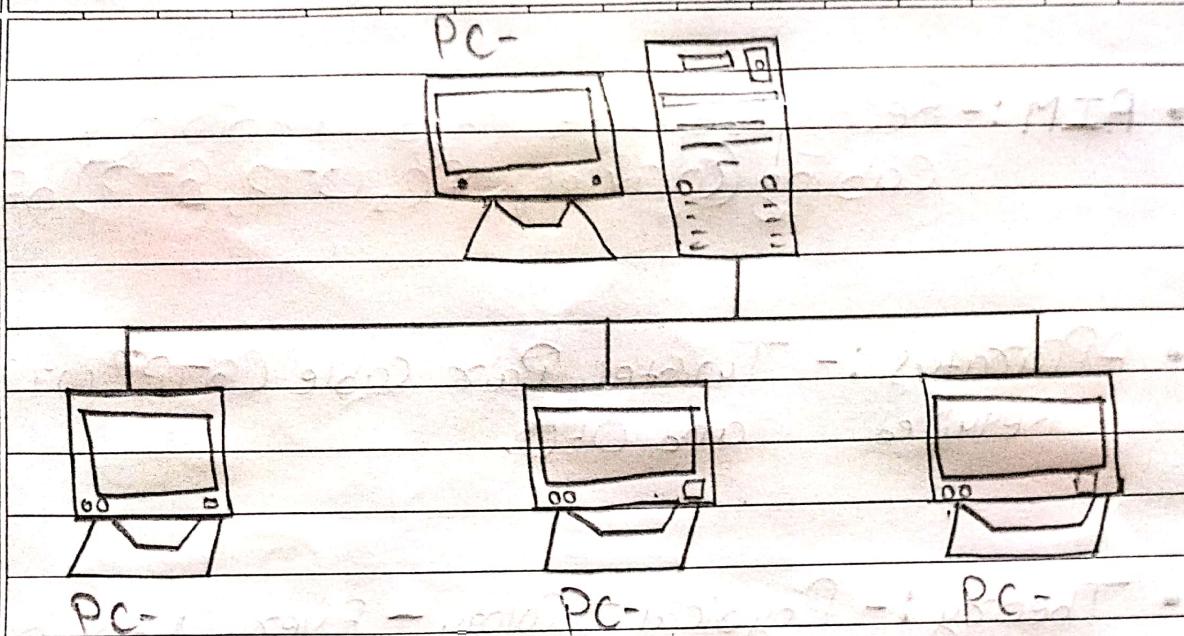


- AIM :- Recognize the Physical topology and cabling (Coaxial, OFC, UTP, STP) of a network
- Apparatus :- Twisted Pair cable (STP & UTP), Coaxial Required and OFC.
- Theory :- Physical Topology - Every LAN has a topology, the way that the devices on a network are arranged and how they communicate with each other. It is the physical layout of devices on a network. The way that the workstations are connected to the network through the actual cables that transmit data. The physical structure of the network is called the physical topology. We can perform four basic types of network topology.

(A) Bus Topology:

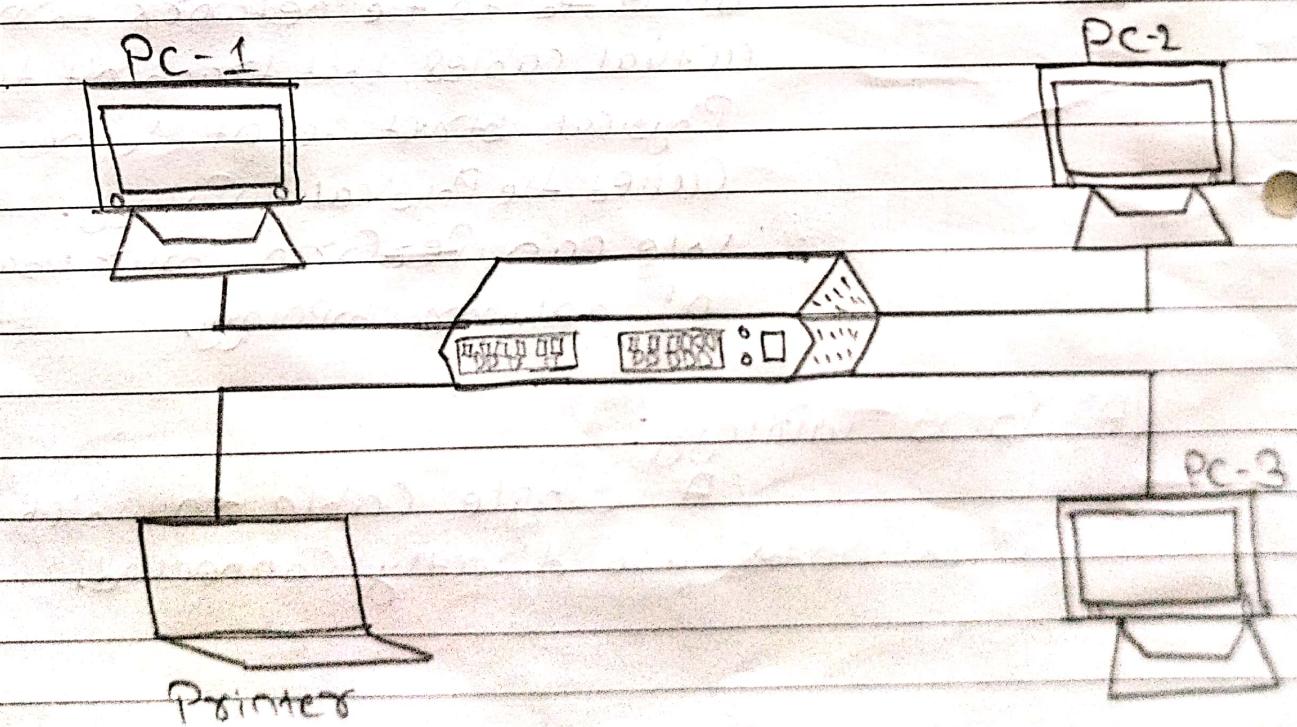
→ A single cable to which all network nodes are directly connected.

DATE:



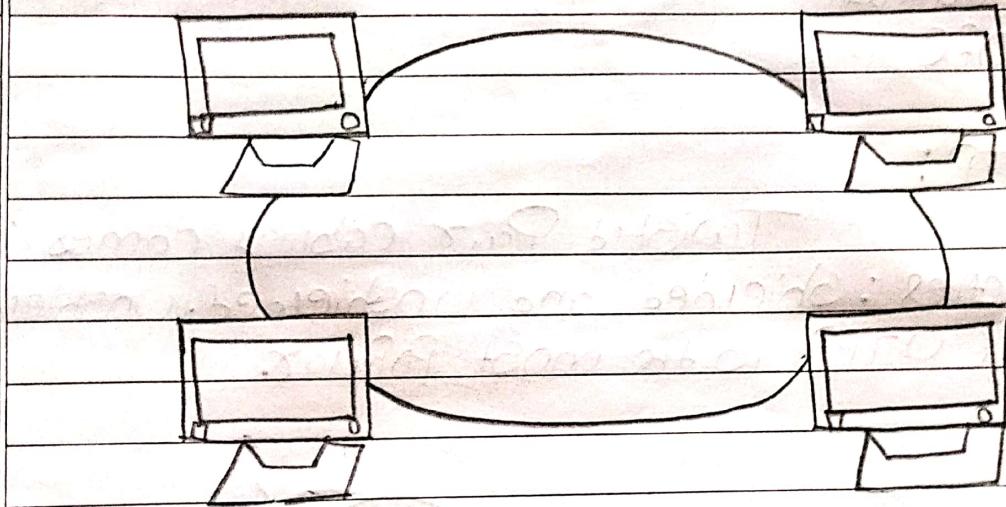
(B) STAR Topology:-

→ A topology with a single access Point or a Switch at the centre of the topology; all the other nodes are connected directly to this Point.



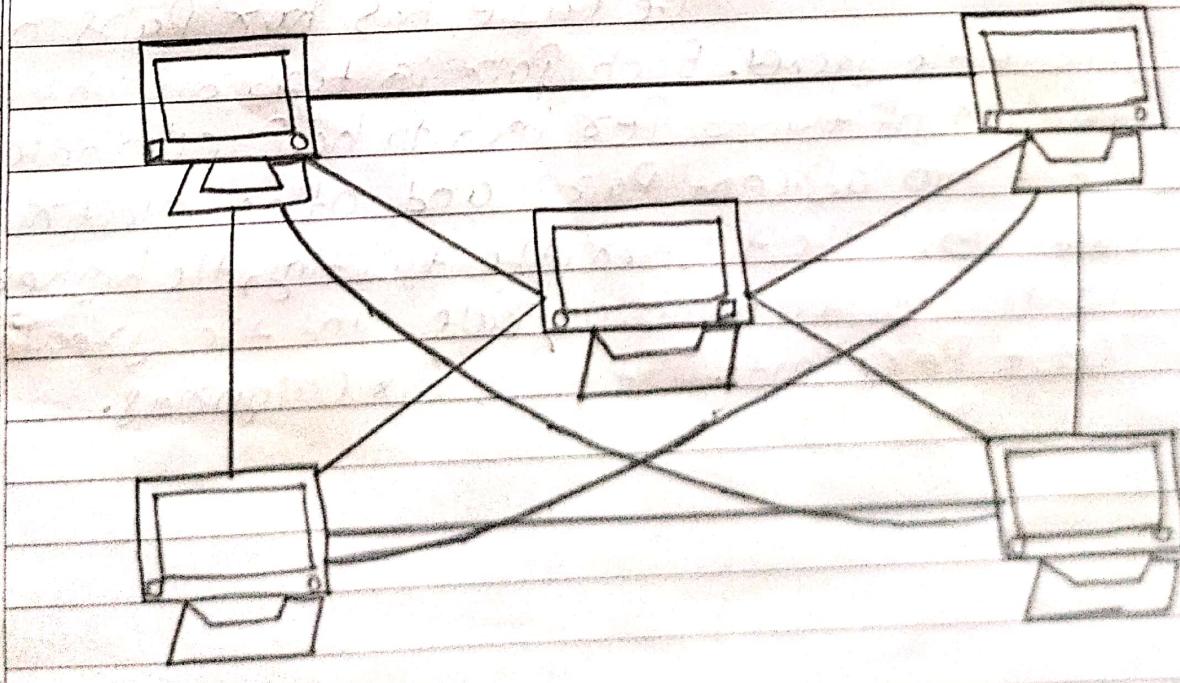
(C) RING TOPOLOGY:

Each device is connected with the two devices on either side of it. There are two dedicated Point-to-Point links a device has with the devices on the either side of it.



(D) MESH TOPOLOGY

Each device is connected to every other device on the network through a dedicated Point-to-Point link.



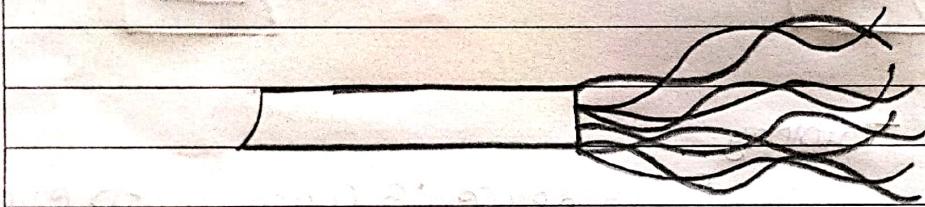
• Study of cables:

The following cables are used in the network:

- (i) UTP
- (ii) S-TP
- (iii) Coaxial
- (iv) OFC

(i) UTP:

→ Twisted Pair cabling comes in two varieties: shielded and unshielded. Unshielded twisted pair (UTP) is the most popular.

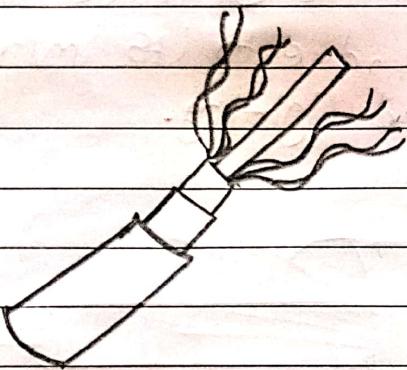


The cable has four pairs of wires inside the jacket. Each pair is twisted with a different number of twists per inch to help eliminate interference from adjacent pairs and other electrical devices. The tighter the twisting, the higher the supported transmission rate and the greater the cost per foot. It has six categories.

(ii) STP:



STP stands for Shielded Twisted Pair. STP is similar to unshielded twisted pair (UTP); however, it contains an extra foil wrapping or copper braid jacket to help shield the cable signals from interference. In STP grounding cable is required.



(iii) Coaxial:

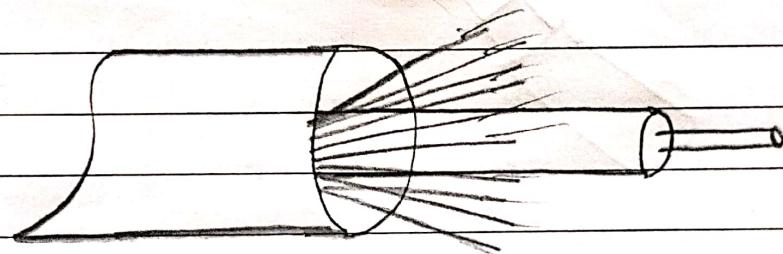


Coaxial cabling has a single copper conductor at its centre. A plastic layer provides insulation between the centre conductor and a braided metal shield. The metal shield helps to block any outside interference from fluorescent lights, motors, and other computers.



(iv) OFC:

→ Fibre optic cabling consists of a central glass core surrounded by several layers of protective material. It transmits light faster than electronic signals eliminating the problem of electrical interference. This makes it ideal for certain environments that contain a large amount of electrical interference. It has also made it the standard for connecting networks between buildings, due to its immunity to the effects of moisture and lighting.



Fibre optic cable has the ability to transmit signals over much longer distances than coaxial cable.

• Result:

→ In the above experiments, different physical topology and different network cables are recognized successfully and understood the function of each topology as well as network cables.