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Lab Practical #02:

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

Practical Assignment #02:

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.

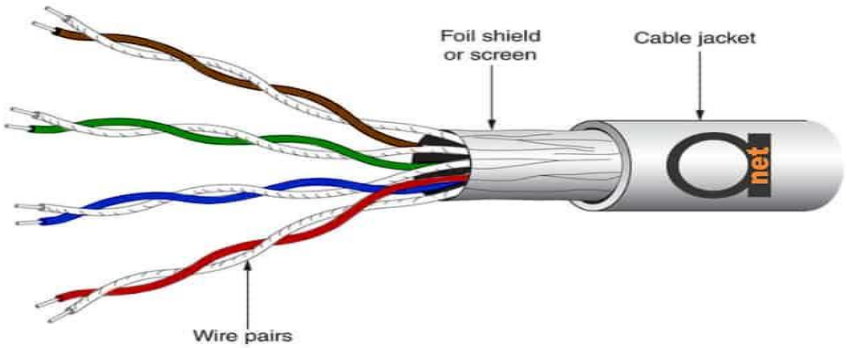
a) Network Cable Name:

✓ Twisted Pair Cable:

- **Description:** Twisted pair cables consist of pairs of wires twisted together to reduce electromagnetic interference (EMI) and crosstalk. They are widely used in telecommunications and networking.

✓ • Diagram:

1. Shielded twisted pair cable :-



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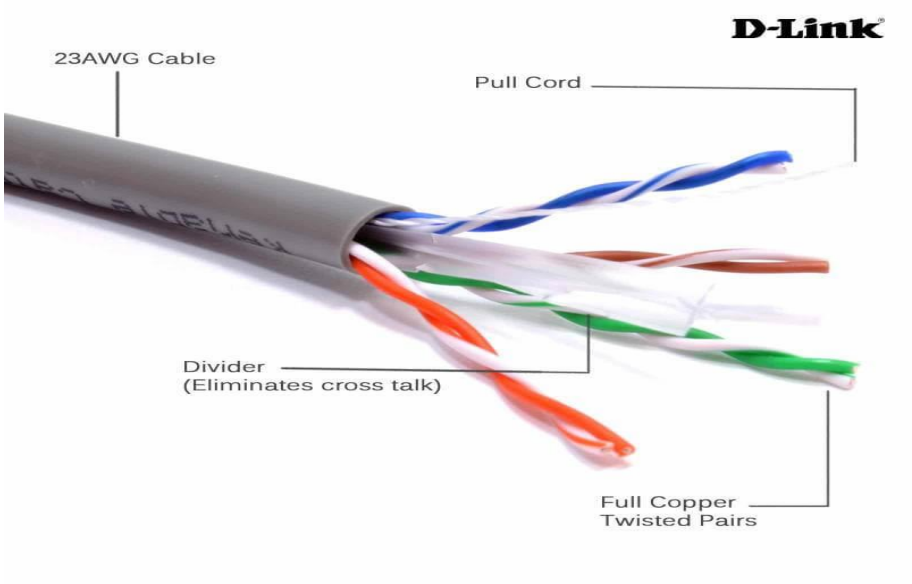
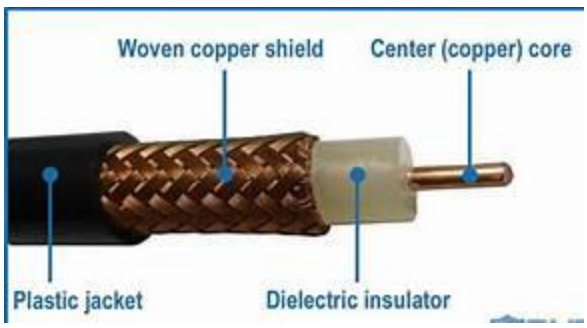
2. Unshielded twisted pair cable :-



✓ Coaxial Cable

- **Description:** Coaxial cables have a central conductor, an insulating layer, a metallic shield, and an outer insulating layer. They are used for cable television, internet, and other broadband communications.

- **Diagram:**



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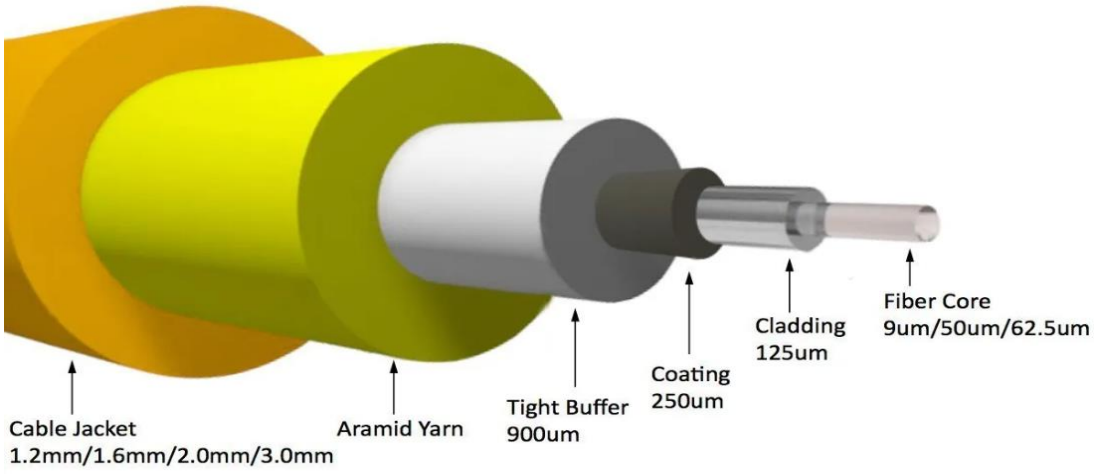
✓ Fiber Optic Cable

- **Description:** Fiber optic cables use glass or plastic fibers to transmit data as light signals, offering high bandwidth and long-distance communication with minimal signal loss.

- Diagram:



Network Connectors

1. **RJ45 Connector**
   - **Description:** Commonly used with twisted pair cables (especially UTP) for Ethernet networking. It has eight pins to accommodate the eight wires in the cable.

   - **Diagram:**

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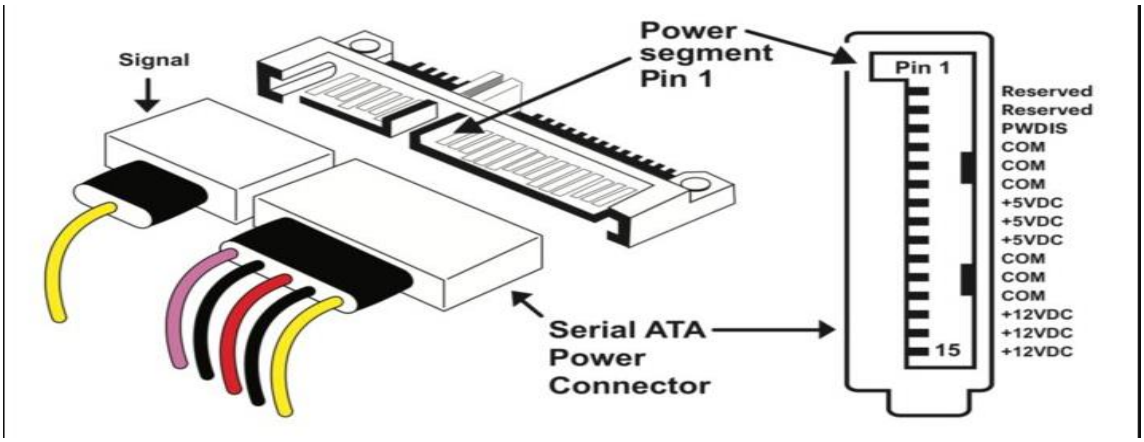
2. SATA (Serial ATA) Connector

- **Description:** SATA (Serial Advanced Technology Attachment) connectors are used to connect storage devices like hard drives (HDDs), solid-state drives (SSDs), and optical drives (CD/DVD/Blu-ray) to the motherboard in computers. SATA has largely replaced the older PATA (Parallel ATA) standard due to its higher speed, smaller cables, and improved performance.

- **Diagram:**



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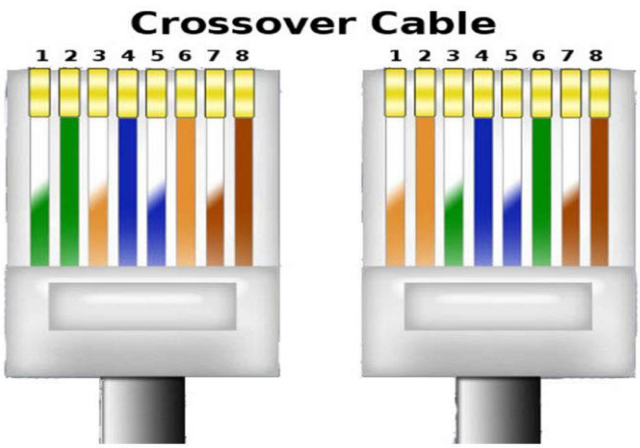
2. Difference between guided and unguided media.

Basis	Guided/ Bounded Media	UnGuided/ UnBounded Media
Transmission	Guided is wired transmission, in which data signals are guided along a physical path i.e. within a wire	Unguided/ Unbounded communication is wireless transmission. To exchange bits of data for laptop, notebook, smart watch, without wires, you need wireless communication.
Also, called?	Guided transmission is also known as Bounded Transmission Media.	UnGuided transmission is also known as UnBounded Transmission Media.
Media Types	Some well-known Guided Transmission media includes Twisted Pair Cable, Coaxial cable, fiber optic cable, etc.	UnGuided Transmission media includes Microwave Transmission, Satellite Communication, etc.
Media	The media can be seen and touched i.e. tangible.	The media is wireless and cannot be seen and touched i.e. intangible.
Distance	Used for shorter distance.	Used for larger distance.
Penetration	Guided Media cannot penetrate through the buildings	UnGuided Media can penetrate through the buildings.

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

a) Cross-wired Cable Diagram (Color Code)



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b) Straight Through Cable Diagram (Color Code)