Week 7 Summary Exercises

Due Nov 17 at 11:59pm **Points** 72 **Questions** 27
Available Nov 10 at 12am - Nov 17 at 11:59pm 8 days **Time Limit** 360 Minutes
Allowed Attempts 2

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	81 minutes	72 out of 72
LATEST	Attempt 2	81 minutes	72 out of 72
	Attempt 1	269 minutes	66.33 out of 72

Score for this attempt: **72** out of 72
Submitted Nov 17 at 11:12pm
This attempt took 81 minutes.

Question 1

1 / 1 pts

In network-assisted congestion control, flags may be set during transit which indicate the presence and/or level of congestion in certain portions of the network.

Answer 1:

Correct!

network-assisted

Question 2

1 / 1 pts

What are some causes of network congestion? (Check all that apply)

Correct!

- [x] Typical Internet Usage.

Correct! ☑ High utilization.

Correct! ☑ Reliable Data Transfer schemes.

Correct! ☑ Dropped TCP Packets.

Correct! ☑ Parallel TCP Connections.

Question 3

1 / 1 pts

The rate of CongWin size increase (in terms of MSS) while in TCP's Slow-Start phase is Exponential .

Answer 1:

Correct! Exponential

Question 4

1 / 1 pts

Select the proper equation for TCP's calculation of EstimatedRTT.

○ $EstimatedRTT_n = \alpha \cdot EstimatedRTT_{n-1} + (1-\alpha) \cdot SampleRTT_{new}$

Correct! ◉ $\boldsymbol{EstimatedRTT_n = (1-\alpha) \cdot EstimatedRTT_{n-1} + \alpha \cdot SampleRTT_{new}}$

○ $EstimatedRTT_n = (1-\alpha) \cdot EstimatedRTT_n + \alpha \cdot SampleRTT_{new}$

○ $EstimatedRTT_n = (1-\alpha) \cdot EstimatedRTT_{n-1} + \alpha \cdot SampleRTT_{old}$

Question 5

2 / 2 pts

Imagine a mythical set of protocols with the following details.

Maximum Link-Layer data frame: 1,499 bytes

Network-Layer header size: 29 bytes

Transport-Layer header size: 23 bytes

What is the size, in bytes, of the MSS? (Give answer without units)

Correct!

1,447

orrect Answer

1,447

Question 6

2 / 2 pts

For the following binary IP address, give the dotted-decimal representation:

11011110 01110011 01100110 01100110

Correct!

222.115.102.102

orrect Answers

222.115.102.102

Question 7

2 / 2 pts

For the following dotted-decimal IP address, give the binary representation:

10.108.112.240

Correct!

00001010 01101100 01110000 11110000

orrect Answers

00001010 01101100 01110000 11110000

00001010011011000111000011110000

Question 8

2 / 2 pts

For the following binary IP address, give the dotted-decimal representation:

10011000 11101110 10011101 11000011

Correct!

152.238.157.195

orrect Answers

152.238.157.195

Question 9

2 / 2 pts

When a host in a network needs to obtain a valid IP address for itself, it broadcasts a "discover" message that can be handled by a Dynamic Host Configuration Protocol (DHCP) server, which will "offer" an IP address within the correct domain.

Answer 1:

Correct!

Dynamic Host Configuration Protocol (DHCP)

Question 10

2 / 2 pts

In a datagram network, the responsibilities of the network layer include: (check all that apply).

- [ ] flow control

- [ ] connection setup/takedown
- [ ] reliable delivery
- [x] host-to-host communication — Correct!
- [ ] congestion control
- [x] packet forwarding — Correct!
- [x] packet routing — Correct!
- [ ] payload error correction

Question 11

2 / 2 pts

Which of the following are benefits of a datagram network? (Check all that apply)

- [x] Faster delivery. — Correct!
- [ ] Connection states are preserved.
- [ ] Guaranteed timing.
- [x] Less overhead than a VC network. — Correct!
- [ ] Guaranteed bandwidth.

Question 12

2 / 2 pts

In a subnet, the reserved addresses are the subnet address (with a lowest subnet IP address) and the broadcast address (with a highest subnet IP address).

Answer 1:

Correct!

subnet address

Answer 2:

Correct!

broadcast address

Question 13

2 / 2 pts

The Internet Protocol (IP) implements timing controls.

- ○ True
- ◉ False

Correct!

Question 14

2 / 2 pts

The process of determining a path through the internet is called routing .

Answer 1:

Correct!

routing

Question 15

2 / 2 pts

Where do network-layer protocols run?

Correct!

- ☑ Routers

Correct!

- ☑ PCs

Correct!

- [x] Mobile devices

Correct!

- [x] Laptops

Question 16

2 / 2 pts

The Internet Protocol (IP) header may be 28 bytes long.

Correct!

- (•) True
- ( ) False

Question 17

2 / 2 pts

A network with a connectionless network layer is called a datagram network .

Answer 1:

Correct!

datagram network

Question 18

2 / 2 pts

Which of the following are benefits of a virtual circuit network? (Check all that apply)

Correct!

- [x] Connection states are preserved.
- [ ] Faster delivery.

Correct!

- [x] Guaranteed bandwidth.

- [ ] Less overhead than a datagram network.
- [x] Guaranteed timing.

Correct!

Question 19

2 / 2 pts

Given a router with 5 input ports and 5 output ports. If the switching fabric is 5 times as fast as the input/output line speed, queueing can occur at an input port.

Answer 1:

can

Correct!

Question 20

2 / 2 pts

In addition to a "default" entry, routing tables in an internet store...

- all of the above
- the “first hop” in a path to each of the networks known to the router
- a complete path to each of the networks known to the router
- the number of hops in the shortest path to each of the networks known to the router

Correct!

Question 21

2 / 2 pts

The Internet Protocol (IP) implements congestion control.

- True
- False

Correct!

Question 22

2 / 2 pts

Given a router with 5 input ports and 5 output ports. If the switching fabric is 5 times as fast as the input/output line speed, queueing can occur at an output port.

Answer 1:

can

Correct!

Question 23

4 / 4 pts

Upon encountering a router with the following routing table:

Prefix Match	Port
10011110 00011110 10001111	0
10011110 00011110 10001111 000	1
10011110 00011110 10001111 01	2
10011110 00011110 10001110 0001	3
Default	4

A datagram with the destination IP address 158.30.143.80 would be routed to Port 2 .

Answer 1:

Correct!

Port 2

Question 24

4 / 4 pts

Upon encountering a router with the following routing table:

Prefix Match	Port
10011110 00011110 10001111	0
10011110 00011110 10001111 000	1
10011110 00011110 10001111 01	2
10011110 00011110 10001110 0001	3
Default	4

A datagram with the destination IP address 158.30.142.30 would be routed to Port 3 .

Answer 1:

Correct!

Port 3

Question 25

4 / 4 pts

Upon encountering a router with the following routing table:

Prefix Match	Port
10011110 00011110 10001111	0
10011110 00011110 10001111 000	1
10011110 00011110 10001111 01	2
10011110 00011110 10001110 0001	3
Default	4

A datagram with the destination IP address 158.30.143.150 would be routed to Port 0 .

Answer 1:

Correct!

Port 0

Question 26

10 / 10 pts

For the IPv4 CIDR address 153.10.22.56 /22

What is the...

- Netmask: 255.255.252.0
- Network Address: [Select]
- Host Mask: [Select]
- Broadcast Address: [Select]
- Number of possible hosts: 1022
- Host Number: [Select]

Answer 1:

Correct!

255.255.252.0

Answer 2:

Correct!

153.10.20.0

Answer 3:

Correct!

0.0.3.255

Answer 4:

Correct!

153.10.23.255

Answer 5:

Correct!

1022

Answer 6:

Correct!

568

Question 27

10 / 10 pts

Put the following steps in the correct order for new host "Jetpack" joining a network with a DHCP-enabled server "Rhino".

1. [Select] sends [Select] to [Select]
2. [Select] sends [Select] to [Select]
3. [Select] sends [Select] to [Select]
4. [Select] sends [Select] to [Select]

Answer 1:

Correct!

Jetpack

Answer 2:

Correct!

DHCP Discover

Answer 3:

Correct!

IP broadcast address

Answer 4:

Correct!

Rhino

Answer 5:

Correct!

DHCP Offer

Answer 6:

Correct!

IP broadcast address

Answer 7:

Correct!

Jetpack

Answer 8:

Correct!

DHCP Request

Answer 9:

Correct!

IP broadcast address

Answer 10:

Correct!

Rhino

Answer 11:

Correct!

DHCP Ackknowledgement

Answer 12:

Correct!

IP broadcast address

Quiz Score: **72** out of 72