Week 5 Summary Exercises Results for Edmund Dea

Score for this attempt: **61** out of 65

Submitted Nov 3 at 6:51pm

This attempt took 178 minutes.

Question 1   1 / 1 pts

Compute the sum with carry-wraparound (sometimes called 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). Please note this is different than the checksum calculation.

NOTE: Canvas will remove any leading zeros from your answer. This will not cause your answer to be marked as incorrect.

```
10000010
10000001
```

Correct!

100

orrect Answers   100 (with margin: 0)

Question 2   2 / 2 pts

The UDP protocol provides error detection and correction.

○ True

Correct!   ● False

Question 3   2 / 2 pts

The TCP protocol provides error detection and correction.

○ True

Correct!

● False

Question 4   2 / 2 pts

The UDP protocol provides unreliable, connectionless service.

Correct!

● True

○ False

Question 5   2 / 2 pts

The UDP protocol provides error detection.

Correct!

● True

○ False

Question 6   2 / 2 pts

The TCP protocol provides reliable, connection-oriented service.

Correct!

● True

○ False

Question 7

2 / 2 pts

Server X is running XBox Live services on port #3072. Client A is running an application that uses port #1796 to request an XBox Live TCP connection to Server X. Client B is running an application that uses port #2076 to request an XBox Live TCP connection to Server X.

IP addresses:

- Server X: 201.164.10.123
- Client A: 128.193.11.113
- Client B: 128.193.45.227

The connection created for Client A is identified by the sockets at the endpoints as follows:

	IP Address	Port Number
On Client A	[Select] ▼	[Select] ▼
On Server X	[Select] ▼	[Select] ▼

Answer 1:

Correct!   201.164.10.123

Answer 2:

Correct!   3072

Answer 3:

Correct!   128.193.11.113

Answer 4:

Correct!   1796

Question 8

2 / 2 pts

Retransmitting a missing segment before the segment's countdown timer expires is called...

○ duplicate transmission

○ retransmission avoidance

○ early retransmission

Correct! ⦿ fast retransmission

Question 9

2 / 2 pts

Which of the following are fields in the UDP header? (Select all that apply)

☐ Window Size

☐ Sequence Number

☐ Options

Correct! ☑ Destination Port

Correct! ☑ Length

☐ Header Length/Data Offset

Correct! ☑ Checksum

Correct! ☑ Source Port

Question 10

2 / 2 pts

Match the event with the TCP receiver action:

Event	TCP Receiver Action
Arrival of in-order segment with expected sequence number. All data up to expected sequence number already acknowledged.	Delayed ACK. Wait up to 500ms for arrival of another in-order segment. If next in-order segment does not arrive in this interval, send an ACK.

Answer 1:

Correct!

Delayed ACK. Wait up to 500ms for arrival of another in-order segment. If next in-order segment does not arrive in this interval, send an ACK.

Question 11

2 / 2 pts
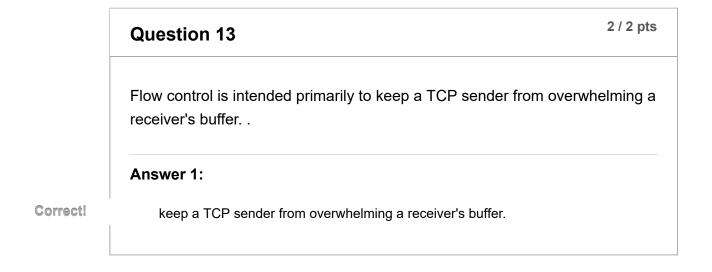
Match the event with the TCP receiver action:

Event	TCP Receiver Action
Arrival of out-of-order segment with higher-than-expected sequence number.	Immediately send duplicate ACK, indicating sequence number of next expected byte.

Answer 1:

Correct!

Immediately send duplicate ACK, indicating sequence number of next expected byte.

Question 12

2 / 2 pts

Put the steps in the most correct order for closing a TCP Connection.

1. [Select] ▼

2. Server sends ACK of received segment
3. Server sends segment with FIN bit set

4. [Select] ▼

Answer 1:

Correct!

    Client sends segment with FIN bit set

Answer 2:

Correct!

    Server sends ACK of received segment

Answer 3:

Correct!

    Server sends segment with FIN bit set

Answer 4:

Correct!

    Client sends ACK of received segment

Question 13

2 / 2 pts

Flow control is intended primarily to keep a TCP sender from overwhelming a receiver's buffer. .

Answer 1:

Correct!

    keep a TCP sender from overwhelming a receiver's buffer.

Question 14

2 / 2 pts

In a Selective acknowledgement scheme, a received ACK indicates only that the ACK'd segment was received.

Answer 1:

Correct!

Selective

Question 15

2 / 2 pts

In a Cumulative acknowledgement scheme, a received ACK indicates all segments prior to the ACK'd segment were received.

Answer 1:

Correct!

Cumulative

Question 16

2 / 2 pts

Match the event with the TCP receiver action:

Event	TCP Receiver Action
Arrival of in-order segment with expected sequence number. One other in-order segment waiting for ACK transmission.	Immediately send single cumulative ACK, ACKing both in-order segments.

Answer 1:

Correct!

Immediately send single cumulative ACK, ACKing both in-order segments.

Question 17   2 / 2 pts

A Go-back-N -type retransmission protocol will retransmit all un-ACK'd
segments upon a countdown timer interrupt.

Answer 1:

Correct!   Go-back-N

Question 18   4 / 4 pts

HostA has established a TCP connection with HostB in a remote network.
HostA is sending segments 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 #1,134. HostA now sends
segments of the same application data stream in order:

P: 346 bytes
Q: 145 bytes
R: 499 bytes

What is the sequence number on segment R?

Correct!   1,626

orrect Answer   1,626

Question 19   4 / 4 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 #3,564. HostA now sends segments of the same application data stream in order:

P: 283 bytes
Q: 458 bytes
R: 386 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!

> 4,306

orrect Answer   4,306

Question 20   **4 / 4 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 #4,038. HostA now sends segments of the same application data stream in order:

P: 356 bytes
Q: 242 bytes
R: 387 bytes

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

Correct!

> 4,637

orrect Answer   4,637

Question 21

0 / 4 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 #4,215. HostA now sends segments of the same application data stream in order:

P: 289 bytes
Q: 225 bytes
R: 312 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 Q?

You Answered

4,441

orrect Answer   4,216

Question 22

4 / 4 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 #1,648. HostA now sends segments of the same application data stream in order:

P: 230 bytes
Q: 220 bytes
R: 385 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 R?

Correct!   2,484

orrect Answer   2,484

Question 23   4 / 4 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 #2,175. 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!   2,176

orrect Answer   2,176

Question 24   8 / 8 pts

Assume a TCP sender is continuously sending 1,250-byte segment. If a TCP receiver advertises a window size of 7,251 bytes, and with a link transmission rate 45 Mbps an end-to-end propagation delay of 39.3 ms, what is the utilization? Assume no errors, no processing or queueing delay, and ACKs transmit instantly. Also assume the sender will not transmit a non-full segment. Give answer in percentages, rounded to one decimal place, without units (e.g. for an answer of 10.43% you would enter "10.4" without the quotes).

Correct!

1.4

orrect Answer   1.4   margin of error +/- 0.1

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