

3/7/25

Ex-2 study of different types of network cables

Aim: study of different types of cable network

| Cable type | Category | Maximum data transmission | Advantages disadvantages | Applications |
|---------------|---|------------------------------------|--|--|
| UTP | Category 3 Category 5 Category 5e | 10 bps up to 100 mbps 1 Gbps | <u>Advantage:</u> (i) cheaper (ii) easy to install as they come in smaller overall diameter <u>Disadvantage:</u> more prone to EMI | 10 Base T-Ethernet Fast Ethernet Gigabit Ethernet |
| STP | Category 6, 6A | 10 mbps | <u>Advantage:</u> 1) shielded 2) faster than UTP | Gigabit Ethernet, 10G Ethernet (5m) |
| SSTP | Category 7 | 10 Gbps | <u>Disadvantage:</u> 1) Expensive 2) Greater installation effort | Gigabit Ethernet 10G Ethernet (100m) |
| Coaxial Cable | RN-59 RG-11 | 10-100 mbps | <u>Advantages:</u> (i) Light band width (ii) immune to interference <u>Disadvantage:</u> 1) Limited distance 2) Signal is bulky | Speed of signal is 500 m. Television network High Speed internet connections |

| | | | | |
|-------------------|------------------------|---------|---|-----------------------------|
| Fiber optic cable | Single mode multi mode | 1000pps | <u>Advantage</u> 1. High speed 2. High bandwidth 3. High security <u>Disadvantage</u> 1. Expensive 2. Required skilled installers | Maximum distance 100 meters |
|-------------------|------------------------|---------|---|-----------------------------|

Student observation

1. Difference b/w cross cable and straight cable

| Cross Cable | Straight Cable |
|--|---|
| 1. The wiring sequence of one end is different 2. used to connect similar devices | 1. wiring sequence on both ends of cable is identical 2. used to connect different type of devices |

2. Cable used to connect two PCs?
 Cross over cable is used to connect two PCs because both are similar devices their transmit and receive pins need to be crossed.

3. Type of cable used to connect a router to your PC?
 Straight through cable is used to connect diff. types of devices (PC to router)

4. find out the category of twisted pair cable used in given lab to connect the PC to the network switch.

(i) Cat 5e (category 5-enhanced) - Supports upto 10 Gbps upto shorter distance.

5. write down the understanding, challenges faced and output received while working on twisted pair cross/straight cable understanding.

In straight cable both ends follow the same color code (T568B - T568B)

In cross cable one end is T568A and the other end T568B

Challenges faced

Stripping the outer jacket without damaging inner wires

Arranging wires in the correct color order before inserting in RJ45 connector

Output received

Successfully tested cable using cable tester.

Result

Connection of different types of network cables have been studied successfully.