+ Network Cabling: Media and Topologies

+ Intro to Network Cabling Questions:
1. **What is TIA/EIA 568?**
   a. A set of standards from the Telecommunications Industry Association (TIA), a branch of the Electronic Industries Alliance (EIA). The standard addresses commercial building cabling.
2. **What is the difference between TIA 568A and TIA 568B?**
   a. The pin positions for the green and orange pairs are switched. 568B is the more up-to-date, and most widely chosen wiring scheme in the United States.
3. **What is the function of a patch panel?**
   a. Used to connect, organize, and manage network cables for a system

+ Multimode and Single Mode Fiber Questions:
1. **For signaling, what type of technology does fiber optics employ?**
   a. Light, converted to digital signal
2. **Is fiber optic cable easy to tap?**
   a. No, there would be a noticeable drop in signal strength and since there's no radio frequency emanating from the fiber line there's no way to tell what might be going through connection
3. **In what type of situation would you employ multimode fiber optic cable?**
   a. Short haul communication, 2 kilometers or shorter
4. **What would be a conventional light source for multimode fiber optic cable?**
   a. LED
5. **In what situation would you employ single mode fiber optic cabling?**
   a. Long range communication, up to 100km without processing
6. **What would be a conventional light source for single mode fiber optic cabling?**
   a. Laser beams

+ UTP, STP and Coaxial Cabling Questions:
1. **What type of cable do the terms 10base5, "Thicknet", RG-8, 10base2, and RG-58 describe?**
   a. Coaxial
2. **What type of cabling uses conductor pairs that are twister?**
   a. UTP and STP
3. **What differentiates UTP and STP?**
   a. UTP is the most common, less expensive. STP has an additional shielding to protect against interference and requires the use of an electrical ground
4. **What is the most common form of Ethernet cabling for Local Area Networks?**
   a. UTP

+ Cable Categories Questions:
1. **What is EIA?**
   a. Electronic Industries Alliance
2. **What is TIA?**
   a. Telecommunications Industry Association
3. **For what is Category 3 cable used?**
   a. To support 10Mbit/s Ethernet and 4Mbit/s Token Ring
4. **Compare and contrast Cat5 and Cat5e cable.**
   a. Cat5 & Cat5e support100Mbit/s Ethernet, Cat5e is a update to Cat5 to support 1Gbit/s Ethernet
5. **In what situation would you want to employ Cat6 cable?**
   a. If you need to transfer 10Gbit/s over long distances

+ Crossover and Straight through Cables Questions:
1. **What is an Ethernet straight through cable? When would you use it?**
   a. Patch cable, the most common Ethernet cable, connects workstations to network devices
2. **What is the difference between a MDI and a MDIX interface?**
   a. They are two different kinds of Ethernet ports. Media Dependent Interface, typically a NIC, is connected to laptop/desktop. Media Dependent Interface Crossover is usually a network interface device, like a network switch. MDI transmits to MDIX on pins 1 & 2, MDIX transmits on 3 & 6
3. **What is an Ethernet crossover cable? When would you use one?**
   a. Cable that transmits straight through system to system. Used when connecting switch to switch
4. **If you were going to connect two CSU/DSU's, what type of cable would you use?**
   a. T1 Crossover Cable

+ Plenum and Non-Plenum Cabling Questions:
1. **What is the disadvantage of using regular TWP copper cable in a ceiling plenum?**
   a. If there is a fire that spreads into the plenum area, the likelihood of damage to network cables and infrastructure is high because regular TWP copper is not fire retardant.

+ Converting Media Questions:
1. **Why do you always need to provide power to the device when you convert from fiber to copper?**
   a. Because copper signals are electrical, and there is no way to take light off a fiber and create enough power to general those signals on a copper connection
2. **Can a network signal from almost any type of media be converted to any other type of media?**
   a. Yes, technologies is evolving…

+ Media Distance and Speed Limitation Questions:
1. **What type of cable does 10base5 network use?**
   a. RG-8U
2. **How far can you run a single run of 10baseT**
   a. 100 meters
3. **How far can you run a single run of 100baseTx?**
   a. 100 meters

TIA Category	Ethernet Standard	Cable (Fiber) Type	Speed	Distance
N/A	10base5	RG-8U	10 Mbit/s	500 meters
N/A	10base2	RG-58A/U	10 Mbit/s	185 meters
Cat5	100base-TX	Twister Pair	100 Mbit/s	100 meters
Cat5e	1000base-T	Twister Pair	1000 Mbit/s	100 meters
N/A	1000base-SX	Multimode	1000 Mbit/s	200-500 meters
N/A	1000base-LX	Singlemode	1000 Mbit/s	2 kilometers

+ Vocabulary:
Cat5—twisted pair network cable that allows 10Mbps and 100Mbps transfer speeds, theoretically
Cat6—twisted pair network cable that supports up to 10Gbps
Plenum—cable that is coated in fire-retardant, used to run cable through harsh environments