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## Lab Practical #03:

Study of different types of network cables & connectors and crimping a LAN.

## Practical Assignment #03:

1. List various networks cable. Also, write short description.
2. Difference between guided and unguided media.
3. Give cross-wired cable and straight through cable diagram (Color Code wise).

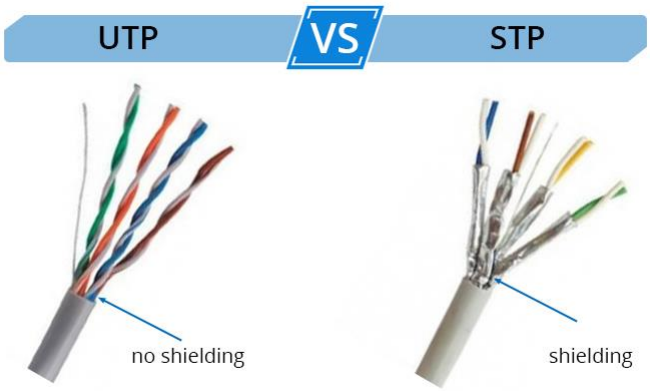
### 1. List various networks cable and connectors. Also, write short description.

**a) Network Cable Name: Twisted Pair Cable (UTP/STP)**

- **Description**:

  - Most commonly used cable in LAN.
  - Wires are twisted in pairs to reduce electromagnetic interference.
  - **UTP (Unshielded Twisted Pair)** – No extra shielding, cheaper.
  - **STP (Shielded Twisted Pair)** – Extra shielding for better noise resistance.
  - Used with **RJ45 connectors**.

- **Diagram**:




**b) Network Cable Name: Coaxial Cable**

- **Description**:

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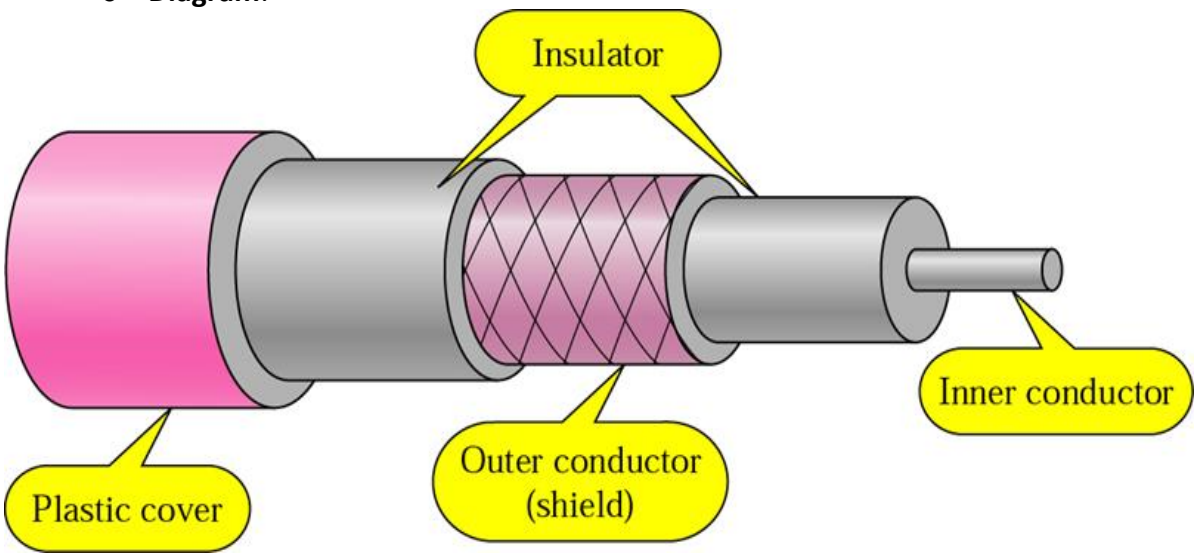
- Used in older LANs, cable TV, and broadband.
- Has a **central copper core**, insulating layer, braided shield, and outer cover.
- Good resistance to signal interference.

- **Diagram**:




**c) Network Cable Name: Fiber Optic Cable**

- **Description**:
  - Transmits data as **light signals** (not electrical).

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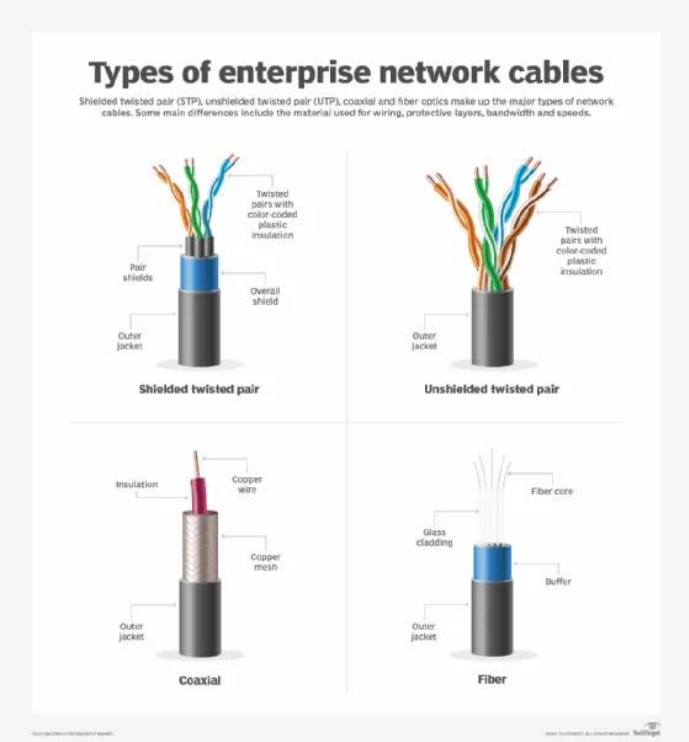
- Extremely high speed and long-distance transmission.
- Immune to electromagnetic interference.
- Two types: **Single Mode** (long distance), **Multi Mode** (shorter, cheaper).

- **Diagram**:




## 2. Difference between guided and unguided media.

| Guided Media (Wired) | Unguided Media (Wireless) |
|---|---|

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| | |
|---|---|
| Data signals travel through a physical medium | Data signals travel through air or vacuum |
| Uses cables like Twisted Pair, Coaxial, Fiber Optic | Uses Radio waves, Microwaves, Infrared |
| Signals follow a specific path | Signals spread in all directions |
| More complex and costly to install | Easier and cheaper to set up |
| Example:<br>Ethernet cables (Cat5, Cat6), Fiber optics | Example:<br>Wi-Fi, Bluetooth, Satellite, Mobile networks |

**3. Give cross-wired cable and straight through cable diagram (Color Code wise).**

a) Cross-wired Cable Diagram (Color Code)

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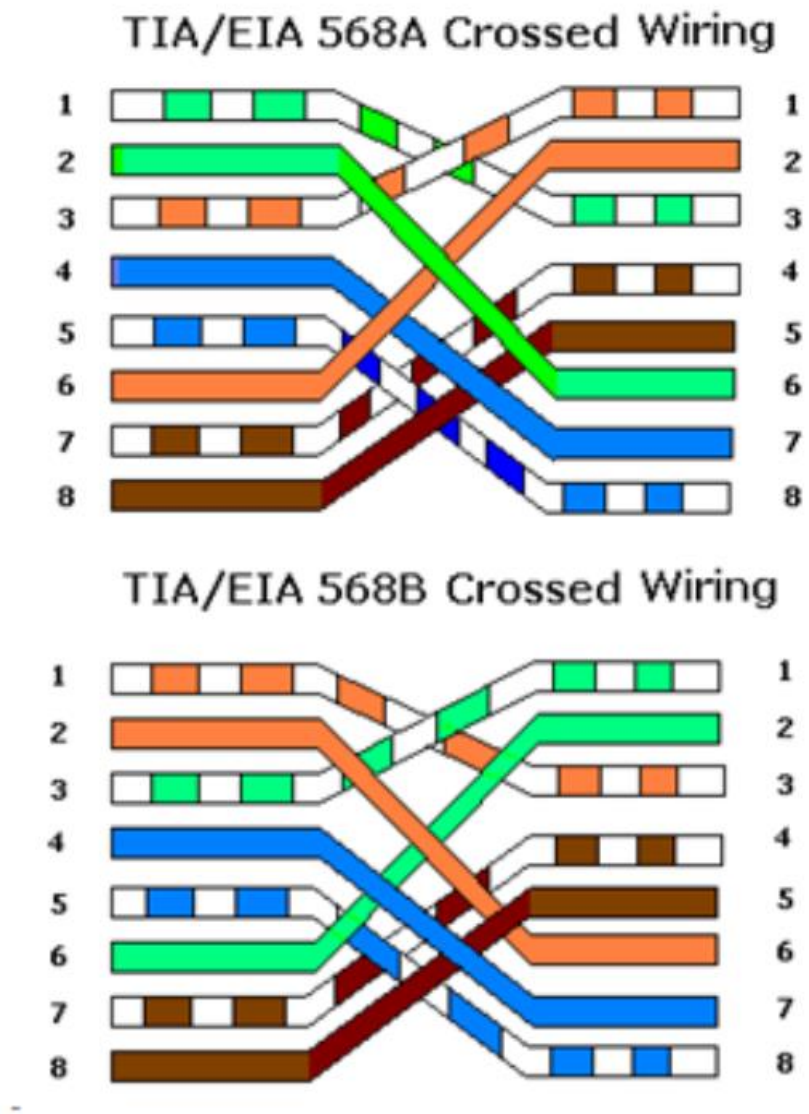


**Figure B**

***Shows the Pin Out of Crossover Cables***

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b) Straight Through Cable Diagram (Color Code)

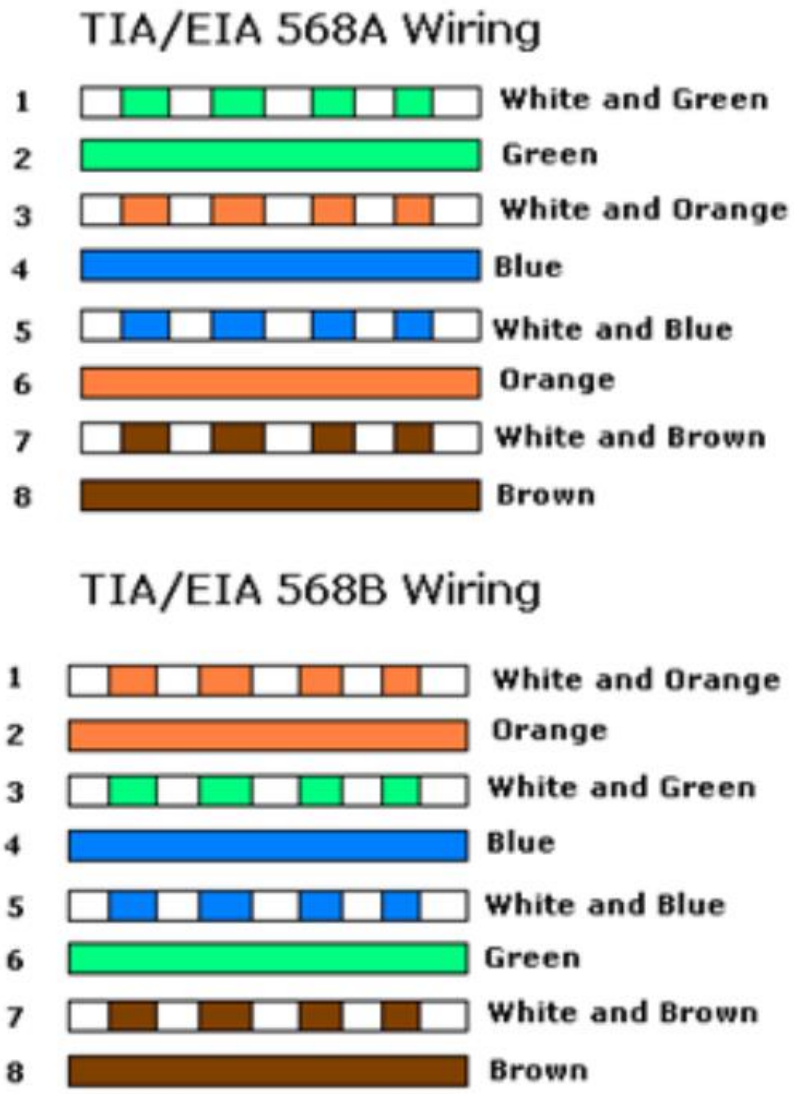


Figure A

*Shows the Pin Out of Straight through Cables*