Assignment 1

COMPUTER NETWORKS

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1. Types of network cable

Common types include Ethernet cables (such as Cat 5e, Cat 6, Cat 6a, Cat 7) designed for various data transfer speeds, fiber optic cables renowned for high-speed and long-distance connections, and coaxial cables widely utilized in cable TV systems due to their broadband capabilities.

2. Color combination/coding for cabling.

The standard color coding for Ethernet cables is crucial for proper termination. In the T568B scheme, the coding is white/blue, blue, white/orange, orange, white/green, green, white/brown, brown. This meticulous coding ensures consistency in network installations.

3. Which cable is used for what purpose.

Ethernet cables are fundamental for wired network connections in various environments. Fiber optic cables excel in scenarios demanding high-speed and long-distance connections, thanks to their ability to transmit data using light signals. Coaxial cables, with their excellent broadband capacity, are commonly chosen for cable TV systems.

4. what is RJ45, full form and use.

RJ45, or Registered Jack 45, is a standardized connector with 8 pins widely employed in Ethernet networking. Its primary use involves facilitating the connection of computers and various network devices, ensuring reliable data transfer within a network infrastructure.

5. USE of SLT (Serial Line Tester)

The Serial Line Tester (SLT) serves a critical role in testing serial communication lines. Its purpose includes ensuring proper signal transmission, identifying potential issues such as signal integrity problems or interference, and contributing to the maintenance of optimal serial communication performance.

6. Difference between Cat 5, 6, 7 cables.

The differences extend beyond data transfer speeds. Cat 5 supports up to 100 Mbps, Cat 6 up to 1 Gbps, Cat 6a up to 10 Gbps, and Cat 7 up to 10 Gbps. Additionally, Cat 7 incorporates improved shielding to minimize interference, making it suitable for more demanding network environments.

7. Good cabling vs bad cabling.

Good cabling practices adhere to industry standards, emphasizing organization, proper termination, and minimal interference. In contrast, bad cabling may manifest as poor organization, incorrect termination leading to signal degradation, or excessive bends in cables, negatively impacting network stability.

8. Impact of bad cabling.

Poorly executed cabling can have severe consequences, including signal degradation, slower data transfer rates, increased latency, and overall network instability. These issues directly affect the efficiency of connected devices and compromise the reliability of the entire network infrastructure.

9. How many pairs are there in the wire.

Ethernet cables typically consist of 4 pairs (8 wires), each serving specific functions in data transmission. This structured design adheres to industry standards and ensures efficient communication within the network.

10. How many actually are used for communication?

In standard 10/100/1000BASE-T Ethernet connections, only 2 pairs (4 wires) are utilized for communication. This optimized use of wiring contributes to the effectiveness of data transmission in these network environments.

11. What is the purpose of extra wires in the cable. etc.

The inclusion of extra wires in network cables serves a strategic purpose, providing flexibility for future network upgrades or alternative uses. This design consideration ensures that the cable can adapt to evolving technologies, emerging standards, and changing network requirements without requiring a complete rewiring of the infrastructure.