

# Week 7 Summary Exercises

**Due** Aug 13 at 11:59pm    **Points** 91    **Questions** 37  
**Available** Aug 6 at 12am - Aug 13 at 11:59pm 8 days    **Time Limit** 360 Minutes    **Allowed Attempts** 2

## Attempt History

	Attempt	Time	Score
KEPT	<a href="#">Attempt 2</a>	31 minutes	86.33 out of 91
LATEST	<a href="#">Attempt 2</a>	31 minutes	86.33 out of 91
	<a href="#">Attempt 1</a>	45 minutes	75.22 out of 91

Score for this attempt: **86.33** out of 91

Submitted Aug 13 at 9:28pm

This attempt took 31 minutes.

### Question 1

2 / 2 pts

Given an internet represented as a weighted undirected graph, the shortest path between node X and node Y is the path that...

Correct!

- ☒ has the smallest sum of edge weights.
- ☐ connects node X to node Y directly
- ☐ begins with the smallest weight on the first hop edge from node X
- ☐ has the smallest number of hops

### Question 2

0 / 2 pts

The "traceroute" application (on Windows) sends UDP messages by default.

You Answered

☒ True

Correct Answer

☐ False

**Question 3****0 / 2 pts**

The "tracert" application (on Windows) sends ICMP messages by default.

**Correct Answer**☐ True**You Answered**☒ False**Question 4****2 / 2 pts**

Re-assembly of fragmented IP datagrams is handled by...

**Correct!**☐ the router in the datagram's path☒ the destination host.☐ the next router with a large-enough MTU.☐ the sending host.**Question 5****2 / 2 pts**

For a TCP/IP datagram coming into a home network through a NAT device, which of the following header fields (IP and/or TCP) are altered? (Check all that apply)

**Correct!**☐ Identification☐ Source IP Address☒ Header Checksum☐ Upper Layer Protocol**Correct!**☒ Destination Port

Correct!

☒ Destination IP address☐ Source Port**Question 6**

2 / 2 pts

The "Hop Limit" IPv6 header field indicates how many remaining hops to the destination.

☐ True

Correct!

☒ False**Question 7**

2 / 2 pts

NAPT devices translate IP address *and* port numbers.

Correct!

☒ True☐ False**Question 8**

2 / 2 pts

In IPv6, datagram fragmentation is handled at the network edge .

**Answer 1:**

Correct!

handled at the network edge

**Question 9**

2 / 2 pts

Network address translation alters IP to add new IP addresses.

Correct!

☐ True☒ False**Question 10**

2 / 2 pts

In IPv6, there is no datagram fragmentation performed in the network core..

Correct!

☒ True☐ False**Question 11**

2 / 2 pts

Select all features explicit in IPv6 which are not explicitly available in IPv4. (Check all that apply)

Correct!

☒ Flow labeling

Correct!

☒ 128-bit addresses☐ Version☐ Source/Destination Addressing☐ Hop Limit☐ Traffic Type

Correct!

☒ Extension Headers

Correct!

☒ Explicit Payload Length**Question 12**

2 / 2 pts

The IPv6 address size is 128 bits.

Correct!

☒ True

☐ False

### Question 13

8 / 8 pts

A private network uses a NAT device at public IP address 197.196.100.80. The computers in the network use addresses of the form 10.0.0.x/22. Suppose that computer inside the NATed network sends a request with

Source address: 10.0.50.10

Source port: 530

Destination address: 60.25.40.10

Destination port: 20

The next available port number on the NAT device is 10123.

#### PART 1:

What source and destination information do the request packet headers contain when the request is sent out by the sending host?

Source address:

Source port :

Destination address:

Destination port :

#### PART 2:

What source and destination information do the request packet headers contain when the request is sent out by the NAT box?

Source address:

Source port :

Destination address: [ Select ] ▼

Destination port : [ Select ] ▼

**PART 3:**

What source and destination information do the response packet headers contain when the response is received by the NAT box?

Source address: 60.25.40.10

Source port : [ Select ] ▼

Destination address: [ Select ] ▼

Destination port : [ Select ] ▼

**PART 4:**

What source and destination information do the response packet headers contain when the response is received by the original sending host?

Source address: [ Select ] ▼

Source port : [ Select ] ▼

Destination address: [ Select ] ▼

Destination port : [ Select ] ▼

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**Answer 1:**

Correct!

10.0.50.10

---

**Answer 2:**

Correct!

530

---

**Answer 3:**

Correct!

60.25.40.10

---

**Answer 4:**

Correct!

20

**Answer 5:**

Correct!

197.196.100.80

**Answer 6:**

Correct!

10123

**Answer 7:**

Correct!

60.25.40.10

**Answer 8:**

Correct!

20

**Answer 9:**

Correct!

60.25.40.10

**Answer 10:**

Correct!

20

**Answer 11:**

Correct!

197.196.100.80

**Answer 12:**

Correct!

10123

**Answer 13:**

Correct!

60.25.40.10

**Answer 14:**

Correct!

20

**Answer 15:**

Correct!

10.0.50.10

**Answer 16:**

Correct!

530

**Question 14****3 / 3 pts**

1234::a03:abcd is a valid preferred-format IPv6 address.

**Correct!**☒ True☐ False**Question 15****3 / 3 pts**

1234::a03::abcd is a valid preferred-format IPv6 address.

**Correct!**☐ True☒ False**Question 16****3 / 3 pts**

1234:aac:a03::abcd is a valid preferred-format IPv6 address.

**Correct!**☒ True☐ False**Question 17****2 / 2 pts**

A protocol designed to control access to a medium is most commonly called a

**Correct!**☐ none of these☒ media access control protocol☐ link access protocol



☐ multiple access protocol

**Question 18****2 / 2 pts**

Select all Channel Partitioning schemes below.

☐ Token Ring Multiple Access

☒ WDMA

☐ CSMA

☐ Bus Ethernet

☒ FDMA

☐ Star-configured Ethernet

☒ TDMA

Correct!

Correct!

Correct!

**Question 19****2 / 2 pts**

For an machine using 2-dimensional even parity for error detection/correction, and the following received bytes, where is the error? If there is no error, select "No Error" for both boxes.

Byte # 2

Bit # 4

Byte #	Code	Parity
1	1000 011	1
2	1000 110	0
3	1001 101	0
4	1100 011	0
5	1101 000	1
6	1100 110	0
7	1010 100	1
Parity	1111 001	1

**Answer 1:**

Correct!

2

**Answer 2:**

Correct!

4

**Question 20**

2 / 2 pts

Star Ethernet uses the same multiple access control as Bus Ethernet.

☐ True

Correct!

☒ False**Question 21**

1.33 / 2 pts

Which of the following are used in a wired Ethernet network? (Check all that apply)

Correct!

☒ Collision Detection (CD)☐ Reservation system with Request to Send (RTS) and Clear to Send (CTS)

Correct Answer

☐ Exponential back-off/retry for collision resolution☐ Collision Avoidance (CA)

Correct!

☒ Carrier Sense Multi-Access (CSMA)**Question 22**

2 / 2 pts

Which are functions of the Ethernet preamble? (Check all that apply)

☐ Stop signal

Correct!

☐ Address switching.☒ Clock synchronization

Correct!

☒ Start signal

Correct!

☒ Circuit wake-up☐ Error detection/correction**Question 23****2 / 2 pts**

In Random Access multiple access schemes, no two nodes will ever transmit at the same time.

☐ True

Correct!

☒ False**Question 24****2 / 2 pts**

MAC addresses are redundant because of IP addresses.

☐ True

Correct!

☒ False**Question 25****2 / 2 pts**

Given the following received byte on an odd-parity machine, there is definitely at least one error.

01001101

Correct!

☒ True

☐ False**Question 26****2 / 2 pts**

It is fairly easy to detect collisions in wireless networks.

☐ True**Correct!**☒ False**Question 27****2 / 2 pts**

Bus Ethernet uses a random access scheme.

**Correct!**☒ True☐ False**Question 28****2 / 2 pts**

A MAC address is permanent and unique.

☐ True**Correct!**☒ False**Question 29****2 / 2 pts**

A switch is a network-layer device.

☐ True

Correct!

☒ False**Question 30****2 / 2 pts**

A multiple access scheme which uses a master node to poll each slave node, and control who has 'permission' to transmit at any given time is called...

☐ reservation protocol☐ random access protocol

Correct!

☒ "taking turns" protocol☐ channel partitioning protocol**Question 31****2 / 2 pts**

A "collision" is best described as...

Correct!

☒ when a node receives two or more frames at the same time.☐ when two or more nodes transmit frames at the same time.☐ when two or more frames are in the channel at the same time.☐ all of these**Question 32****2 / 2 pts**

To retrieve an adjacent node's MAC address, \_\_\_\_\_ is used.

Correct!

☒ ARP

☐ DHCP☐ UDP**Question 33****2 / 2 pts**

Given the following diagram of typical Ethernet hardware frame:

Select the proper portion of the data encapsulation from the dropdown menu, which corresponds to the letter in the figure.



A: [ Select ] ▼

B: [ Select ] ▼

C: IP header

D: TCP/UDP header

**Answer 1:****Correct!**

hardware framing characters

**Answer 2:****Correct!**

hardware frame header

**Answer 3:****Correct!**

IP header

**Answer 4:****Correct!**

TCP/UDP header

**Question 34****2 / 2 pts**

For an machine using 2-dimensional even parity for error detection/correction, and the following received bytes, where is the error? If there is no error, select "No Error" for both boxes.

Byte # Parity

Bit # Parity

Byte #	Code	Parity
1	1000 011	1
2	1001 110	0
3	1001 101	0
4	1100 011	0
5	1101 000	1
6	1100 110	0
7	1010 100	1
Parity	1111 001	0

Answer 1:

Correct!

Parity

Answer 2:

Correct!

Parity

### Question 35

2 / 2 pts

A link-layer link between only two adjacent nodes is called a/an point to point link.

Answer 1:

Correct!

point to point

### Question 36

2 / 2 pts

A link-layer link between more than two adjacent nodes is called a/an broadcast link.

Answer 1:

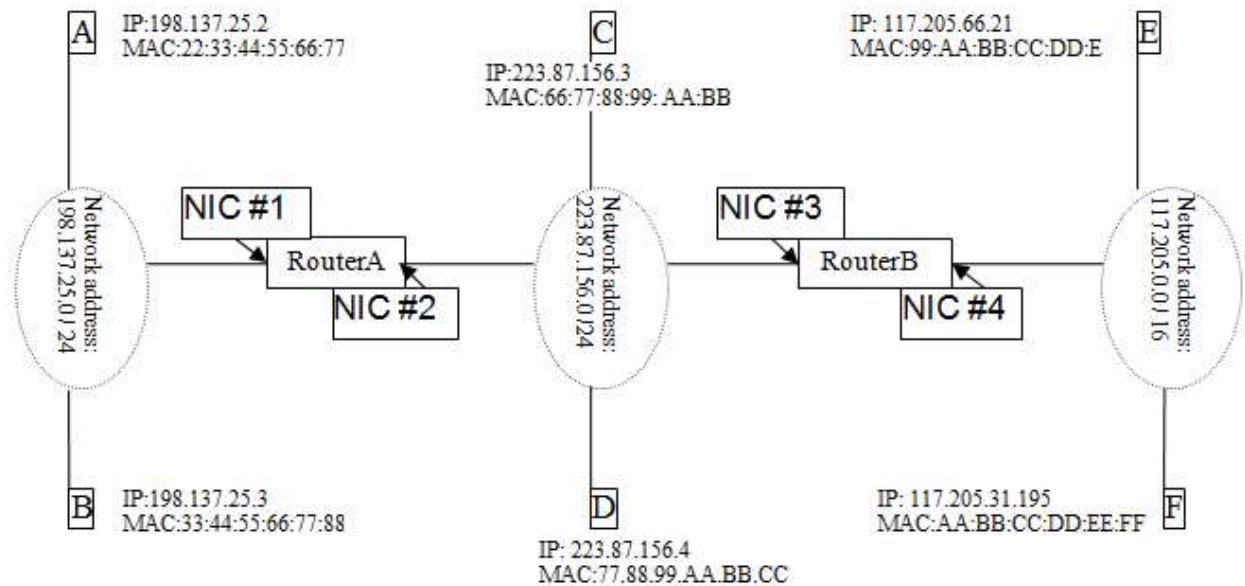
Correct!

broadcast

## Question 37

10 / 10 pts

Select words/phrases from the dropdown menus to define the process of sending a message from host A to host D in the diagram below. Each phrase may be used zero or more times.



1. A finds that D belongs to a different subnet by checking

[ Select ] ▼

2. A looks up [ Select ] ▼ in its routing table.

3. A uses ARP to get [ Select ] ▼.

4. A creates frame with [ Select ] ▼ as destination. Frame contains

IP datagram with [ Select ] ▼ as destination.

5. A's NIC sends frame and RouterA's NIC receives it.

6. RouterA removes IP datagram from frame, learns that its destination is

[ Select ] ▼.

7. RouterA uses ARP to get [ Select ] ▼.

8. RouterA creates frame with [ Select ] ▼ as destination. Frame

contains IP datagram with D's IP address as destination.



9. RouterA's NIC sends frame and D's NIC receives it.

**Answer 1:**

Correct!

D's IP address

**Answer 2:**

Correct!

RouterA's NIC#1 IP address

**Answer 3:**

Correct!

RouterA's NIC#1 MAC address

**Answer 4:**

Correct!

RouterA's NIC#1 MAC address

**Answer 5:**

Correct!

D's IP address

**Answer 6:**

Correct!

D's IP address

**Answer 7:**

Correct!

D's MAC address

**Answer 8:**

Correct!

D's MAC address

**Answer 9:**

Correct!

D's IP address

Quiz Score: **86.33** out of 91