

**Transmission Media:** Transmission Media is the physical component that carries the actual signals in a network. For instance, the electrical signals flow in a wire. Similarly TV/Radio signals transmit through Electromagnetic waves. Here wire and waves both are transmission media.

In fact the entire transmission media is classified in the aforesaid two types. Detailed classification is as follows-

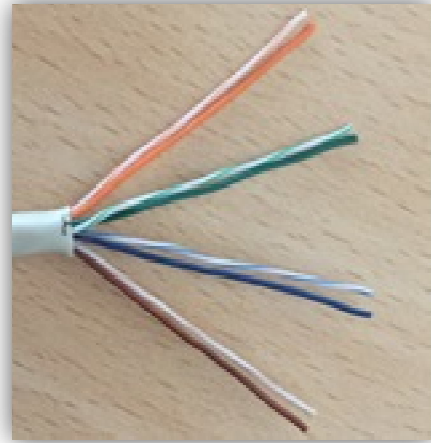
- 1.** Guided Media (Wired Media)
  - a.** TPC (Twisted Pair Cable)
    - i.** UTP (Unshielded Twisted Pair)
    - ii.** STP (Shielded Twisted Pair)
  - b.** Coaxial Cables
    - i.** Thicknet cable
    - ii.** Thinnet cable
  - c.** OFC (Optical Fiber Cable)
    - i.** Single Mode OFC
    - ii.** Multi Mode OFC
- 2.** Unguided Media (Wireless Media)
  - a.** Radio waves.
  - b.** Micro waves.
  - c.** Infrared.

**Guided Media:** This media includes wires. Some of the wires are copper wires and hence carry electrical signals whereas some are glass core wires capable to carry optical rays. The copper wires are: TPC and Co-axial cable. The only glass core wire is OFC.

**TPC:** TPC is the mostly used cable in a LAN. It contains 8 wires twisted in pairs of two. Thus four pairs are there out of which, only 4 wires (one of each pair) carry signals whereas remaining four are just for ground reference.

The pairs are as below:

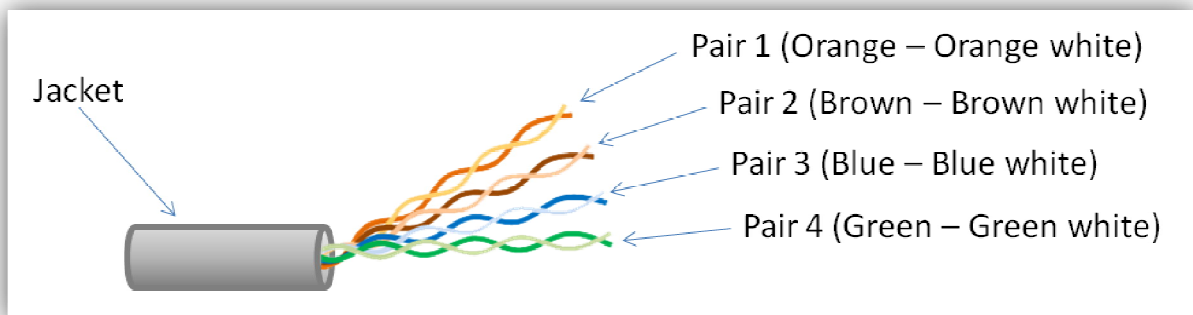
- |          |   |                |
|----------|---|----------------|
| • Orange | - | Orange/White   |
| • Green  | - | Green/White    |
| • Blue   | - | Blue/White     |
| • Brown  | - | Brown/White    |
|          |   | For Signals    |
|          |   | For Ground Ref |



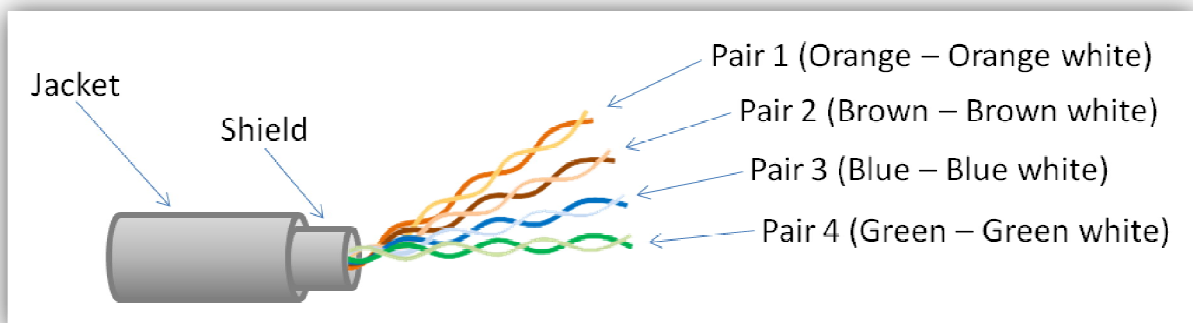
**Don't draw this diagram**

TPCs are of two types:

1. **UTP:** UTP is the most common wire used as TPC. It has all 8 wires covered in a rubber jacket.



2. **STP:** STP is the innovation used by IBM in TPC. In these cables, there is a shield that contains the wires. The shield is further covered in a jacket.



**NOTE:** UTP/STP both use RJ-45 as connectors. The maximum distance that is covered by these cables is 100 meters.

## **Assignments:**

1. Write down the detailed classification of Transmission Media.
2. What is the difference between UTP and STP?