Week 7 Homework Results for Austin Koske

Score for this attempt: 28 out of 28
Submitted Oct 20 at 1:08am
This attempt took 9 minutes.

Correct answer

Question 1
2 / 2 pts

6.2-1 Two dimensional parity: error detection and correction. Suppose that a packet's payload consists of 10 eight-bit values (e.g., representing ten ASCII-encoded characters) shown below. (Here, we have arranged the ten eight-bit values as five sixteen-bit values). The received data (including parity) bits are shown. Even parity is used. One received data bit has been flipped. Which one is it? (row and column numbering start at 1) Use the pulldown boxes to specify the row and column where the flipped bit appears (indicates start at 1). [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q2) .]

received data and 2D parity bits

01001010 00011011	1
00001110 01000001	1
00111110 00010001	0
11101100 00001111	1
10011111 00011001	1
00001001 11011101	0

In which row has the bit flip occurred?

3

In which column has the bit flip occurred?

9

Other Incorrect Match Options:

- 2
- 10
- 5

- 4
- 8
- 1
- 7

Nice! This answer is correct

Correct answer

Question 2
2 / 2 pts

6.2-2 Calculating CRC bits. Consider the Cyclic Redundancy Check (CRC) algorithm discussed in Section 6.2.3 of the text. Suppose that the 4-bit generator (G) is 1001, that the data payload (D) is 10011101 and that r = 3. What are the values of the 3 CRC bits? [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q3) .]

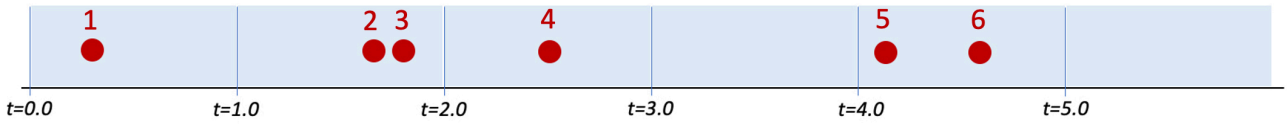
- 010
- 100
- 101
- 011

Nice! This answer is correct.

Correct answer

Question 3
2 / 2 pts

6.3-3. Multiple Access protocols (c). Consider the figure below, which shows the arrival of 6 messages for transmission at different multiple access wireless nodes at times t = 0.3, 1.7, 1.8, 2.5, 4.2, 4.6. Each transmission requires exactly one time unit.



For the **CSMA protocol (*without* collision detection)**, indicate which packets are successfully transmitted. You should assume that it takes .2 time units for a signal to propagate from one node to each of the other nodes. You can assume that if a packet experiences a collision or senses the channel busy and that that node will not attempt a retransmission of that packet until sometime after *t=5*. Hint: consider propagation times

carefully here. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q5) .]

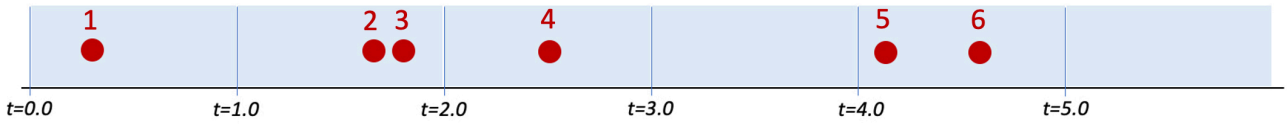
- [x] 1
- [ ] 2
- [ ] 3
- [ ] 4
- [x] 5
- [ ] 6

Nice! This answer is correct.

Correct answer

Question 4
2 / 2 pts

6.3-4. Multiple Access protocols (d). Consider the figure below, which shows the arrival of 6 messages for transmission at different multiple access wireless nodes at times t = 0.3, 1.7, 1.8, 2.5, 4.2, 4.6. Each transmission requires exactly one time unit.



For the **CSMA/CD protocol (*with* collision detection)**, indicate which packets are successfully transmitted. You should assume that it takes .2 time units for a signal to propagate from one node to each of the other nodes. You can assume that if a packet experiences a collision or senses the channel busy and that that node will not attempt a retransmission of that packet until sometime after *t=5*. If a node senses a collision, it stops transmitting immediately (although it will still take .2 time units for the last transmitted bit to propagate to all other nodes). Hint: consider propagation times carefully here. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q5) .]

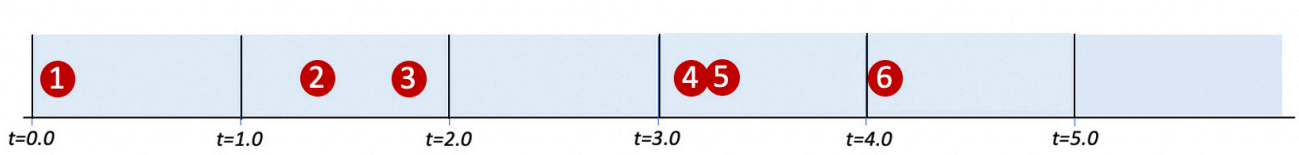
- [x] 1
- [ ] 2
- [ ] 3
- [x] 4
- [x] 5
- [ ] 6

Nice! This answer is correct.

Correct answer

Question 5
2 / 2 pts

6.3A-1. Multiple Access protocols (1). Consider the figure below, which shows the arrival of 6 messages for transmission at different multiple access wireless nodes at times t=0.1, 1.4, 1.8, 3.2, 3.3, 4.1. Each transmission requires exactly one time unit.



For the **pure ALOHA** protocol, indicate which packets are successfully transmitted. You can assume that if a packet experiences *a collision,* a node will not attempt a retransmission of that packet until sometime after *t=5*. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q5) .]

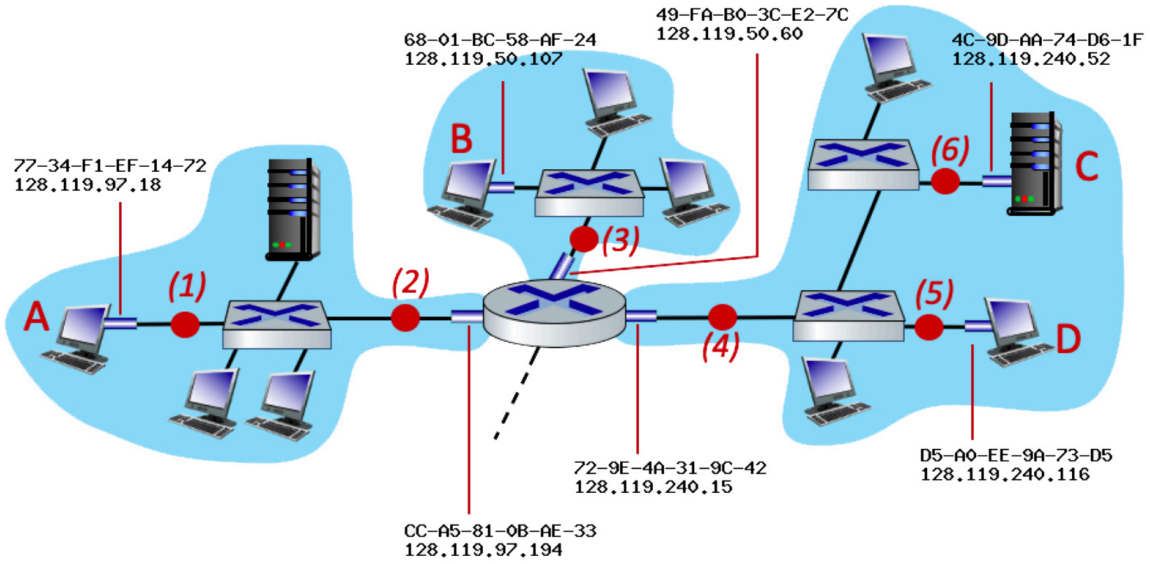
- (•) 1
- ( ) 2
- ( ) 3
- ( ) 4
- ( ) 5
- ( ) 6

Nice! This answer is correct.

Correct answer

Question 6
2 / 2 pts

6.4-1 Network- and Link-layer addressing: an end-to-end-scenario (1a). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node B to node D. Match the source/destination network- or link-layer address at the location (3) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (3)?

68-01-BC-58-AF-24

What is the destination MAC address on the frame at point (3)?

49-FA-B0-3C-E2-7C

What is the source IP address of the datagram at point (3)?

128.119.50.107

What is the destination IP address of the datagram at point (3)?

128.119.240.116

Other Incorrect Match Options:

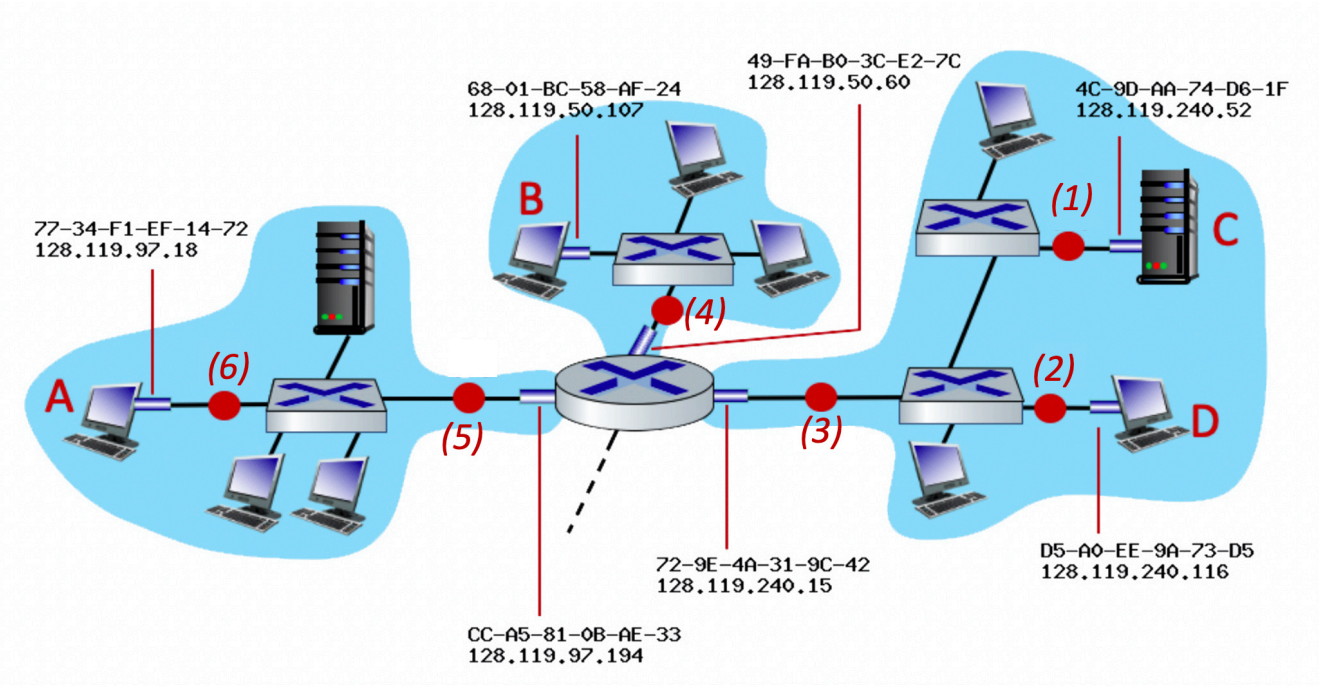
- 128.119.50.60
- 72-9E-4A-31-9C-42
- 128.119.240.15
- The MAC address of the switch between host B and location (3).
- D5-A0-EE-9A-73-D5

Nice! This answer is correct

Correct answer

Question 7
2 / 2 pts

6.4-10 Network- and Link-layer addressing: an end-to-end-scenario (3a). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node C to node A *(note: from right to left)*. Match the source/destination network- or link-layer address at the location (1) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this here (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (1)?

4C-9D-AA-74-D6-1F

What is the destination MAC address on the frame at point (1)?

72-9E-4A-31-9C-42

What is the source IP address of the datagram at point (1)?

128.119.240.52

What is the destination IP address of the datagram at point (1)?

128.119.97.18

Other Incorrect Match Options:

- 128.119.97.194
- The MAC address of the switch immediately left of location (1).
- CC-A5-81-0B-AE-33
- 77-34-F1-EF-14-72
- 128.119.240.15

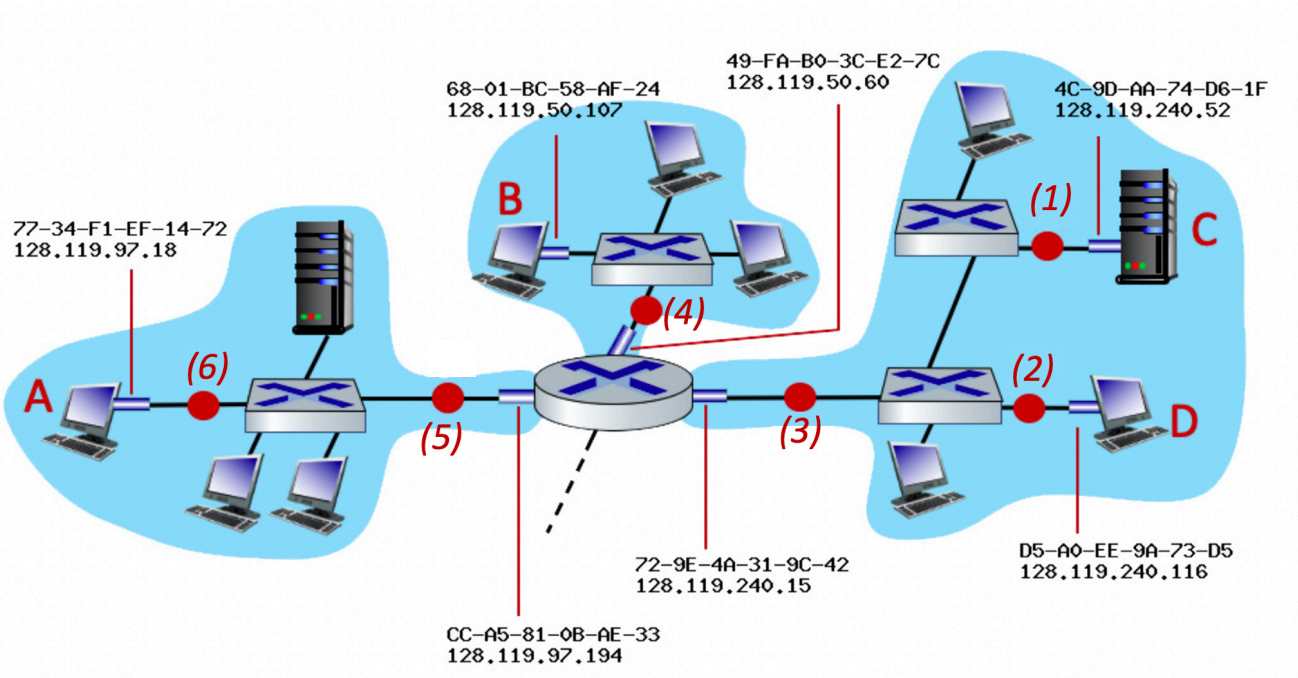
Nice! This answer is correct

Correct answer

Question 8

2 / 2 pts

6.4-11 Network- and Link-layer addressing: an end-to-end-scenario (3b). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node C to node A *(note: from right to left)*. Match the source/destination network- or link-layer address at the location (3) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this here (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (3)?

4C-9D-AA-74-D6-1F

What is the destination MAC address on the frame at point (3)?

72-9E-4A-31-9C-42

What is the source IP address of the datagram at point (3)?

128.119.240.52

What is the destination IP address of the datagram at point (3)?

128.119.97.18

Other Incorrect Match Options:

- 128.119.240.15
- The MAC address of the switch immediately right of location (3).
- 77-34-F1-EF-14-72
- 128.119.97.194
- CC-A5-81-0B-AE-33

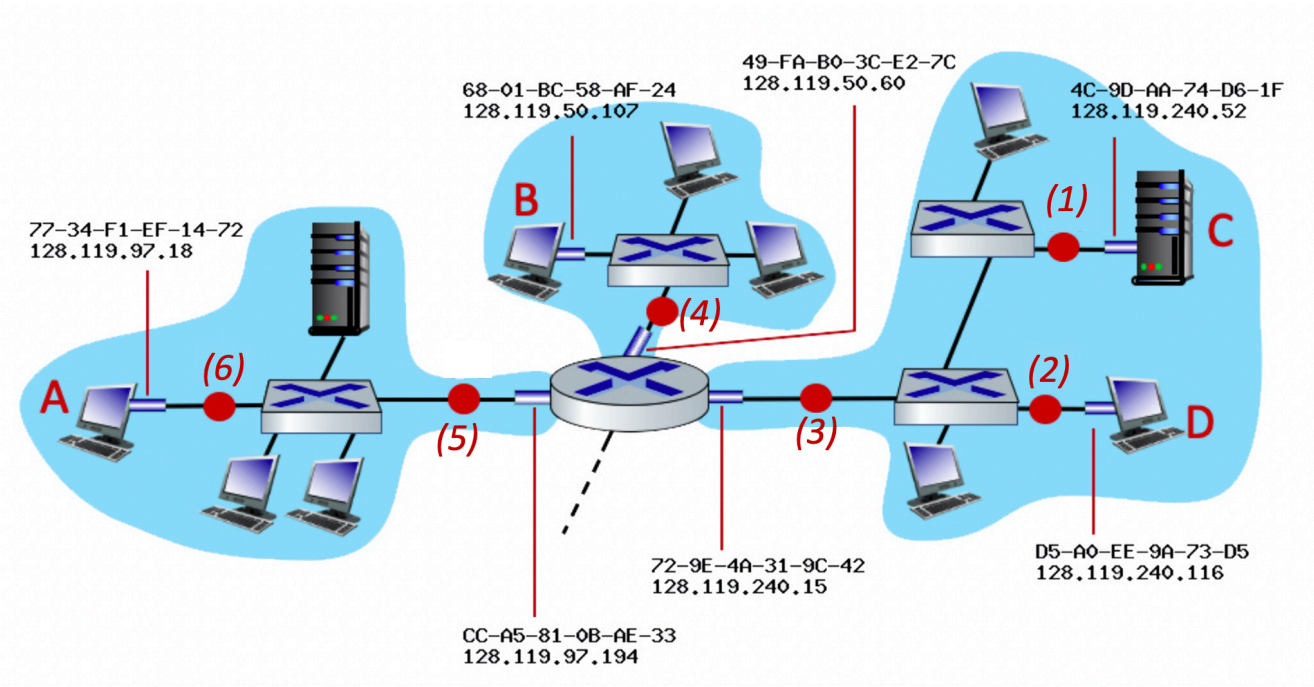
Nice! This answer is correct

Correct answer

Question 9

2 / 2 pts

6.4-12 Network- and Link-layer addressing: an end-to-end-scenario (3c). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node C to node A *(note: from right to left)*. Match the source/destination network- or link-layer address at the location (6) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this here (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (6)?

CC-A5-81-0B-AE-33

What is the destination MAC address on the frame at point (6)?

77-34-F1-EF-14-72

What is the source IP address of the datagram at point (6)?

128.119.240.52

What is the destination IP address of the datagram at point (6)?

128.119.97.18

Other Incorrect Match Options:

- 72-9E-4A-31-9C-42
- 128.119.97.194
- 128.119.240.15
- The MAC address of the switch immediately left of location (1).
- 4C-9D-AA-74-D6-1F

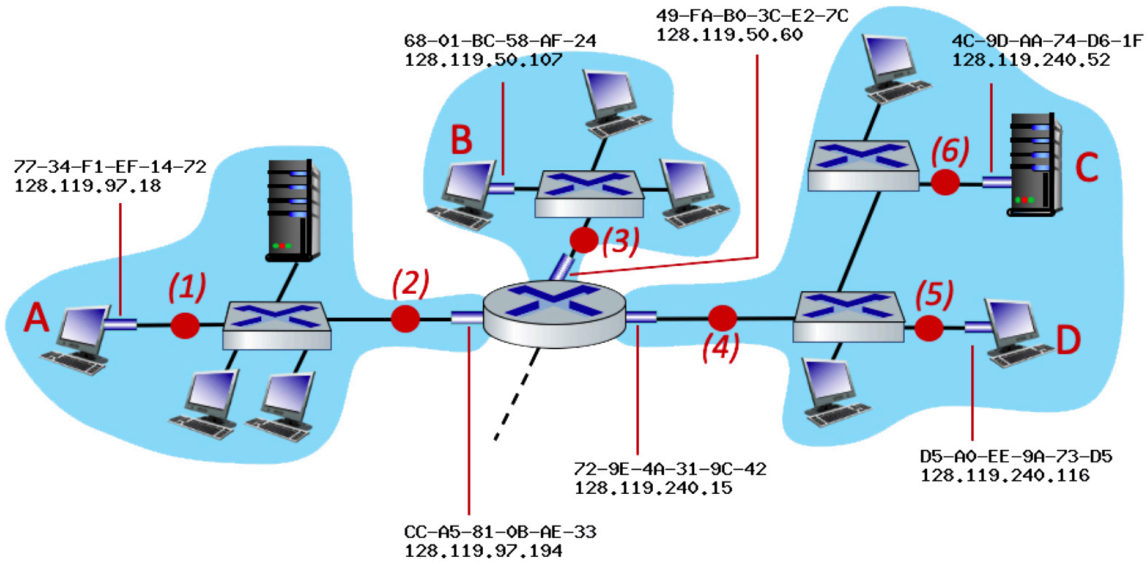
Nice! This answer is correct

Correct answer

Question 10

2 / 2 pts

6.4-2 Network- and Link-layer addressing: an end-to-end-scenario (1b). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node B to node D. Match the source/destination network- or link-layer address at the location (4) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (4)?

72-9E-4A-31-9C-42

What is the destination MAC address on the frame at point (4)?

D5-A0-EE-9A-73-D5

What is the source IP address of the datagram at point (4)?

128.119.50.107

What is the destination IP address of the datagram at point (4)?

128.119.240.116

Other Incorrect Match Options:

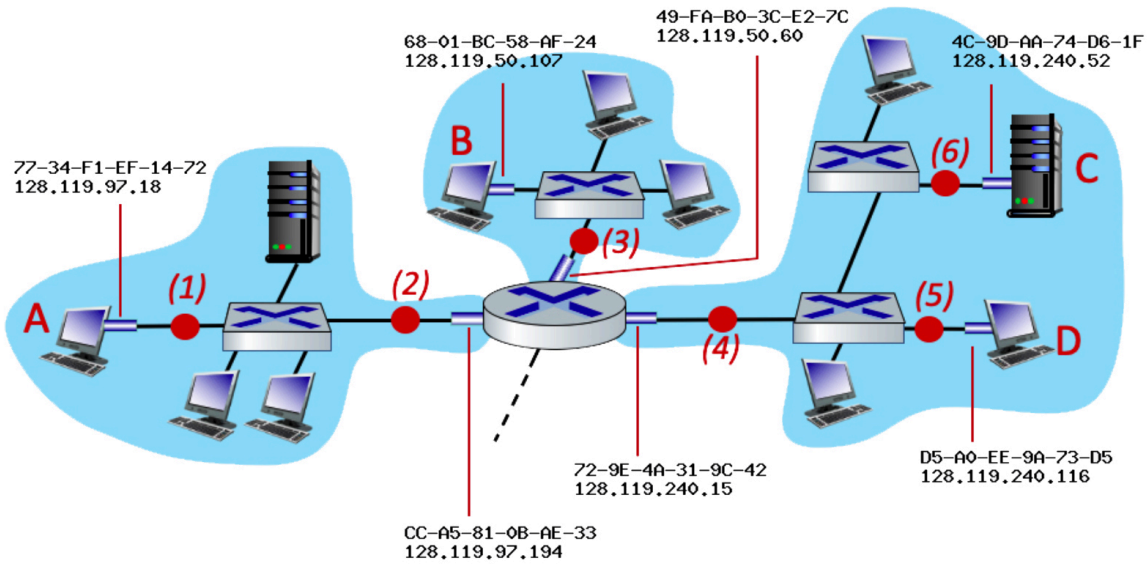
- The MAC address of the switch between points (4) and (5)
- 128.119.50.60
- 49-FA-B0-3C-E2-7C
- 128.119.240.15
- 68-01-BC-58-AF-24

Nice! This answer is correct

Correct answer

Question 11
2 / 2 pts

6.4-7 Network- and Link-layer addressing: an end-to-end-scenario (2a). Consider the network shown below. The IP and MAC addresses are shown for hosts A, B, C and D, as well as for the router's interfaces. Consider an IP datagram being sent from node A to node C. Match the source/destination network- or link-layer address at the location (2) by choosing a value from the pulldown list. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q1) .]



What is the source MAC address on the frame at point (2)?

77-34-F1-EF-14-72

What is the destination MAC address on the frame at point (2)?

CC-A5-81-0B-AE-33

What is the source IP address of the datagram at point (2)?

128.119.97.18

What is the destination IP address of the datagram at point (2)?

128.119.240.52

Other Incorrect Match Options:

- The MAC address of the switch immediately left of location (2).
- 4C-9D-AA-74-D6-1F
- 128.119.97.194
- 128.119.240.15
- 72-9E-4A-31-9C-42

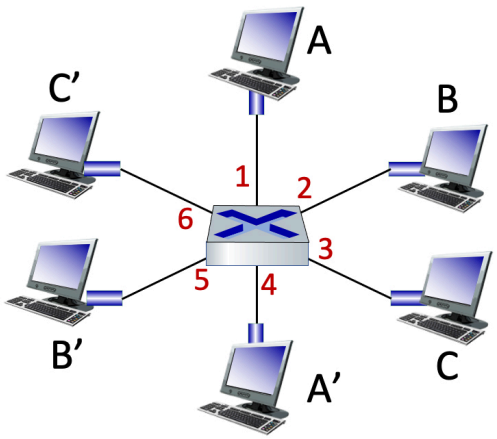
Nice! This answer is correct

Correct answer

Question 12

2 / 2 pts

6.4-4. Self Learning Switches (a). Consider the network below with six nodes, star-connected into an Ethernet switch. Suppose that A sends a frame to A, A' replies to A, then B sends a message to B' and B' replies to B. Enter the values that are present in the switch's forwarding table after B'-to-B frame is sent and received. Assumed that the table is initially empty and that entries are added to the table sequentially. Answer the questions below from the pulldown list. [Note: You can find more examples of problems similar to this **here** (http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q6) .]



What is the first entry added to the table?

A,1

What is the second entry added to the table?

A',4

What is the third entry added to the table?

B,2

What is the fourth entry added to the table?

B',5

Other Incorrect Match Options:

- C,3
- C',6

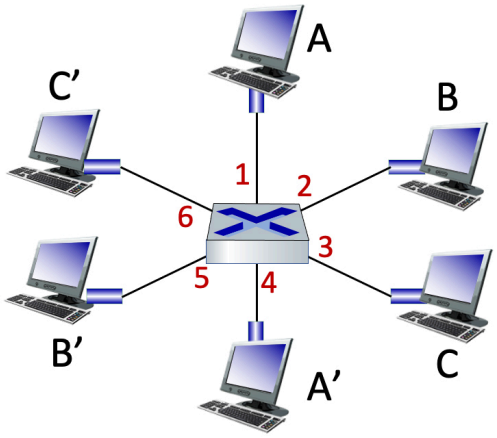
Nice! This answer is correct

Correct answer

Question 13

2 / 2 pts

6.4-5. Self Learning Switches (b). Consider the network below with six nodes, star-connected into an Ethernet switch. Suppose that A sends a frame to A, A' replies to A, then B sends a message to B' and B' replies to B. Suppose you are node C, and consider the frames arriving to node C's interface (whether they are destined to C or not). From what senders do these frames arrive? [Note: You can find more examples of problems similar to this **here** **(http://gaia.cs.umass.edu/kurose_ross/interactive/?q=c6q6)** .]



- [x] A
- [ ] A'
- [x] B
- [ ] B'
- [ ] C
- [ ] C'

Nice! This answer is correct.

Correct answer

Question 14
2 / 2 pts

6.7-2. Caching everywhere!

We've seen caching used in many different places in our study of networking. In this question, you should match the description of a particular form of caching with the protocol or network service where this caching occurs. Each element of the pull-down menu should match with at most one of the given descriptions.

Caching copies of web pages for an *individual* client.

Web browser caching

Caching copies of web pages for a *set* of clients.

Web caching/proxy

Caching translation pairs between a domain name and an IP address

Local DNS caching

Caching translation pairs between an IP address and a MAC address.

Caching in the ARP cache

Caching translation pairs between a MAC address and a layer-2 switch port.

Learning switch caching

Nice! This answer is correct

Quiz Score: 28 out of 28