LAB3-Cross UTP cat5e cable

Objective:-

1. **Making a cross UTP cat5e cable.**
2. **Testing the cable continuity.**

## Requirements:-

1. **UTP cat5e cable.**
2. **RJ-45 connectors.**
3. **Crimping tool.**
4. **Cat5 LAN tester.**

Background:-

In this lab you are going to make a cross cable. One end of the cable will be made according to the T568A or T568B standard while the other end will be made according to the T568B or T568A standard respectively. This means that you will interchange the places of the pairs 2 and 3 on the other end .
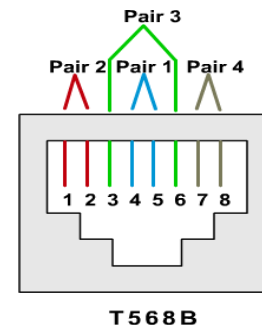
T568A standard

Pin No.	Pair No.	Color	Tx/Rx
1	3	White + Green	Tx
2	3	Green	Tx
3	2	White + Orange	Rx
4	1	Blue	Not used
5	1	White + Blue	Not used
6	2	Orange	Rx
7	4	White + Brown	Not used
8	4	Brown	Not used
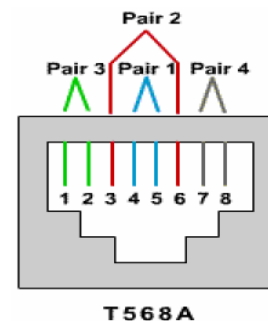
T568B standard

Pin No.	Pair No.	Col
1	2	Wh
2	2	Ora
3	3	Wh
4	1	Blu
5	1	Wh
6	3	Gre
7	4	Wh
8	4	Bro

RJ45 TERMINATION: Use either 568A method or 568B method

TIA/EIA 568A Wiring

1	White and Green
2	Green
3	White and Orange
4	Blue
5	White and Blue
6	Orange
7	White and Brown
8	Brown

TIA/EIA 568A Crossed Wiring

TIA/EIA 568B Wiring

1	White and Orange
2	Orange
3	White and Green
4	Blue
5	White and Blue
6	Green
7	White and Brown
8	Brown

TIA/EIA 568B Crossed Wiring
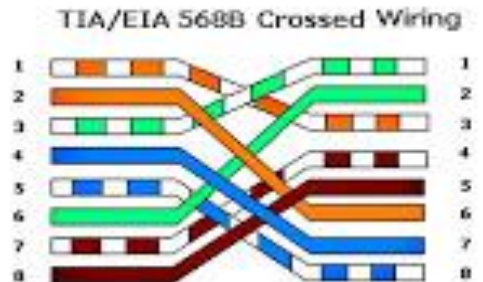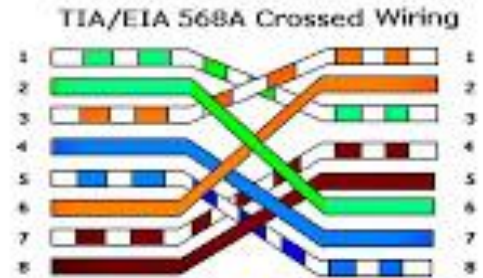
Procedure

Step1:- Use the crimping tool to cut a proper length of the cable which will be used to make the straight forward cable.
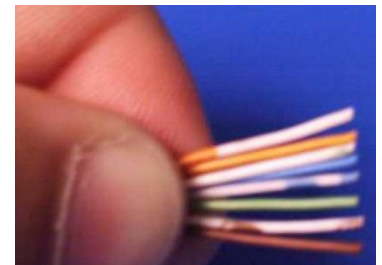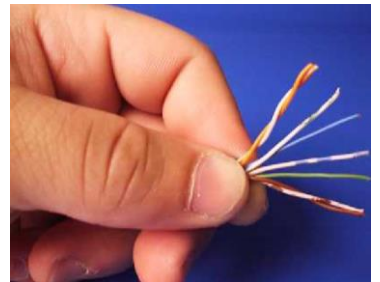
Step2:- Release approximately 5cm of the outer jacket from one end of the cable.

Step3:- Rearrange the four pairs according to the T568B standard.

Step4- Untwist the each pair and rearrange the eight wires according to the T568B standard.

Step5:- Organize and flatten the wires. Cut the wires so that the distance from the outer jacket is approximately 1.5-1.9 cm.
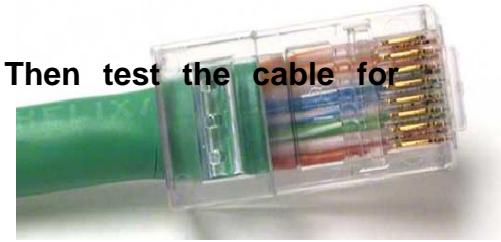

Step6:- Put the RJ-45 connector on the cable end so that the contacts being on the bottom and the white+orange cable being on the left of connector.

Step7:- Push the RJ-45 connector slightly towards the wires until you see the copper ends of the wires touching the RJ-45 connector contacts. Make sure that the jacket of the cable is inside the connector. Now push the cable firmly and crimp down the connector by the crimping tool.

Step8:- Repeat steps 2 through 7 to make the other end of the cable but according to according T568A standard.

Step9:- Inspect the cable visually and mechanically. Then test the cable for continuity using the tester.

Color Standard EIA/TIA T568A

Ethernet Patch Cable

	RJ45 Pin#			Pin# RJ45		
TX+	Green/White Tracer	1	1	Green/White Tracer		PR 3
TX-	Green	2	2	Green		
RX+	Orange/White Tracer	3	3	Orange/White Tracer		PR 2
	Blue	4	4	Blue		PR 1
	Blue/White Tracer	5	5	Blue/White Tracer		
RX-	Orange	6	6	Orange		PR 2
	Brown/White Tracer	7	7	Brown/White Tracer		PR 4
	Brown	8	8	Brown		

Discussion:-

1- What is the main purpose behind making a cross UTP cat5e cable.
2- The maximum length of a cross cat5e cable between two PCs without using any additional devices is 100m. why?
3- Can the cross cat5e cable be used in a full-duplex mode and why.
4- What is the number of twists/m in cat5e cables.