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Class/Section	**8601 A/ S06**
E.x No:	**3**
Name of the Experiment	**Study of Guided Media**
Google Drive link of the packet tracer file (give view permission) :	**https://drive.google.com/drive/u/0/folders/1kinooNYxqGap34cXxqDwq6Aba9k78xAr**

Answer the following VIVA Questions:

1. Transmission media are directly controlled by Physical Layer.

2. What are the three major classes of Guided Media?

Ans:- Twisted Pair cable:- Insulated copper wires twisted together used in Ethernet and telecommunication.

Coaxial cable:- Central conductor with insulating layers, used in cable TV and broadband.

Fiber optic cable:- Transmits data using light signals, ideal for high-speed and long-distance communication.

3. Why Cladding is used in Fiber Optics?

Ans:-

→ It ensures total internal reflection, keeping light signals confined within the core.

→ Minimizes dispersion and loss by maintaining the light's pathway.

→ Provides Mechanical protection and preserves the integrity of the core.

→ Improve transmission efficiency and reduces interference.

4. List the Categories of UTP cables.

Ans:- Category 1 (cat1):- used for voice communication (eg:- telephone lines).

Category 2 (cat2):- Supports data up to 4 Mbps (obsolete).

Category 3 (cat3):- used in 10 Mbps Ethernet networks.

Category 4 (cat4):- Supports data up to 16 Mbps (Token Ring networks).

Category 5 (cat 5):- used in 100 Mbps Ethernet and 1 Gbps networks.
Category 5e (cat 5e):- Ethanced cat 5 for reduced crosstalk; supports 1 Gbps.
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Category 6 (cat 6):- supports 10 Gbps over shorter distance with improved performance
Category 6a (cat 6a):- Augmented cat 6, supports 10 Gbps over longer distance.
Category 7 (cat 7):- Shielded for higher performance supports 1 Gbs.
Category 8 (cat 8):- Designed for 25/40 Gbps data centers.

5. Mention the cause of attenuation and how will you measure it.

Ans:- Attenuation is caused by the reduction is signal strength during transmission due to
→ loss of energy as the signal interacts with the medium.
→ Dispersion of signal energy due to imperfections in the medium.
→ signal leakage caused by bends in the transmission medium.
→ External electromagnetic noise affecting the signal.

6. What are the advantage s of Fiber Optics?

Ans:-
→ High Bandwidth
→ Long-Distance Transmission.
→ Immunity to Electromagnetic Interference.
→ security.
→ Lightweight and Durable.

7. What is meant by LOS?

Ans:- Line of sight (los) refers to a direct unobstructed path between the transmitting and receiving antennas in a communication system.
→ Essential for high-frequency signals like microwaves and infrared.
→ obstructions like buildings trees, or terrain can disrupt los communication
→ commonly used in satellite, radio, and point-to-point wireless systems.

8. Mention the modes of propagation in unguided medium.

Ans:-
→ Ground Wave Propagation
→ Sky wave Propagation.
→ Space wave Propagation.

9. List out the connectors used in guided medium.

Ans:-
→ Twisted Pair cable connectors.
→ Coaxial cable connectors.

→ Fiber optic cable connectors.

10. Where you will use Straight through cable and Cross over cable?

Ans:- Straight-Through Cable
→ Connects a computer (or any device) to a network switch or router.
→ connects a router to a modem for internet access.
→ for connecting a network switch to a hub.
Cross-over Cable:-
→ Directly connects two computers without a hub or switch.
→ For connecting two switches together.
→ used when directly connecting two routers.

Rubrics for Experiment Assessment:

Description	Marks Weightage	Marks Scored
Build Straight through, Cross over, Roll over UTP cable	4	4
Test the connectivity using small network	4	4
Timely Completion	2	2
Total Marks		10

RESULT:

Thus the different types of Network cables and the implementation the Crossover wired and Straight through cable using Crimping Tool was completed successfully.