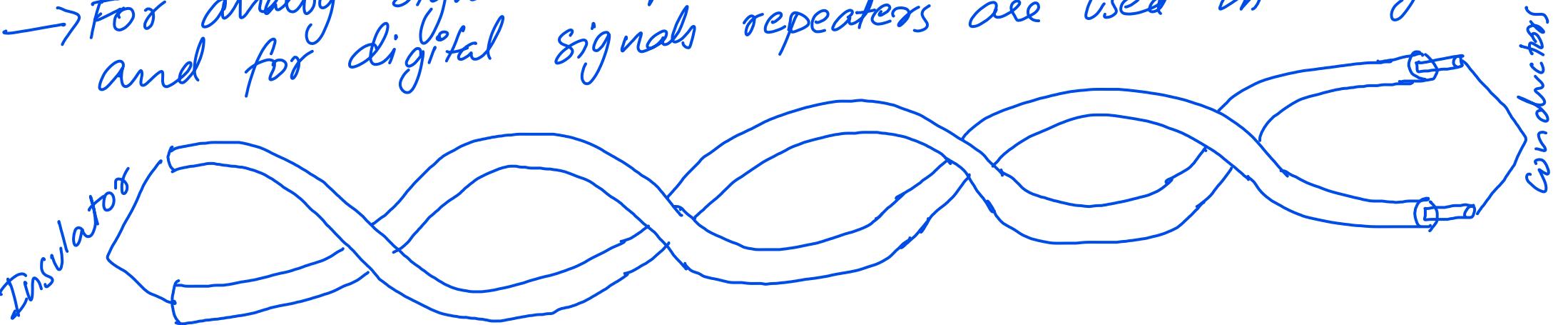


- Q) Transmission Media?
- A) Transmission media can be defined as anything that's used to transfer information from source to destination.
- There are 2 types of Transmission media:-
- (i) Guided
 - (ii) Unguided
- Guided:- In Guided Transmission media the signals are sent using wire (or) cable.
- There are 3 types of Guided Transmission media:-
- (P) Twisted pair cable.
 - (G, i) Coaxial cable.
 - (iii) fibre-optic cable.

(P) Twisted Pair cable:-

- A Twisted pair cable consists of two insulated copper wires arranged in a spiral pattern
- Twisted pair can transmit both analog and digital signal.
- For analog signals amplifiers are used in every 5-6 kms and for digital signals repeaters are used in every 2-3kms.



→ It's used in telephone networks and LAN (Local Area Network).

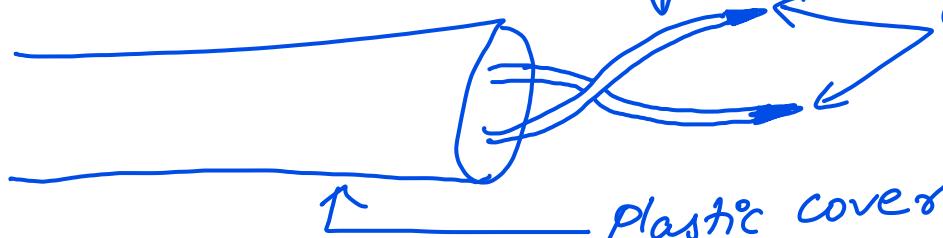
→ There are 2 types of Twisted pair cable:-

(i) Unshielded Twisted pair.

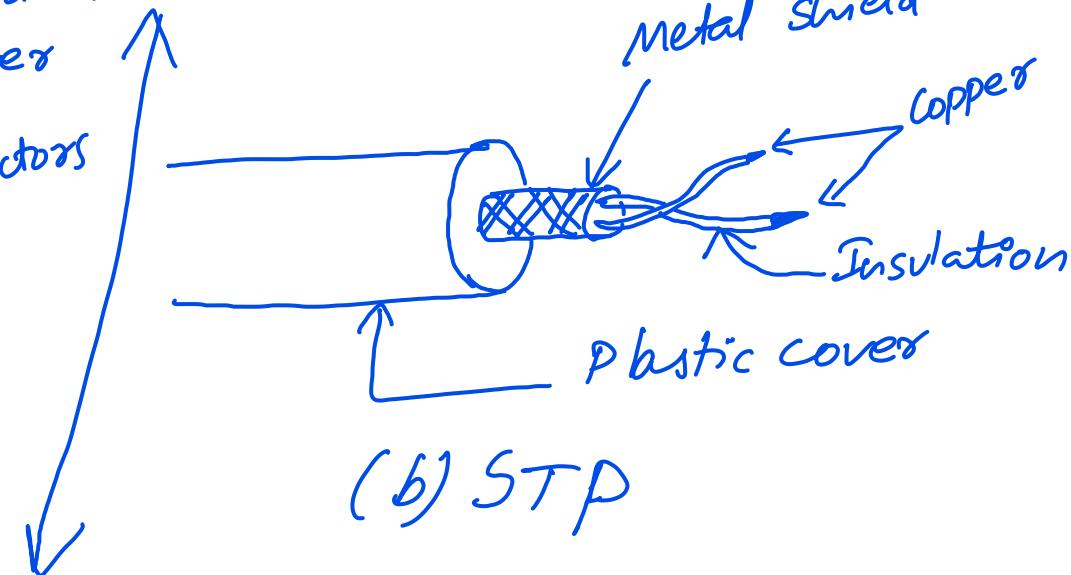
(ii) Shielded Twisted pair.

Unshielded Twisted pair:- These are very cheap and easy to install, but they are badly affected by noise interference.

Shielded Twisted pair:- STP cables has shielding b/w outer jacket and wire. The shield reduces the noise interference, but it makes the cable expensive.



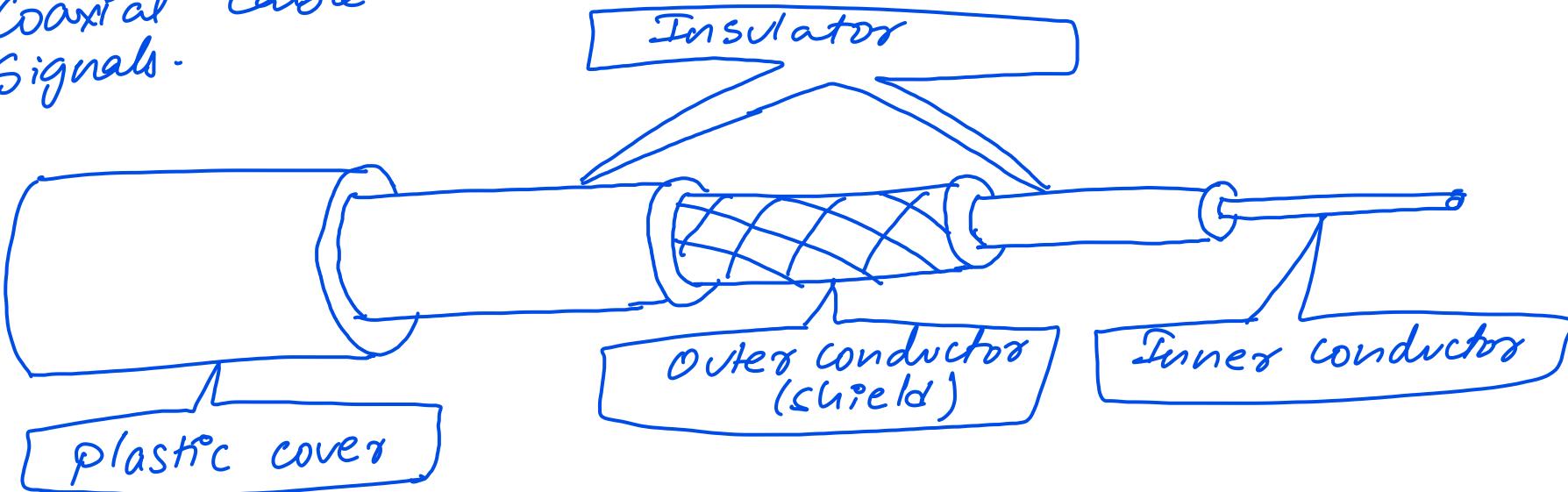
(a) UTP



(b) STP

Coaxial Cable:- It contains two conductors that are parallel to each other and share common axis.

- Inner conductor is made of copper and outer conductor is made of metal foil, mesh (or) both.
- Outer conductor act as shield against noise.
- Coaxial cable is used to transmit both analog and digital signals.



Fibre optic:- Optical Fibre is made of glass (or) plastic and transmits signals in the form of light.

→ An optical fibre has a cylindrical shapes and divided into three parts.

(i) Core

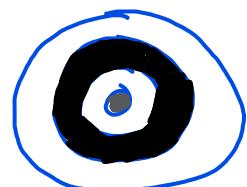
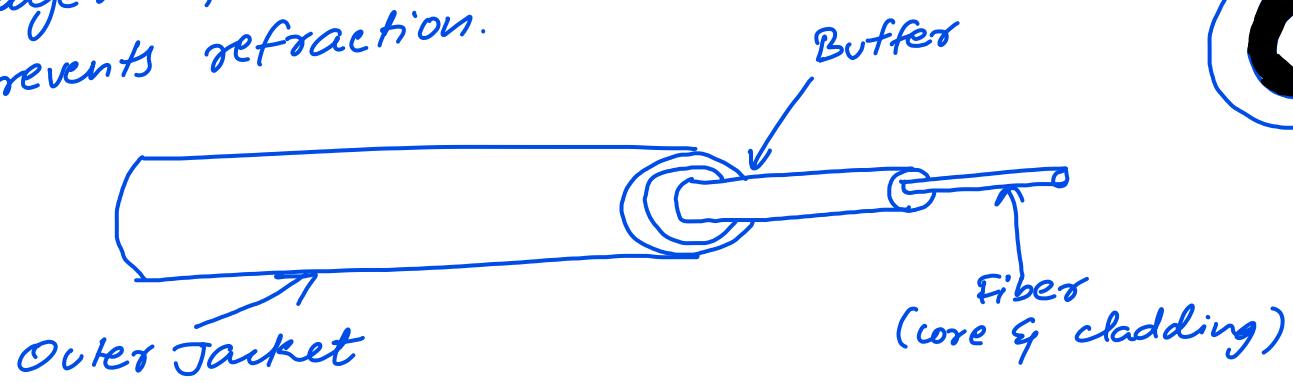
(ii) Cladding

(iii) Jacket

Core:- It's the inner-most section and is made of glass (or) plastic & surrounded by its own cladding.

Jacket:- It's the outer-most layer of the fibre, It protects the fibre from moisture and other dangers.

Cladding:- The outer layer of fibre is called cladding, It's made of glass (or) plastic, It prevents refraction.



Factors	UTP	STP	Co-axial	Fibre optics
Cost	Low	Moderate	Moderate	Highest
Installation	Easy	Fairly easy	Fairly easy	Difficult
Data rate	1 to 155 mbps	1 to 55 mbps	500 mbps	2 Gbps
Node capacity	2	2	30-100	2
Attenuation	High (100's of meter)	High (100's of meter)	lower (range of few km's)	lowest (10 km's)
EMI	Most vulnerable	Less vulnerable than UTP		Not effected by EMI
Bandwidth	low	Moderate	Moderately high	Very high
Signals	Electrical	Electrical	Electrical	Light

