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

Take the Quiz Again

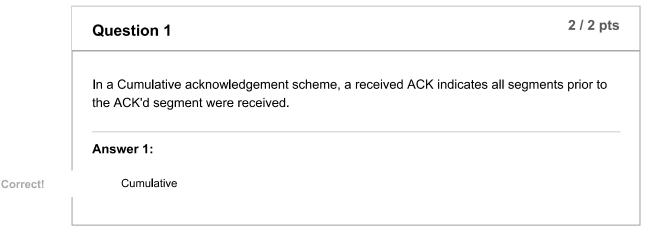
Attempt History

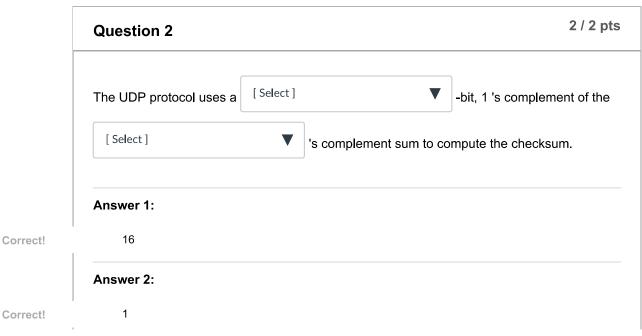
	Attempt	Time	Score
LATEST	Attempt 1	69 minutes	72.67 out of 82

Score for this attempt: 72.67 out of 82

Submitted Jul 26 at 1:56pm

This attempt took 69 minutes.





Correct!

Answer 3:

Question 3

The TCP protocol provides error detection and correction.

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 #2414. HostA now sends segments of the same application data stream in order:

P: 288 bytes

Q: 411 bytes

R: 475 bytes

Suppose the segments arrive at Host B in the order Q, P, and R. What is the acknowledgment number on the segment sent in response to segment P?

Correct!

3114.0000

Correct Answer

3114.0

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).

7/26/2017

11111111 11111111

Correct!

11111111.0000

orrect Answers

1111111.0 (with margin: 0)

Question 6

2 / 2 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 7

2 / 2 pts

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

Correct!

$$DevRTT_n = (1 - \beta) \cdot DevRTT_{n-1} + \beta \cdot |SampleRTT_{new} - EstimatedRTT_{n-1}|$$

 \cup

 $DevRTT_n = (1 - \beta) \cdot DevRTT_{n-1} + \beta \cdot |SampleRTT_{new} - EstimatedRTT_n|$

 $DevRTT_n = \beta \cdot DevRTT_{n-1} + (1-\beta) \cdot |SampleRTT_{new} - EstimatedRTT_{n-1}|$

 \cup

 $DevRTT_n = (1 - \beta) \cdot DevRTT_{n-1} + \beta \cdot |SampleRTT_{old} - EstimatedRTT_{n-1}|$

Question 8

2 / 2 pts

What are some possible consequences of network-core congestion? (Check all that apply)

6/2017	Week 5 Summary Exercises: INTRO TO COMPUTER NETWORKS (CS_372_400_U2017)
Correct!	✓ Dropped Packets
	Server shutdown
Correct!	Network collapse
Correct!	✓ Delayed packets
Correct!	✓ Increased network congestion
Correct!	✓ Out-of-order packet arrival
	2/2 mto
	Question 9 2 / 2 pts
	UDP implements network fairness.
	☐ True
Correct!	Faise
	Question 10 2 / 2 pts
	In host-inferred congestion control, congestion is detected based on delayed and/or dropped packets.
	Answer 1:
Correct!	host-inferred
	Question 11 2 / 2 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 12

2 / 2 pts

The rate of CongWin size increase (in terms of MSS) while in TCP's Congestion Avoidance phase is Linear .

Answer 1:

Correct!

Linear

Question 13

2 / 2 pts

Select the proper equation for TCP's calculation of the Timeout Interval.

- $lacksquare TimeoutInterval = 4 \cdot EstimatedRTT_n + DevRTT_n$
- $TimeoutInterval = lpha \cdot EstimatedRTT_n + (1-lpha) \cdot DevRTT_n$

 $TimeoutInterval = (1 - lpha) \cdot EstimatedRTT_n + lpha \cdot DevRTT_n$

Correct!

 $lacksquare TimeoutInterval = EstimatedRTT_n + 4 \cdot DevRTT_n$

Question 14

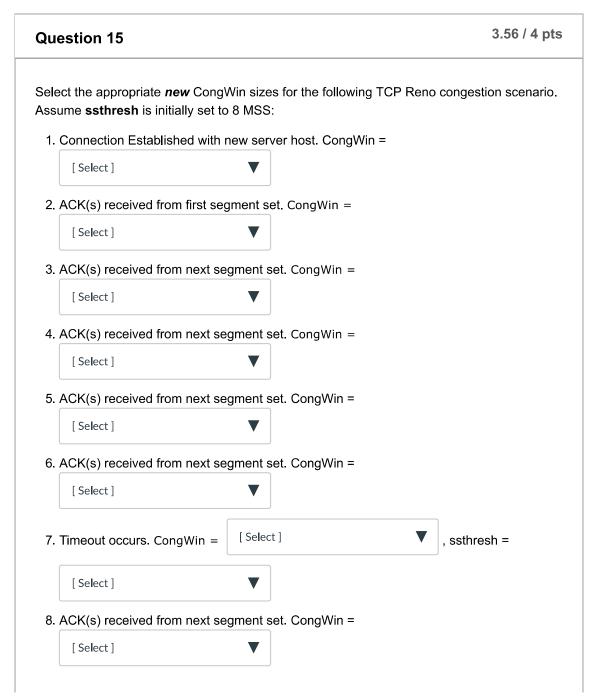
3.11 / 4 pts

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 =
	[Select]
	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 = 9 MSS6. 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
	Answer 5:
Correct!	9 MSS
	Answer 6:
Correct!	10 MSS
	Answer 7:
Correct Answer	8 MSS



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	Answer 1:				
Correct!	1 MSS				
	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:				
orrect Answer	5 MSS				
ا You Answered	10 MSS				
	Answer 9:				
Correct!	2 MSS				

Question 16 4 / 4 pts

Given a nodal delay of 34.8ms when there is no traffic on the network (i.e. usage = 0%), what is the effective delay when network usage = 23.3%? (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!

45.4000

Correct Answer

45.4 margin of error +/- 0.1

Question 17 4 / 4 pts

A host starts a TCP transmission with an EstimatedRTT of 15.5ms (from the "handshake"). The host then sends 3 packets and records the RTT for each:

SampleRTT1 = 16.9 ms

SampleRTT2 = 32.2 ms

SampleRTT3 = 34.9 ms

(NOTE: SampleRTT1 is the "oldest"; SampleRTT3 is the most recent.)

Using an exponential weighted moving average with a weight of 0.4 given to the most recent sample, what is the EstimatedRTT for packet #4? Give answer in miliseconds, rounded to one decimal place, without units, so for an answer of 0.01146 seconds, you would enter "11.5" without the quotes.

Correct!

27.5000

Correct Answer

27.5 margin of error +/- 0.1

Question 18 4 / 4 pts

Imagine a mythical set of protocols with the following details.

Maximum Link-Layer data frame: 1435 bytes

Network-Layer header size: 15 bytes

Transport-Layer header size: 34 bytes

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

Correct!

1386.0000

Correct Answer

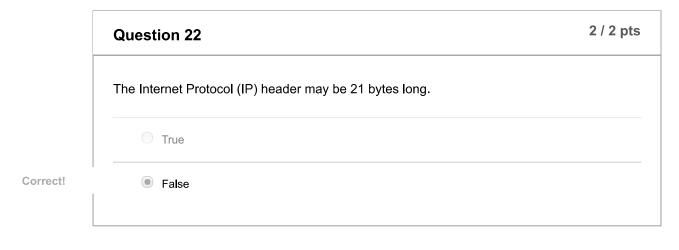
Correct!

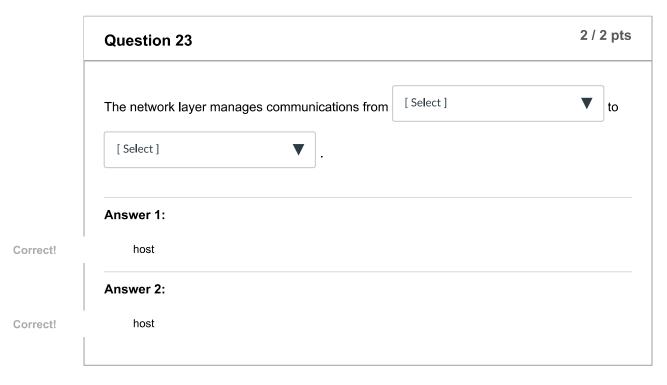
1386.0

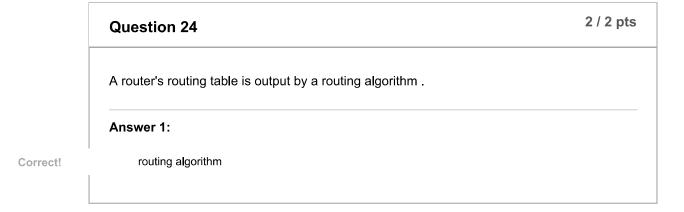
Question 19 Given a effective delay of 2ms when network usage is 67%, what is the effective delay when network usage = 67%? (Give answer is miliseconds, rounded to one decimal place, without units. So for an answer of 0.10423 seconds you would enter "104.2" without the quotes). Correct! 2.0000 2.0000

Question 20	2 / 2 pt
Given a router with 5 input ports and 5 output ports. If the swit as the input/output line speed, queueing can occur at an output	-
Answer 1:	
can	

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

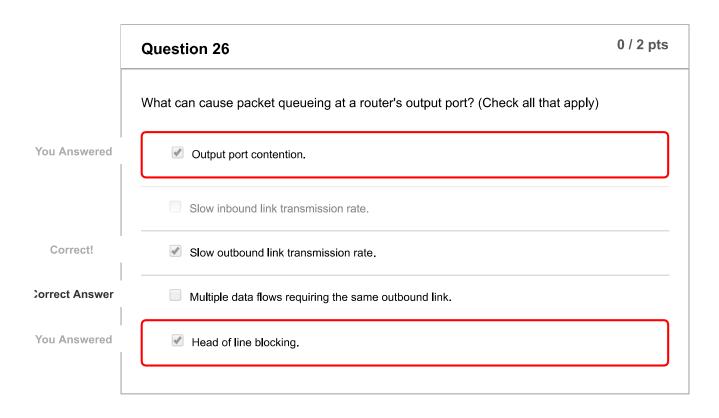


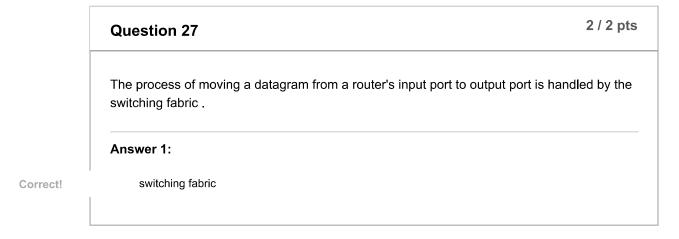




Question 25 0 / 2 pts

	In addition to a "default" entry, routing tables in an internet store
Correct Answer	the "first hop" in a 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
	a complete path to each of the networks known to the router
You Answered	all of the above





Correct!

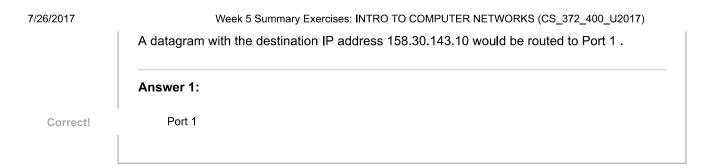
	Question 28 2 / 2 pts	
	Which of the following are benefits of a virtual circuit network? (Check all that apply)	
Correct!	✓ Connection states are preserved.	
Correct!	Guaranteed bandwidth.	
	Less overhead than a datagram network.	
	Faster delivery.	
Correct!	✓ Guaranteed timing.	

Question 29 In a link between Host A, and Host B, we have three intermediary routers: Host A ----- Router Snucky ----- Router Jumpy ----- Host B Host A's first hop router is Router Snucky . Answer 1: Snucky

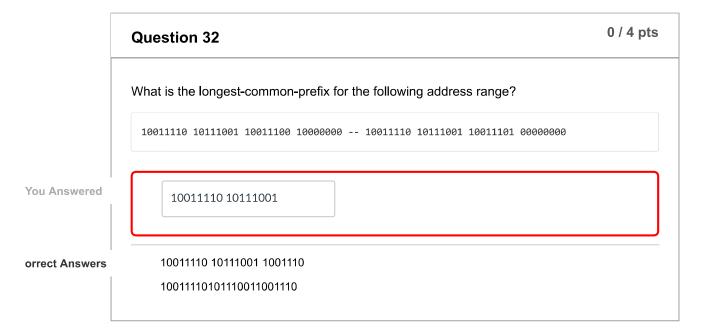
Question 30 4 / 4 pts

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







Quiz Score: **72.67** out of 82