## **Week 5 Summary Exercises**

Due Jul 30 at 11:59pm Points 82 Questions 32

Available Jul 23 at 12am - Jul 30 at 11:59pm 8 days Time Limit 360 Minutes Allowed Attempts 2

## **Attempt History**

	Attempt	Time	Score
KEPT	Attempt 2	57 minutes	79.51 out of 82
LATEST	Attempt 2	57 minutes	79.51 out of 82
	Attempt 1	69 minutes	72.67 out of 82

Score for this attempt: 79.51 out of 82

Submitted Jul 27 at 12:34am This attempt took 57 minutes.

	Question 1 2 / 2 pt	S
	Retransmitting a missing segment before the segment's countdown timer expires is called	
	retransmission avoidance	
	duplicate transmission	
Correct!	fast retransmission	
	early retransmission	

Question 2	2 / 2 pts
A TCP fast-retransmit will occur after	
Four duplicate ACKs for the same segment.	
Three ACKs for the same segment.	
Three duplicate ACKS for the same segment.	

There is no such thing as fast retransmit.

	Question 3	2 / 2 pts
	The TCP protocol provides reliable, connection-oriented service.	
Correct!	True	
	False	

Question 4 2 / 2 pts

HostA has established a TCP connection with HostB in a remote network. HostA is sending packets to HostB. Assume we have configured TCP, somehow, to ACK every segment (no ACKing every other segment). Assume that the timeout is the same for all packets. HostB's "window size" is 20000 bytes. HostB has already received and acknowledged everything sent by HostA's application up to and including byte #2175. HostA now sends segments of the same application data stream in order:

P: 237 bytes Q: 175 bytes

R: 394 bytes

What is the sequence number on segment P?

Correct!

2176.0000

**Correct Answer** 

2176.0

Question 5 2 / 2 pts

Compute the one's complement sum of the following two numbers. Give answer in 8-bit binary, zero-padded to 8 bits if necessary, with no spaces (e.g. 00101000).

10000010

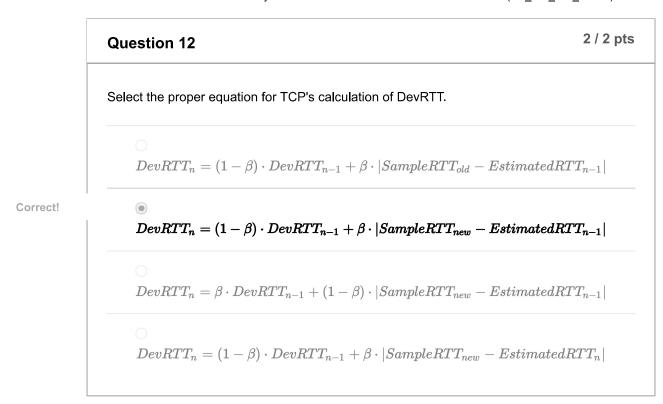
7/27/2017	Week 5 Summary Exercises: INTRO TO COMPUTER NETWORKS (CS_3:	72_400_U2017)
Correct!	100.0000	
orrect Answers	100.0 (with margin: 0)	
	Question 6	0.4 / 2 pts
	What are some causes of network congestion? (Check all that apply)	
orrect Answer	☐ Dropped TCP Packets.	
orrect Answer	Reliable Data Transfer schemes.	
Correct Answer	Parallel TCP Connections.	
Correct Answer	Typical Internet Usage.	
Correct!	High utilization.	
	Question 7	2 / 2 pts
	TCP implements network fairness indirectly.	
Correct!	True	
	○ False	
	Question 8	2 / 2 pts
	TCP has a congestion control mechanism.	
Correct!	True	
	False	

	Question 9	2 / 2 pts
	TCP implements network fairness directly.	
	True	
Correct!	False	

Question 10 2/2	
In host-inferred congestion control, congestion is detected based on delayed and/or dropp packets.	
Answer 1:	
host-inferred	

	Question 11 2 / 2 pt	s
	What are some possible consequences of network-core congestion? (Check all that apply)	
Correct!	✓ Out-of-order packet arrival	
Correct!	✓ Increased network congestion	
	Server shutdown	
Correct!	Delayed packets	
Correct!	✓ Dropped Packets	
Correct!	Network collapse	

Correct!



Question 13	2 / 2 pts
UDP implements network fairness.	
True	
False	

Question 14

Select the appropriate *new* CongWin sizes for the following TCP Reno congestion scenario.
Assume ssthresh is initially set to 8 MSS:

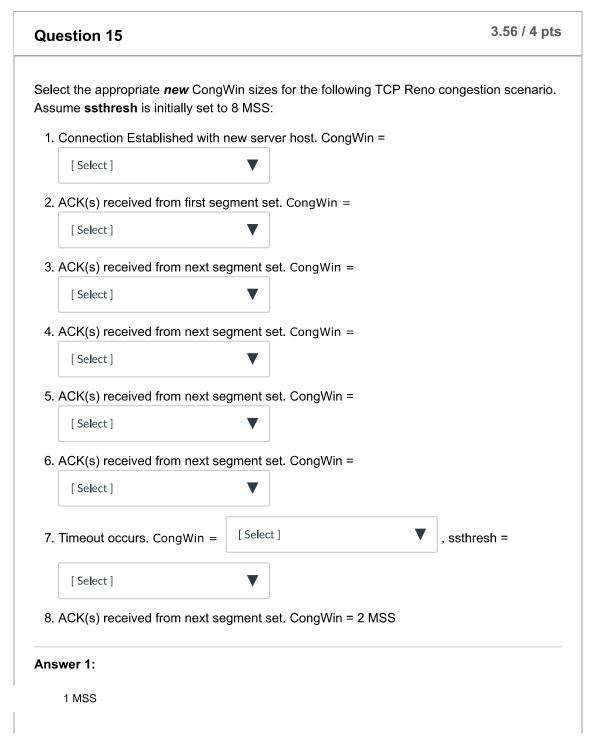
1. Connection Established with new server host. CongWin =

[Select]

2. ACK(s) received from first segment set. CongWin =

	3. ACK(s) received from next segment set. CongWin =	
	[Select]	
	4. ACK(s) received from next segment set. CongWin =	
	[Select]	
	5. ACK(s) received from next segment set. CongWin =	
	[ Select ]	
	6. ACK(s) received from next segment set. CongWin =	
	[ Select ]	
	7. Triple Duplicate ACK occurs. CongWin = [Select] ,	
	ssthresh = [Select]	
	8. ACK(s) received from next segment set. CongWin =	
	[ Select ]	
	Answer 1:	
Correct!	1 MSS	
	Answer 2:	
Correct!	2 MSS	
	Answer 3:	
Correct!	4 MSS	
	Answer 4:	
Correct!	8 MSS	
Correct:		
	Answer 5:	
Correct!	9 MSS	
	Answer 6:	
Correct!	10 MSS	
	Answer 7:	
Correct Answer	8 MSS	

You Answered	4 MSS	
	Answer 8:	
Correct!	5 MSS	
	Answer 9:	
Correct!	9 MSS	



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	Answer 2:
Correct!	2 MSS
	Answer 3:
Correct!	4 MSS
	Answer 4:
Correct!	8 MSS
	Answer 5:
Correct!	9 MSS
	Answer 6:
Correct!	10 MSS
	Answer 7:
Correct!	1 MSS
	Answer 8:
Correct Answer	5 MSS
You Answered	10 MSS
	Answer 9:
Correct!	2 MSS

## Imagine a mythical set of protocols with the following details. Maximum Link-Layer data frame: 1266 bytes Network-Layer header size: 17 bytes Transport-Layer header size: 37 bytes What is the size, in bytes, of the MSS? (Give answer without units)

Given a nodal delay of 91.1ms when there is no traffic on the network (i.e. usage = 0%), what is the effective delay when network usage = 9.9%? (Give answer is miliseconds, rounded to one decimal place, without units. So for an answer of 0.10423 seconds you would enter "104.2" without the quotes).

Correct!

101.1000

Correct Answer

101.1 margin of error +/- 0.1

	Question 20	2 / 2 pts
	A router's routing table is output by a routing algorithm .	
	Answer 1:	
Correct!	routing algorithm	

	Question 21	2 / 2 pts
	Where do network-layer protocols run?	
Correct!	✓ PCs	
Correct!	✓ Mobile devices	
Correct!	Routers	
Correct!	✓ Laptops	

## Question 22 2 / 2 pts

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

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	connection setup/takedown		
Correct!	packet routing		
	congestion control		
	reliable delivery		
Correct!	host-to-host communication		
	flow control		
Correct!	packet forwarding		
	payload error correction		
	Question 23	2 / 2 pts	
	Given a router with 5 input ports and 5 output ports. If the switching as the input/output line speed, queueing can occur at an input port.		
Correct!	Answer 1:		
	Answer 1:		
		2 / 2 pts	
	can		
	Question 24		
Correct!	Question 24  The Internet Protocol (IP) header may be 21 bytes long.		
Correct!	Question 24  The Internet Protocol (IP) header may be 21 bytes long.		

Question 26

The Internet Protocol (IP) implements congestion control.

True

False

Question 27

The process of moving a datagram from a router's input port to output port is called forwarding .

Answer 1:

forwarding

Question 28

The process of moving a datagram from a router's input port to output port is handled by the switching fabric .

Answer 1:

switching fabric

Correct!

Correct!

	Question 29	2 / 2 pts
	The Internet Protocol (IP) implements flow control.	
	○ True	
Correct!	False	

Question 30 4 / 4 pts

Upon encountering a router with the following routing table:

	Pı	refix 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 31

4 / 4 pts

Upon encountering a router with the following routing table:

Prefix Match		
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 32 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 158.30.142.90 would be routed to Port 4.

Answer 1:

Correct!

Port 4

Quiz Score: **79.51** out of 82