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

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	45 minutes	75.22 out of 91

Score for this attempt: **75.22** out of 91
Submitted Aug 10 at 11:42am
This attempt took 45 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...

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

Question 2

2 / 2 pts

In a fragmented IP datagram, the "offset" IP header field value is exactly equal to the number of bytes of fragmented data preceding this fragment.

- True
- Correct! False

Question 3

2 / 2 pts

The "Identification" header field is unchanged by IP datagram fragmentation.

Correct!

- (●) True
- ( ) False

Question 4

2 / 2 pts

It is the responsibility of a routing algorithm to find a datagram's path through a network.

Correct!

- (●) True
- ( ) False

Question 5

2 / 2 pts

When encountering an IPv4-only router, an IPv6 datagram is encapsulated in an IPv4 datagram, with the next in-line IPv6 router as its destination.

Answer 1:

Correct!

encapsulated in

Answer 2:

Correct!

next in-line IPv6 router

Question 6

2 / 2 pts

Network address translation is strictly a Layer-3 protocol.

- ( ) True

Correct!

- (•) False

Question 7

2 / 2 pts

IPv6 datagrams cannot be converted to IPv4 datagrams without losing any information.

Correct!

- (•) True
- ( ) False

Question 8

2 / 2 pts

The transition from IPv4 to IPv6 requires that _____. (Check all that apply)

Correct!

- [ ] all IPv4 routers must have been phased out by January 1, 2015.
- [x] IPv4 routers still in use must “tunnel” IPv6 datagrams, by fragmenting/encapsulating them in IPv4 datagrams
- [ ] all ISPs provided IPv6 functionality by January 1, 2015.

Question 9

2 / 2 pts

Network address translation has ameliorated the IP address shortage problem.

Correct!

- (•) True
- ( ) False

Question 10

2 / 2 pts

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

- True
- False

Correct!

Question 11

2 / 2 pts

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

Answer 1:

handled at the network edge

Correct!

Question 12

2 / 2 pts

NAPT devices translate IP address *and* port numbers.

- True
- False

Correct!

Question 13

8 / 8 pts

A private network uses a NAPT 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 NAPT 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: [Select]

Source port : 530

Destination address: [Select]

Destination port : 20

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: [Select]

Source port : 10123

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: [Select]

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]

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

0 / 3 pts

Convert the following IPv4 address to its corresponding IPv6-mapped address, with proper formatting.

13.100.64.20

You Answered ::FFFF:0D64:4014

Correct Answers ::ffff:13.100.64.20

::ffff:d64:4014

Question 15

0 / 3 pts

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

Correct Answer ○ True

You Answered ◉ False

Question 16

3 / 3 pts

::ffff:ABCD:DBCA is a valid preferred-format IPv6 address.

- True
- Correct! False

Question 17

2 / 2 pts

A multiple access scheme which divides the usable medium into "chunks" and allows each device sole acces to some number of "chunks" is called...

- "taking turns" protocol
- random access protocol
- Correct! channel partitioning protocol
- collision avoidance protocol

Question 18

0 / 2 pts

Select all Random Access schemes below.

- TDMA
- Correct! ALOHA
- You Answered Token Ring Multiple Access
- Correct! CSMA

WDMA

You Answered

Star-configured Ethernet

FDMA

Question 19

0 / 2 pts

It is fairly easy to detect collisions in wireless networks.

You Answered

True

Correct Answer

False

Question 20

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	B	C	D	Data	A

A: [Select]

B: [Select]

C: [Select]

D: [Select]

Answer 1:

Correct! hardware framing characters

Answer 2:

Correct! hardware frame header

Answer 3:

Correct! IP header

Answer 4:

Correct! TCP/UDP header

Question 21

2 / 2 pts

A network with a bus topology must terminate the endpoints, but in with a ring topology they are connected so there is no endpoint.

Answer 1:

Correct! bus

Answer 2:

Correct! ring

Question 22

2 / 2 pts

There are reserved MAC addresses unusable for devices.

Correct! (•) True

( ) False

Question 23

2 / 2 pts

Bus Ethernet uses a random access scheme.

Correct!

- (●) True
- ( ) False

Question 24

1.33 / 2 pts

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

- [ ] Address switching.

Correct Answer

- [ ] Circuit wake-up

Correct!

- [x] Clock synchronization

Correct!

- [x] Start signal
- [ ] Error detection/correction
- [ ] Stop signal

Question 25

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 26

2 / 2 pts

The link-layer device at the center of an ethernet star is a _____.

- ( ) node

router

star hub

Correct! switch

Question 27

2 / 2 pts

In a CSMA/CD system, when a collision is detected, ...

the sender will send a channel reservation message.

the sender will give an error message to the upper-level protocol

the sender will immediately retransmit the frame from the beginning.

Correct! the sender will cut off transmission and wait some time before retransmitting.

Question 28

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 29

2 / 2 pts

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

multiple access protocol

none of these

link access protocol

Correct! media access control protocol

Question 30

2 / 2 pts

The address table shown below would be maintained by a host, router, or switch by...

Hardware Address	IP Address
00-13-72-BA-C0-23	10.0.1.142
00-13-72-BA-9E-F0	10.0.2.5
00-13-72-BA-33-7A	10.0.3.213

Correct! ARP

NIC

TCP/IP

ICMP

Question 31

0 / 2 pts

A "collision" is best described as...

when two or more frames are in the channel at the same time.

when two or more nodes transmit frames at the same time.

Correct Answer when a node receives two or more frames at the same time.

You Answered all of these

Question 32

2 / 2 pts

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

- [ ] Collision Avoidance (CA)
- [x] Exponential back-off/retry for collision resolution — Correct!
- [x] Collision Detection (CD) — Correct!
- [ ] Reservation system with Request to Send (RTS) and Clear to Send (CTS)
- [x] Carrier Sense Multi-Access (CSMA) — Correct!

Question 33

2 / 2 pts

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

```
01001101
```

- ( ) True
- (•) False — Correct!

Question 34

0 / 2 pts

A switch is a network-layer device.

- (•) True — You Answered
- ( ) False — Correct Answer

Question 35

2 / 2 pts

A MAC address is permanent and unique.

- True
- False

Correct!

Question 36

2 / 2 pts

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

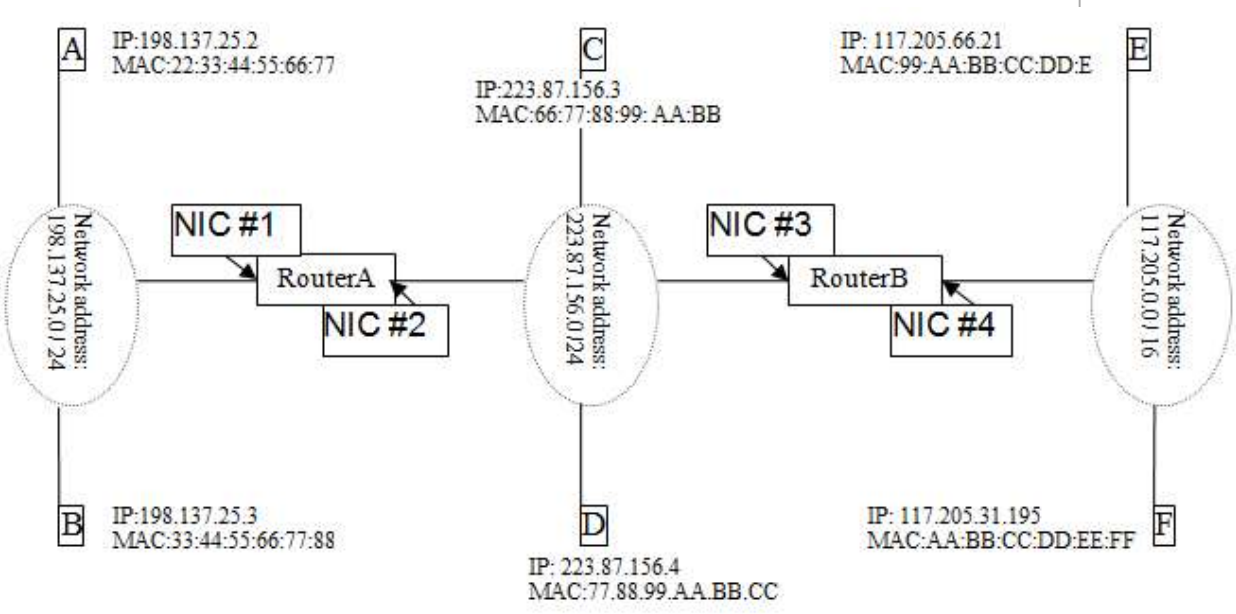
- True
- False

Correct!

Question 37

8.89 / 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 RouterA's NIC#2 IP address in its routing table.
3. A uses ARP to get [Select] .
4. A creates frame with RouterA's NIC#1 MAC address 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 [Select] as destination.
9. RouterA's NIC sends frame and D's NIC receives it.

Answer 1:

Correct! D's IP address

Answer 2:

You Answered RouterA's NIC#2 IP address

Correct Answer 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: **75.22** out of 91