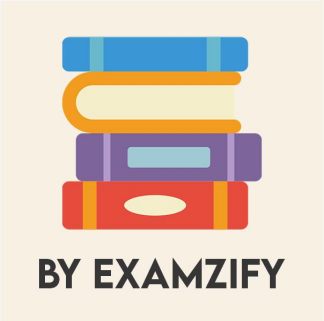
CCNA Implementing and Administering Cisco Networking Technologies (200-301) Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

Questions

1. What is the Formal IEEE Name, Speed, and Informal IEEE Name of Ethernet?

A. 802.3 - 10 Mbps - 10BASE-T

B. 802.3u - 100 Mbps - 100BASE-T

C. 802.3ab - 1000 Mbps - 1000BASE-T

D. 802.3z - 1000 Mbps - 1000BASE-LX

2. Which of the following is a characteristic of dynamic EtherChannel?

A. Requires manual adjustments for trunk negotiation

B. Automates the negotiation of link bundling

C. Supports only LACP mode

D. Can only be configured statically

3. What light source is commonly used for fiber cables?

A. Optical Transmitter

B. Radio Transmitter

C. Fiber Optic Converter

D. Silicon Photodiode

4. What advantage does Multimode fiber provide over UTP?

A. Increased bandwidth

B. Improved maximum distance

C. Less expensive transmitters compared to single-mode

D. Lower latency

5. Which network topology is characterized by a central hub connecting all devices?

A. Star Topology

B. Mesh Topology

C. Bus Topology

D. Ring Topology

6. What differentiates the HDLC header in the Cisco standard from the ISO standard?

- **A. It includes a 'Source' field for routing decisions**
- **B. It lacks a checksum for error detection**
- **C. It has a 'Type' field to identify the routing protocol**
- **D. It supports multiple address fields**

7. What is the default setting for duplex and speed on a switch port?

- **A. Half-duplex only**
- **B. Fixed speed settings**
- **C. Auto-negotiation**
- **D. Full-duplex only**

8. What does the return code 404 mean in an HTTP header?

- **A. OK**
- **B. Not Found**
- **C. Bad Request**
- **D. Accepted**

9. What is the primary function of a router in a network?

- **A. To connect multiple devices within the same network**
- **B. To analyze data packets for security**
- **C. To direct data packets between different networks**
- **D. To serve as a firewall for the network**

10. What pins do Switch transmitters use?

- **A. The pair connected to pins 1 and 2**
- **B. The pair connected to pins 3 and 6**
- **C. The pair connected to pins 4 and 5**
- **D. The pair connected to pins 7 and 8**

Answers

1. A
2. B
3. A
4. C
5. A
6. C
7. C
8. B
9. C
10. B

Explanations

1. What is the Formal IEEE Name, Speed, and Informal IEEE Name of Ethernet?

A. 802.3 - 10 Mbps - 10BASE-T

B. 802.3u - 100 Mbps - 100BASE-T

C. 802.3ab - 1000 Mbps - 1000BASE-T

D. 802.3z - 1000 Mbps - 1000BASE-LX

The formal IEEE name for Ethernet in the context of the correct choice refers specifically to the 802.3 standard, which is the foundational standard for wired Ethernet networks. This standard initially defined the original Ethernet technology, which operates at a speed of 10 Mbps, and is informally known as 10BASE-T. This naming convention indicates an Ethernet protocol that supports baseband signaling over twisted-pair cables, with "10" representing the speed of 10 Mbps, "BASE" indicating baseband signaling, and "T" standing for twisted pair. The other options relate to different variations of Ethernet standards under the broader 802.3 umbrella, which addresses higher speeds or different media types. 802.3u, for example, pertains to fast Ethernet operating at 100 Mbps, while 802.3ab and 802.3z are related to gigabit Ethernet, each catering to various physical mediums and transmission methods. Understanding the distinctions among these standards is important for grasping the evolution of Ethernet technology and its increasing speeds.

2. Which of the following is a characteristic of dynamic EtherChannel?

A. Requires manual adjustments for trunk negotiation

B. Automates the negotiation of link bundling

C. Supports only LACP mode

D. Can only be configured statically

Dynamic EtherChannel is characterized by its ability to automate the negotiation of link bundling between switches. This is achieved through protocols like LACP (Link Aggregation Control Protocol), which allows multiple physical links to work together as a single logical link. By automating this process, network administrators can simplify the configuration and management of EtherChannel connections, as the protocol actively manages the links to ensure optimal performance and redundancy. This automation reduces the potential for misconfigurations that can occur with static configurations, where changes or adjustments would need to be made manually. In addition to simplifying setup, dynamic EtherChannel enhances network resilience by allowing the network devices to negotiate which links should be active based on their availability, thereby improving load balancing and failover capabilities. In contrast to this characteristic, other options point to limitations or manual configurations that do not accurately describe the dynamic nature of this technology.

3. What light source is commonly used for fiber cables?

A. Optical Transmitter

B. Radio Transmitter

C. Fiber Optic Converter

D. Silicon Photodiode

The optical transmitter is the correct choice because it is specifically designed to convert electrical signals into optical signals, which are then transmitted through fiber optic cables. This process is essential in fiber optics technology, as it enables the communication of data over long distances with minimal loss and interference. Optical transmitters typically utilize light sources such as lasers or light-emitting diodes (LEDs) to generate the light signals that travel through the fiber. The efficiency and speed of these devices make them ideal for high-bandwidth applications, which is one of the main advantages of using fiber optic cables in networking. Other options serve different functions; for instance, a radio transmitter is used for radio frequency communications, not for transmitting light through fiber optics. Fiber optic converters are devices that interface fiber optic signals with electrical signals but don't serve as the primary light source. Meanwhile, silicon photodiodes are detectors that convert light signals back into electrical signals, not sources of light themselves. Thus, the role of an optical transmitter as the light source in fiber optic systems is crucial for effective data transmission.

4. What advantage does Multimode fiber provide over UTP?

A. Increased bandwidth

B. Improved maximum distance

C. Less expensive transmitters compared to single-mode

D. Lower latency

Multimode fiber offers several advantages over unshielded twisted pair (UTP) cabling, particularly in the context of specific applications and network requirements. In this case, the correct choice highlights that multimode fiber can utilize less expensive transmitters compared to those required for single-mode fiber. Multimode fiber typically uses LED light sources, which are more cost-effective than the laser technology used for single-mode fiber applications. This lower cost in transmitters makes multimode fiber an economical choice for short-distance applications in a network where high bandwidth and data rates are still necessary without the requirement for the longer distances that single-mode fiber would provide. While multimode fiber does provide increased bandwidth and can operate over longer distances than UTP, especially in short-range applications, the question specifically addresses the advantage regarding transmitters. Additionally, considerations such as maximum distances and latency are evaluated differently depending on the specific network setup and requirements. Therefore, the focus on the cost of transmitters provides a clear economic advantage of using multimode fiber in certain network scenarios.

5. Which network topology is characterized by a central hub connecting all devices?

A. Star Topology

B. Mesh Topology

C. Bus Topology

D. Ring Topology

The star topology is characterized by a central hub or switch that connects all devices in the network. In this configuration, each device has a dedicated point-to-point connection to the hub, creating a star-like structure. The central hub acts as a conduit for data transmission, making it straightforward for devices to communicate with one another by sending data through the hub. This design provides several advantages, such as ease of installation and configuration, as well as simplified troubleshooting. If one connection or device fails, it does not affect the rest of the network, making it a robust choice for many networking scenarios. This centralized design also facilitates the addition or removal of devices without disrupting the entire network. In contrast, other topologies do not utilize a central point of connection. The mesh topology connects each device to every other device, allowing for numerous paths for data to travel but requiring extensive cabling and configuration. The bus topology uses a single cable (the bus) to which all devices are connected, making it less reliable because if the main cable fails, the entire network goes down. The ring topology connects devices in a circular fashion where each device is connected to two others, and data travels in one direction around the ring. If one device or connection fails, it can disrupt communication

6. What differentiates the HDLC header in the Cisco standard from the ISO standard?

A. It includes a 'Source' field for routing decisions

B. It lacks a checksum for error detection

C. It has a 'Type' field to identify the routing protocol

D. It supports multiple address fields

The differentiation of the HDLC header in the Cisco standard from the ISO standard lies in the inclusion of a 'Type' field, which is used to identify the encapsulated protocol being carried in the payload of the HDLC frame. This allows devices using Cisco's implementation to recognize and process different networking protocols that might be running over the same link. The 'Type' field is particularly useful in environments where multiple protocols coexist, providing the necessary information to determine how to handle the incoming data. This feature is instrumental for efficient routing and switching in multi-protocol networks, allowing for seamless interoperability among various network services. In contrast, the ISO standard HDLC does not define a similar field, relying instead on a simpler structure without a protocol type identifier. Therefore, the inclusion of the 'Type' field in the Cisco HDLC frame enhances flexibility and compatibility in diverse networking scenarios.

7. What is the default setting for duplex and speed on a switch port?

A. Half-duplex only

B. Fixed speed settings

C. Auto-negotiation

D. Full-duplex only

The default setting for duplex and speed on a switch port is auto-negotiation. This means that a switch port can automatically negotiate the best possible speed and duplex settings with the connected device, such as a computer or another switch. When a device is connected, the switch and the device will exchange information to determine the highest speed and the correct duplex mode that both can support. Auto-negotiation allows for greater flexibility and can help to minimize configuration errors that might arise from manually setting the speed and duplex mode. It is particularly important in networks where devices from different manufacturers or models might be connected, ensuring compatibility and optimal performance. In contrast, options that suggest fixed speed settings or specific duplex types would require manual configuration and might lead to mismatched settings if not coordinated with the connected device, potentially resulting in connectivity issues.

8. What does the return code 404 mean in an HTTP header?

A. OK

B. Not Found

C. Bad Request

D. Accepted

The return code 404 in an HTTP header signifies that the requested resource could not be found on the server. It indicates that the server was reachable, but the specific page or file the client is trying to access does not exist at the given URL. This status code often arises when a user tries to navigate to a link that has been removed or a URL that was typed incorrectly. In web development, it's common to implement a custom 404 error page to guide users when they encounter this status, offering them options to return to the homepage or search for alternatives.

9. What is the primary function of a router in a network?

A. To connect multiple devices within the same network

B. To analyze data packets for security

C. To direct data packets between different networks

D. To serve as a firewall for the network

The primary function of a router is to direct data packets between different networks. Routers handle the task of forwarding data from one network to another, determining the best path for the packets to travel. This is achieved through routing tables and protocols that allow routers to make informed decisions on where to send data based on network addresses. When a device on one network needs to communicate with a device on another network, it sends data packets to the router, which then looks up the destination address in its routing table. The router uses this information to forward the packet through the most efficient path to reach the intended destination, even if it spans multiple networks. This capability is essential for the functioning of the internet and private networks, as it allows for communication across diverse and distributed infrastructures. In contrast, the other functions mentioned are specifically associated with different devices or functionalities within a network. Connecting multiple devices within the same network is the role of a switch. Analyzing data packets for security is primarily the concern of intrusion detection systems or firewalls, not a router. Serving as a firewall involves inspecting and controlling incoming and outgoing network traffic based on predetermined security rules, which is also not the main function of a router.

10. What pins do Switch transmitters use?

A. The pair connected to pins 1 and 2

B. The pair connected to pins 3 and 6

C. The pair connected to pins 4 and 5

D. The pair connected to pins 7 and 8

Switch transmitters in Ethernet networks typically use the pair of wires connected to pins 3 and 6 for transmission in 100BASE-TX and 1000BASE-T (Gigabit Ethernet) configurations. This is based on the TIA/EIA-568 standard for wiring twisted pair cables. In 100BASE-TX operation, only two pairs of wires are utilized: one pair for transmitting data and another for receiving data. Specifically, pins 1 and 2 are used for transmitting data from one device to another, while pins 3 and 6 are used for receiving. For Gigabit Ethernet (1000BASE-T), all four pairs are used simultaneously for both transmitting and receiving data, but the original classification still applies that pins 3 and 6 are among the ones used for the transmit path. Therefore, when considering the context of switch transmitters, it can be understood that the correct answer correctly reflects the industry standard and practice for Ethernet wiring and port functionality.