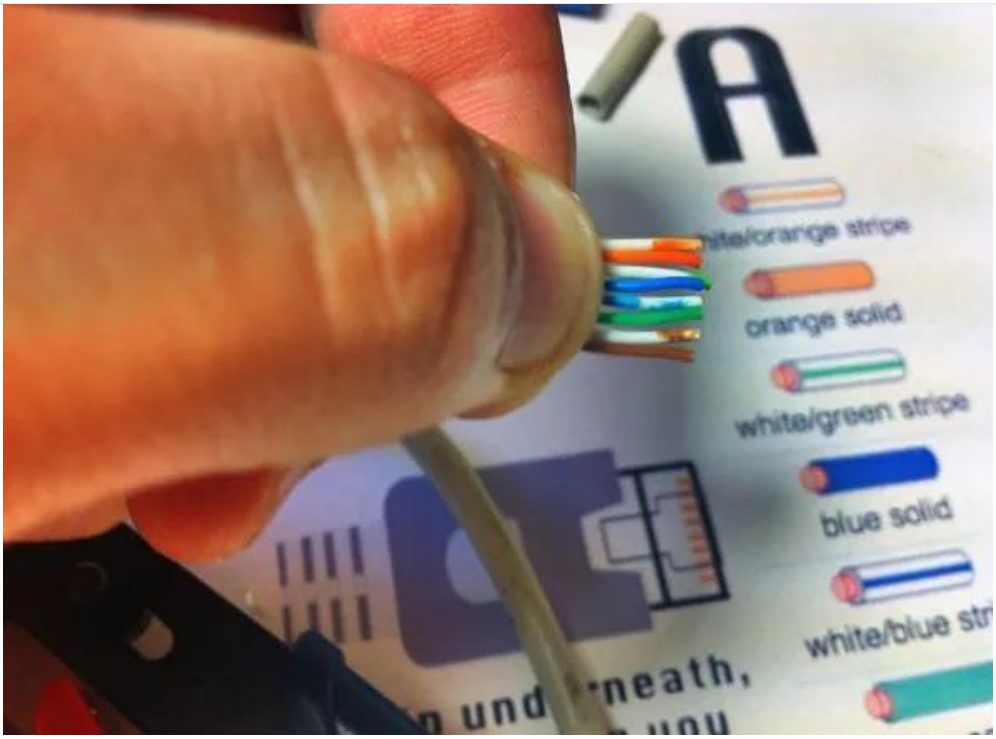
- Ethernet cabling. CAT5e is certified for gigabit support, but CAT5 cabling works as well, just over shorter distances.
- A crimping tool. This is an all-in-one networking tool shaped to push down the pins in the plug and strip and cut the shielding off the cables.
- Two RJ45 plugs.
- Optional two plug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



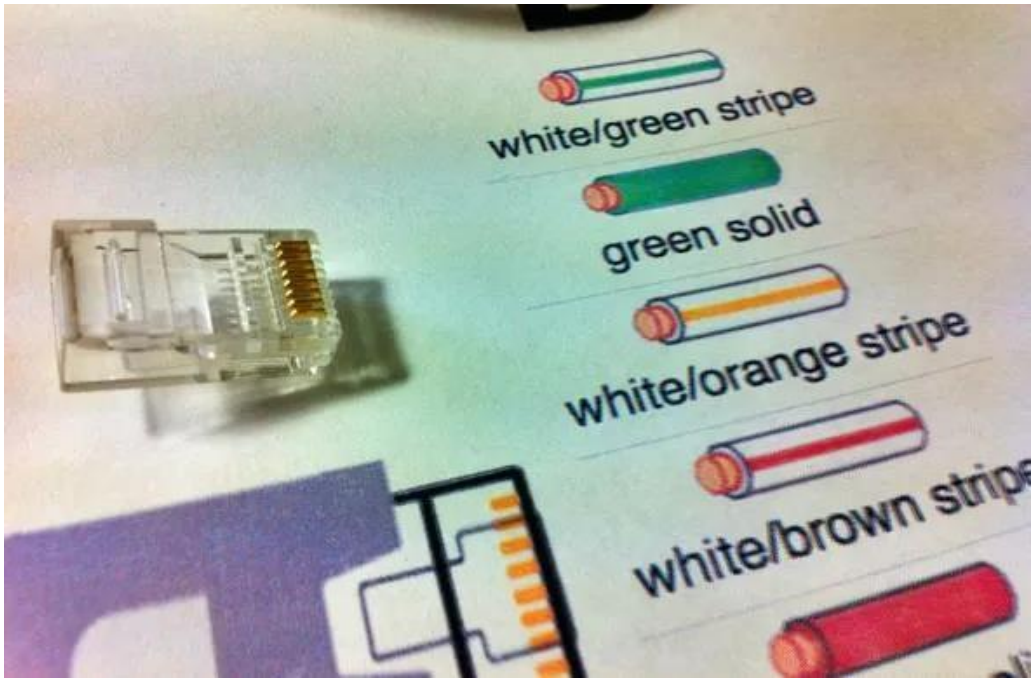

Step 1: To start construction of the device, begin by threading shields onto the cable.

Step 2: Next, strip approximately 1.5 cm of cable shielding from both ends. The crimping tool has a round area to complete this task.

Step 3: After, you will need to untangle the wires; there should be four “twisted pairs.” Referencing back to the sheet, arrange them from top to bottom. One end should be in arrangement A and the other in B.




Step 4: Once the order is correct, bunch them together in a line, and if there are any that stick out farther than others, snip them back to create an even level. The difficult aspect is placing these into the RJ45 plug without messing up the order. To do so, hold the plug with the clip side facing away from you and have the gold pins facing toward you, as shown.




Step 5: Next, push the cable right in. The notch at the end of the plug needs to be just over the cable shielding, and if it isn't, that means that you stripped off too much shielding. Simply snip the cables back a little more.

Step 6: After the wires are securely sitting inside the plug, insert it into the crimping tool and push down.

Step 7: Lastly, repeat for the other end using diagram B (to make a crossover cables)/ using diagram A (to make a straight through cable)

**RESULT:**

Thus,the study of different types of cable is studied.