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The Five-Layer Network Model

Quiz • 2h

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Use the following network to answer questions below:

You have 3 networks (A, B, and C) and 2 routers (Y and Z).

Network A has an address space of 10.1.1.0/24 and is connected to router Y, using the interface 10.1.1.1.

Network B has an address space of 192.168.1.0/24 and is connected to Router Y, using the interface 192.168.1.254. Network B is also connected with router Z, using the interface of 192.168.1.1.

Network C has an address space of 172.16.1.0/24 and is connected to router Z, using the interface 172.16.1.1. The diagram below represents these connections and interfaces.

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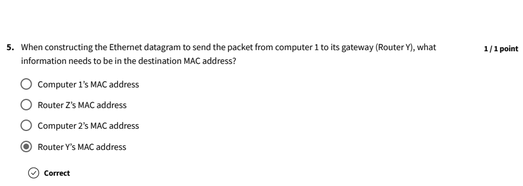

1. Computer 1 on network B, with IP address of 192.168.1.233, wants to send a packet to Computer 2, with IP address of 10.1.1.205. On which network is computer 2? **0 / 1 point**

- (•) Network C
- ( ) Network A
- ( ) Network B
- ( ) Not present

Incorrect
Please review the video on routing basics.

2. For what purpose would computer 1 send a FF:FF:FF:FF:FF:FF broadcast ARP message to all nodes on network A? **1 / 1 point**

- (•) To obtain Router Y's MAC address
- ( ) To calculate the TTL
- ( ) To obtain Computer 2 MAC address
- ( ) To verify the internet connection

Correct

3. Which layer constructs the IP datagram? **1 / 1 point**

- ( ) Application layer
- ( ) Physical Layer
- ( ) Data layer
- (•) Network layer

Correct

4. What information is in the payload section of the TCP segments? **1 / 1 point**

- (•) The application layer data
- ( ) Handshake
- ( ) ART Table
- ( ) The MAC address of Computer 1

Correct

5. When constructing the Ethernet datagram to send the packet from computer 1 to its gateway (Router Y), what information needs to be in the destination MAC address? **1 / 1 point**

- ( ) Computer 1's MAC address
- ( ) Router Z's MAC address
- ( ) Computer 2's MAC address
- (•) Router Y's MAC address

Correct

6. Computer 1 on Network A sends a packet to Computer 2 on Network C. What's the second step that Router Z does after receiving the Ethernet frame? **1 / 1 point**

- ( ) Sends an ARP broadcast message
- ( ) Calculates a checksum and compares this checksum with the one in the Ethernet frame header
- ( ) Sends back the packages to router Y for confirmation
- (•) Strips away the Ethernet frame, leaving the IP datagram. Performs a checksum calculation against the entire datagram

Correct

7. Computer 1 on network C, with IP address of 172.16.1.57, wants to send a packet to Computer 2, with IP address of 172.16.1.133. If the TTL value was set to 64 at the beginning, what is the value of the TTL once it reaches its destination? **1 / 1 point**

- ( ) 65
- (•) 64
- ( ) 0
- ( ) 61

Correct

8. Computer 1 on network B, with IP address of 192.168.1.121, wants to send a packet to Computer 2, with IP address of 10.1.1.8. Taking in consideration that computer 1 is sending a request to a web server on computer 2, listening on port 80, and the source port on computer 1 is 5000, which of the following contains the correct information for the first TCP segment of data? **1 / 1 point**

- (•) Source Port: 5000
  Destination Port: 80
  Sequence Number: 1
  Acknowledgment Number: 2
- ( ) Source Port: 8081
  Destination Port: 50
  Sequence Number: 4
  Acknowledgment Number: 1
- ( ) Source Port: 80
  Destination Port: 5000
  Sequence Number: 1
  Acknowledgment Number: 1
- ( ) Source Port: 80
  Destination Port: 5000
  Sequence Number: 1
  Acknowledgment Number: 2

Correct

9. Computer 1 on network A, with IP address of 10.1.1.10, wants to send a packet to Computer 2, with IP address of 172.16.1.64. Which of the following has the correct IP datagram information for the fields: Version, minimum Header Length, Source IP, and Destination IP? **1 / 1 point**

- (•) Version: 4
  Header Length: 20
  Source IP Address: 10.1.1.10
  Destination IP address: 172.16.1.64
- ( ) Version: 5
  Header Length: 16
  Source IP Address: 171.1.1.1.
  Destination IP address: 172.16.1.0/24.
- ( ) Version: 4
  Header Length: 32
  Source IP Address: 10.1.1.1
  Destination IP address: 172.16.1.1
- ( ) Version: 6
  Header Length: 20
  Source IP Address: 8a:1a:2b:3c:4d:5f
  Destination IP address: 2a:2b:3c:4d:8f

Correct

10. The _____ layer is responsible for sending ones and zeros through a process called modulation from Computer 1 to Computer 2. **1 / 1 point**

- ( ) Application
- ( ) Network
- ( ) Transport
- (•) Physical

Correct