

CCST Networking – Module 3 Quiz

Questions

1. An Ethernet switch resides at which layer of the OSI Model?
 - A. Physical
 - B. Data Link
 - C. Network
 - D. Transport
2. The TCP/IP Model consolidates Layers 5 – 7 in the OSI Model into what single layer of the TCP/IP Model?
 - A. Network Interface
 - B. Internet
 - C. Application
 - D. Network Access
3. You are using the Ping utility to troubleshoot a network connectivity issue. What Layer 3 protocol is used by Ping?
 - A. IGMP
 - B. CGMP
 - C. GLBP
 - D. ICMP
4. Which Layer 4 protocol is most appropriate for sending voice packets between two IP phones?
 - A. UDP
 - B. IP
 - C. TCP
 - D. ICMP
5. TCP sessions can dynamically increase the number of segments that a sender sends before expecting an acknowledgement from the receiver. As the number of these segments increases, the TCP session becomes more efficient, because less time is spent waiting for a response. The number of these segments sent before expecting an acknowledgement is called what?
 - A. Block Size

- B. Metric
- C. Window Size
- D. Elastic Limit

6. While performing a packet capture as part of your network troubleshooting duties, you notice frequent UDP segments using port 123. What protocol are you observing?

- A. SFTP
- B. NAT
- C. DHCP
- D. NTP

Questions and Answers

1. An Ethernet switch resides at which layer of the OSI Model?

- A. Physical
- B. Data Link
- C. Network
- D. Transport

Answer: B

Explanation: An Ethernet switch learns which Media Access Control (MAC) addresses reside off specific switch ports. A MAC address is a Layer 2 address, and since an Ethernet switch makes forwarding decisions based on a Layer 2 address, it's considered to be a Layer 2 device. Layer 2 of the OSI Model is the Data Link Layer.

Video Reference: OSI Model

2. The TCP/IP Model consolidates Layers 5 – 7 in the OSI Model into what single layer of the TCP/IP Model?

- A. Network Interface
- B. Internet
- C. Application
- D. Network Access

Answer: C

Explanation: While there are several variants of the TCP/IP Model, including both 4-layer and 5-layer variants, each variant consolidates the Session, Presentation, and Application Layers of the OSI Model (i.e., Layers 5 – 7) into a single Application Layer of the TCP/IP Model.

Video Reference: TCP/IP Model

3. You are using the Ping utility to troubleshoot a network connectivity issue. What Layer 3 protocol is used by Ping?

- A. IGMP
- B. CGMP
- C. GLBP
- D. ICMP

Answer: D

Explanation: The Ping utility uses a Layer 3 protocol called Internet Control Message Protocol (ICMP). Interestingly, ICMP is encapsulated inside IP, another Layer 3 protocol.

Both IGMP (Internet Group Management Protocol) and CGMP (Cisco Group Management Protocol) are used for multicasting.

GLBP (Gateway Load Balancing Protocol) is an FHRP (First Hop Redundancy Protocol), which uses more than one default gateway for a subnet, providing both redundancy and load balancing.

Video Reference: Network Layer Protocols

4. Which Layer 4 protocol is most appropriate for sending voice packets between two IP phones?
- A. UDP
 - B. IP
 - C. TCP
 - D. ICMP

Answer: A

Explanation: Latency-sensitive applications, such as voice and video, require minimal delay. Therefore, UDP (User Datagram Protocol) is a good fit for voice packets. Specifically, UDP has a smaller header than TCP, and it does not wait for an acknowledgement before transmitting a segment. Even though UDP is an “unreliable” protocol, an occasional dropped voice or video segment is typically more acceptable than the delay that would accompany using TCP as the Layer 4 protocol for voice.

Interestingly, voice and video streams are typically encapsulated in an RTP (Real-time Transport Protocol) segment, which is then encapsulated inside a UDP segment. RTP and UDP are both Layer 4 protocols.

Video Reference: Transport Layer Protocols

5. TCP sessions can dynamically increase the number of segments that a sender sends before expecting an acknowledgement from the receiver. As the number of these segments increases, the TCP session becomes more efficient, because less time is spent waiting for a response. The number of these segments sent before expecting an acknowledgement is called what?
- A. Block Size
 - B. Metric
 - C. Window Size
 - D. Elastic Limit

Answer: C

Explanation: The number of segments a TCP sender will send before expecting an acknowledgement from the receiver is called the TCP session's Windows Size. This Window Size can grow exponentially during TCP session.

A Block Size is a concept used in IPv4 subnetting.

A Metric is used for route selection.

An Elastic Limit is not a network concept.

Video Reference: TCP's 3-Way Handshake

6. While performing a packet capture as part of your network troubleshooting duties, you notice frequent UDP segments using port 123. What protocol are you observing?

- A. SFTP
- B. NAT
- C. DHCP
- D. NTP

Answer: D

Explanation: NTP (Network Time Protocol) uses UDP port 123 and is used by a network device to synchronize its clock with a time server. In this instance, it appears that one or more network devices are requesting clock synchronization too frequently.

NAT (Network Address Translation) is not a protocol. Rather, it is a process of translating one IP address into another.

DHCP (Dynamic Host Configuration Protocol) dynamically assigns IP address information to a network device.

Video Reference: Application Layer Protocols