The Five-Layer Network Model

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Use the following network to answer the 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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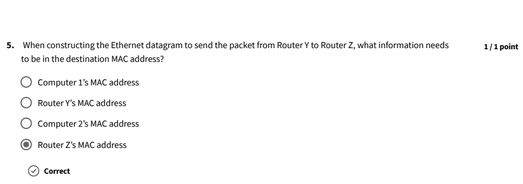

1. Computer 1 on network A, with IP address of 10.1.1.205, wants to send a packet to Computer 2, with IP address of 172.16.1.57. On which network is computer 2? **0 / 1 point**

- ○ Network A
- ◉ Network B
- ○ Local network
- ○ Network C

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 verify the internet connection
- ○ To obtain Computer 2 MAC address
- ○ To calculate the TTL

Correct

3. If it's a TCP connection, which is the first segment that computer 1 needs to build? **1 / 1 point**

- ◉ TCP segment
- ○ IP datagram
- ○ handshake
- ○ Ethernet frame

Correct

4. What information is in the data payload for the IP datagram? **1 / 1 point**

- ○ Network B address space
- ○ ART table
- ○ The ARP discovery request
- ◉ TCP segment

Correct

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

- ○ Computer 1's MAC address
- ○ Router Y's MAC address
- ○ Computer 2's MAC address
- ◉ Router Z's MAC address

Correct

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

- ○ Increases the TTL by one
- ○ Sends an ARP broadcast message
- ◉ Calculates a checksum and compares this checksum with the one in the Ethernet frame header
- ○ Checks the destination IP address and changes it to its own

Correct

7. 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 192.168.1.14. 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**

- ◉ 63
- ○ 0
- ○ 61
- ○ 65

Correct

8. 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 192.168.1.14. 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 fourth TCP segment of data? **1 / 1 point**

- ○ Source Port: 5000
  Destination Port: 80
  Sequence Number: 1
  Acknowledgment Number: 2
- ○ Source Port: 80
  Destination Port: 5000
  Sequence Number: 1
  Acknowledgment Number: 1
- ◉ Source Port: 5000
  Destination Port: 80
  Sequence Number: 4
  Acknowledgment Number: 5
- ○ Source Port: 8081
  Destination Port: 50
  Sequence Number: 4
  Acknowledgment Number: 1

Correct

9. 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 172.16.1.133. 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: 192.168.233
  Destination IP address: 172.16.1.133
- ○ Version: 5
  Header Length: 16
  Source IP Address: 10.1.1.0/24.
  Destination IP address: 172.16.1.0/24.
- ○ Version: 6
  Header Length: 20
  Source IP Address: 8a:1a:2b:3c:4d:5f
  Destination IP address: 2a:2b:3c:4d:8f
- ○ Version: 4
  Header Length: 32
  Source IP Address: 10.1.1.1
  Destination IP address:172.16.1.1

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**

- ○ Network
- ○ Application
- ○ Transport
- ◉ Physical

Correct