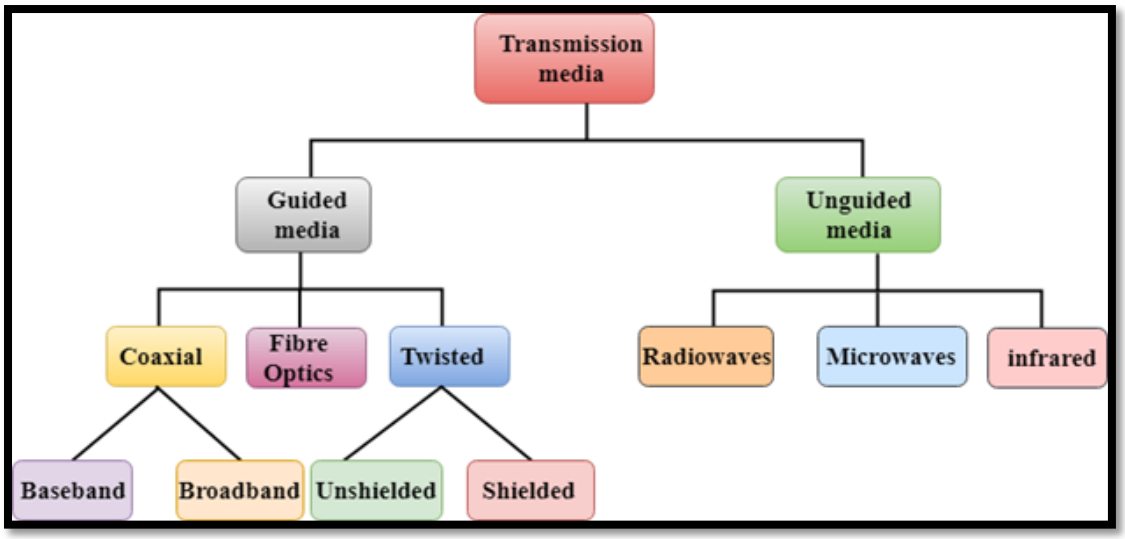
PRACTICAL 10

Aim: To study different Transmission media



1 what is the colour coding scheme for straight through and crossover?

1. Crosstalk the bleeding of a signal from one wire to another and which can corrupt signal and cause network errors.
2. This form of interference is called crosstalk.
3. Straight-through cable :
    1. A straight through cable is a type of twisted pair cable
    2. It is used in local area networks to connect a computer to a network hub such as a router.
    3. This type of cable is also sometimes called a patch cable and is an alternative to wireless connections where one or more computers access a router through a wireless signal.
    4. On a straight through cable, the wired pins match.
    5. Straight through cable use, one wiring standard: both ends use T568A wiring standard or both ends use T568B wiring standard.

    (* remember T568A and T568B are standards mentioned in next question)

Color coding scheme for straight-through cable

Straight-through Cable:

1st End	Other End
Pin1 --- Orange Stripe	Pin1 --- Orange Stripe
Pin2 --- Orange	Pin2 --- Orange
Pin3 --- Green Stripe	Pin3 --- Green Stripe
Pin4 --- Blue	Pin4 --- Blue
Pin5 --- Blue Stripe	Pin5 --- Blue Stripe
Pin6 --- Green	Pin6 --- Green
Pin7 --- Brown Stripe	Pin7 --- Brown Stripe
Pin8 --- Brown	Pin8 --- Brown

- CROSSOVER

1. An Ethernet crossover cable is a type of Ethernet cable used to connect computing devices together directly.
2. Unlike straight through cable, crossover cables use two different wiring standards: one end uses the T568A wiring standard and the other end uses the T568B wiring standard.
3. The internal wiring of Ethernet crossover cables reverses the transmit and receive signals.
4. It is most often used to connect two devices of the same type: e.g. two computers (via network interface controller) or two switches to each other.

Cross-over Cable:

1st End	vice-versa	Other End
Pin1 --- Orange Stripe		Pin1 --- Green Stripe
Pin2 --- Orange		Pin2 --- Green
Pin3 --- Green Stripe		Pin3 --- Orange Stripe
Pin4 --- Blue		Pin4 --- Blue
Pin5 --- Blue Stripe		Pin5 --- Blue Stripe

Pin6 --- Green

Pin7 --- Brown Stripe

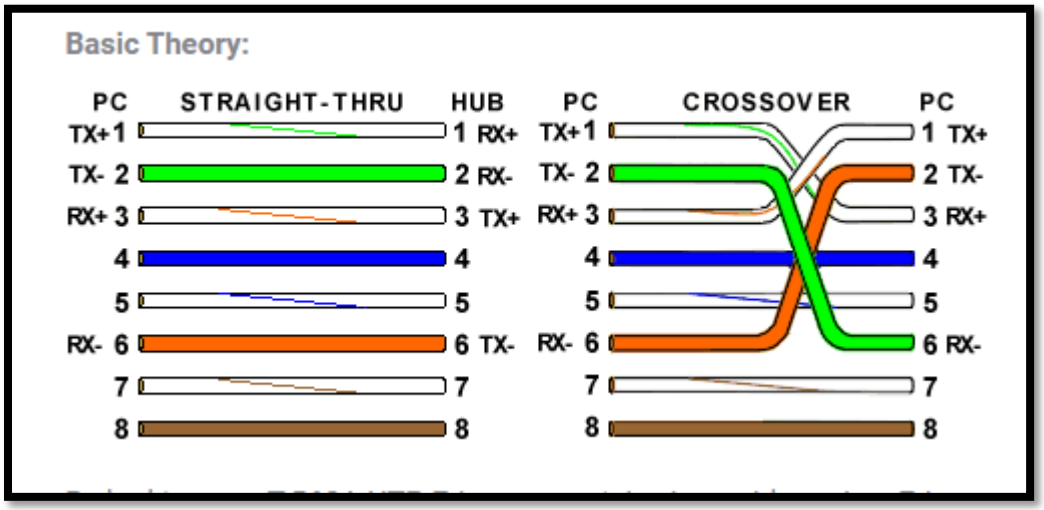
Pin8 --- Brown

Pin6 --- Orange

Pin7 --- Brown Stripe

Pin8 --- Brown

- This means that straight through cable has similar sequence on the both end
- However, in crossover cable the wires are crossed in such a manner.
- We can see in crossover that 3 wire is on one end is crossed and transferred on the other-end at 1st pin.

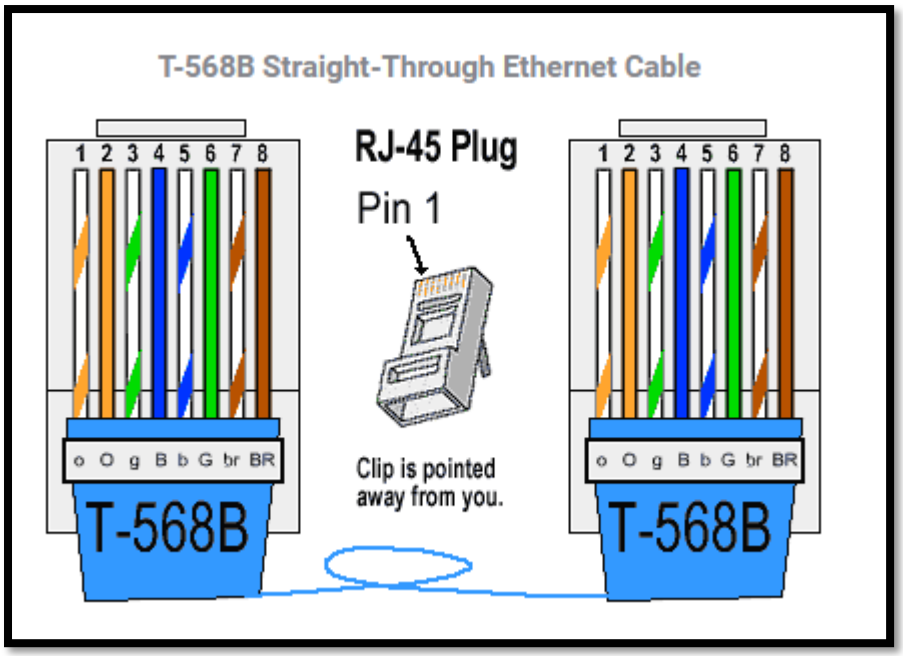


2 where is 568-A 568-B standards are used?

- It is used in RJ-45 connector
- It has module of 8 pins
- RJ 45 is used for LAN connection
- So thee standard can not send data over long distances.
- Again these standards are used in RJ 45 connector which is in the LAN transmission medium a type of twisted pair cable.

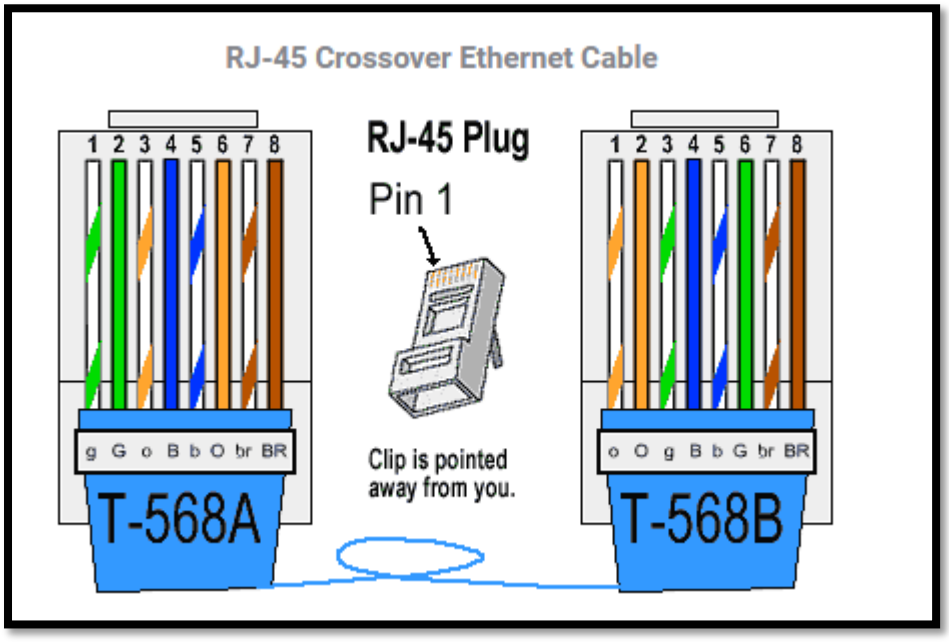
We can see clearly that in straight-through we are using same standard at both side T568B and T568B so we can either use 568A at both end

Also we can say color coding scheme sequence is same o O g B b G br BR.



However We can see clearly that in crossover we are using different standard at both side T568A and T568B so we can either use 568B and 568A at one end another end respectively.

Also we can say color coding scheme sequence is different 8 pins color
1st end=g G o B b O br BR
2nd end =o O g B b G br BR



3 where is infra-red unguided is used for communication?

- One can see the use of this type of communication in everyday life.
- Tv remotes, Automotive garage doors, wireless speakers ,certain machines.

- It has become common in PDA(personal digital assistants) eg hand held devices like palm pilots etc because it is very secure one
- In Infrared, light is used to send the data it transmits the data through air and can propagate throughout a room (but cannot penetrate wall.)

4 which transmission medium is better microwave or infra wave? how?

- I would suggest to use infrared wave over satellite
- Microwave transmission medium:
- Radio wave can be classified by frequency and wavelength
- Microwave covers through satellite transmission is quite large
- Even satellite can go inside remote areas
- It has higher frequency
- But the main disadvantage is that it is not feasible at times of climate change.
- It can be crushed By a disaster
- It is not more secure
- Let us say satellite can be hacked GPS tracker also but infrared is more secure
- Although infrared waves are in limited area but I would give more priority to security than distance and cost.
- And it is more reliable and can broadcast effectively

5 What is the disadvantage and advantages of using co axial cable?
Coaxial cable:

- It is type of copper cable
- Mostly used in TV cables
- It is cheap
- It has higher characteristics such as electrical properties so speed is higher.
- CATV cables

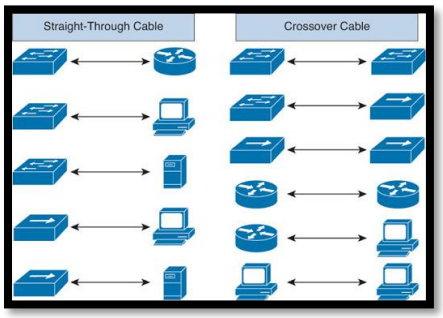
  It has two types

  1 Thicknet: it can be upto 500 ms with 10mpbs speed.

  2 Thinnet: it can go upto 200 to 185 approx with 10mpbs speed.

  Disadvantages:
- First it is very expensive compared to twisted pair cables
- They are not compatible with twisted pair cables it means that one link level goes down in such medium can cause entire level down whereas in twisted pair cable cables levels are twisted and separate.

4 Where we use cross over and straight through?



- We can see clearly that if we want to connect router to switch or computer or server or hub we can use the straight-through because we can use different devices at both end.
- Whereas in crossover we use similar type of device on both hand.

6 what is the disadvantage of using fibre optic cable?
Advantage:

- Light form transmission so very high speed
- Suitable in harsh environment too
- Secure transmission
- Mostly preferred and used way of transmission medium

Disadvantage :

- Installation problem they are fragile so need special care to make them sufficiently robust for an office environment
- Connecting two fibers together is difficult
- Fiber must be cut and a detector inserted because of noise immunity
- Light can reach out of phase at receiver end.
- Connection losses are common problem
- They are the most expensive than all
- If any problem occurs so it need to dig out under water which requires time to start again.

7 What is the advantage of using unguided medium?

- use for long distance communication.
- High speed data transmission.
- Many receiver stations can receive signals from same sender station.
- Cost of physically installing wires would be reduced
- Easy to install
- Does not require any big infrastructures to maintain.
- Radio-wave transmission offers mobility
- Whereas on type of unguided media satellite can cover a very large areas of earth
- Also infrared which is very sequre

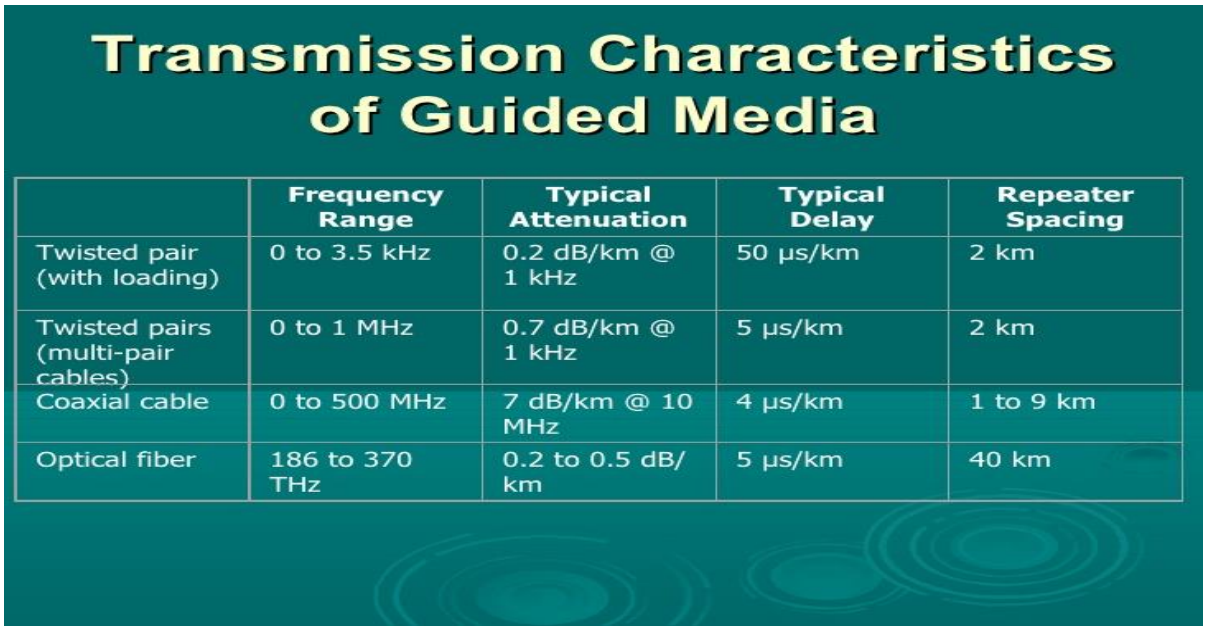
8 Difference between guided and unguided?

- Key differences are as follows

GUIDED MEDIA	UNGUIDED MEDIA
• It requires physical connection for communication • It provides direction To signals	• It can broadcast through air • It does not provide any directions • It is very feasible easy to use

• It is very difficult to install • It requires cost • It requires time to develop	• It requires not much cost • It is very instantaneous to implement

9 Give the application of all guided and unguided ?



Guided media:

- Twisted pair cable:
  TV and DSL lines used by telephone companies because of efficient frequency.
- Coaxial cables: distribution of cable tv signals,Ethernet ,antenas , digital audio (S/PDIF)
- Optical fibers: transfer information telecom companies ,ISP , INTERNET connections also for medical advanced devices ,data storage and transmission.

Unguided media:

- Microwave:
  Satellite communication
  Medical technologies
  In microwave ovens to cook food

- Radio wave

A Radio wave is useful for multicasting when there is one sender and many receivers. An FM radio, television, cordless phones are examples of a radio wave.

- Infrared
  Thermal-imaging cameras
  Detect heat loss systems
  Inside body to measure blood flow
  Night vision cameras