Week 4 Summary Exercises

Due Jul 23 at 11:59pm **Points** 78 **Questions** 32
Available Jul 16 at 12am - Jul 23 at 11:59pm 8 days **Time Limit** 360 Minutes **Allowed Attempts** 2

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	54 minutes	73 out of 78
LATEST	Attempt 2	54 minutes	73 out of 78
	Attempt 1	111 minutes	59.33 out of 78

Score for this attempt: **73** out of 78
Submitted Jul 23 at 7:22pm
This attempt took 54 minutes.

Question 1

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 2

2 / 2 pts

Server X is running Diablo II services on port #4000. Client A is running an application that uses port #450 to request an Diablo II TCP connection to Server X. Client B is running an application that uses port #455 to request an Diablo II TCP connection to Server X.

IP addresses:

- Server X: 152.111.20.36
- Client A: 113.13.131.10
- Client B: 114.192.111.23

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! 152.111.20.36

Answer 2:

Correct! 4000

Answer 3:

Correct! 113.13.131.10

Answer 4:

Correct! 450

Question 3

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

Client B starts a second application (running at the same time as the first application) that uses the next incremental port number to request an XBox Live TCP connection to Server X. The connection created for Client B is identified by the sockets at the endpoints as follows:

	IP Address	Port Number
On Client B	[Select] ▼	[Select] ▼
On Server X	[Select] ▼	2077

Answer 1:

Correct! 201.164.10.123

Answer 2:

Correct! 3072

Answer 3:

Correct! 128.193.45.227

Answer 4:

Correct! 2077

Question 4

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

Client A starts a second application (running at the same time as the first application) that uses the next incremental port number to request an XBox Live TCP connection to Server X. 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! 1797

Question 5

2 / 2 pts

A TCP fast-retransmit will occur after...

- Three ACKs for the same segment.
- Four duplicate ACKs for the same segment.
- Correct! Three duplicate ACKS for the same segment.
- There is no such thing as fast retransmit.

Question 6

0 / 2 pts

The TCP sequence numbers are used to implement error correction .

Answer 1:

You Answered: error correction

Correct Answer: reliable data transmission

Question 7

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 8

2 / 2 pts

The TCP protocol provides error detection and correction.

- True
- Correct! False

Question 9

2 / 2 pts

Which of the following best describes reliable data transfer in the internet (using networking terminology)?

The ability to send and receive information that you are 100% sure is exactly what was sent, without losing any information.

Correct!

The ability to send and receive information that you are reasonably sure is what was sent, without losing any information.

The ability to send information into the internet reliably.

The ability to know whether or not your sent or received information was changed in transit.

Question 10

2 / 2 pts

What is the maximum TCP header size?

48 bytes

12 bytes

Correct!

60 bytes

20 bytes

Question 11

2 / 2 pts

Match the event with the TCP receiver action:

Event	TCP Receiver Action
Arrival of segment that partially or completely fills in gap in received ata.	Immediately send ACK, provided that segment starts at the lower end of gap.

Answer 1:

Correct!

Immediately send ACK, provided that segment starts at the lower end of gap.

Question 12

0 / 2 pts

The UDP protocol provides error detection.

Correct Answer

- True

You Answered

- False

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

A simple checksum can detect all 2-bit errors.

- True

Correct!

- False

Question 15

2 / 2 pts

The UDP protocol provides error detection and correction.

True

Correct! False

Question 16

2 / 2 pts

The TCP protocol provides reliable, connection-oriented service.

Correct! True

False

Question 17

2 / 2 pts

If I were going to implement a lossy VoIP connection, I would use the UDP protocol.

Answer 1:

Correct! UDP

Question 18

2 / 2 pts

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

Correct! Length

Window Size

Sequence Number

Correct! Destination Port

Correct! Source Port

Correct!

- [x] Checksum
- [ ] Header Length/Data Offset
- [ ] Options

Question 19

2 / 2 pts

The UDP protocol provides unreliable, connectionless service.

Correct!

- (•) True
- ( ) False

Question 20

2 / 2 pts

If I want to be reasonably sure the recipient received my transmitted information, I would use the TCP protocol.

Answer 1:

Correct!

TCP

Question 21

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 22

2 / 2 pts

Select the proper equation for calculating EstimatedRTT.

- $EstimatedRTT_{New} = \alpha \times EstimatedRTT_{Prev} + \alpha \times SampleRTT_{Recent}$
- $EstimatedRTT_{New} = (1 - \alpha)\, EstimatedRTT_{Prev} + (1 - \alpha)\, SampleRTT_{Recent}$

Correct!

- **$EstimatedRTT_{New} = (1 - \alpha)\, EstimatedRTT_{Prev} + \alpha \times SampleRTT_{Recent}$**
- $EstimatedRTT_{New} = (1 - \alpha)\, SampleRTT_{Recent} + \alpha \times EstimatedRTT_{Prev}$

Question 23

2 / 2 pts

What is the maximum UDP header size?

Correct!

- 8 bytes
- 4 bytes
- 20 bytes
- 12 bytes

Question 24

2 / 2 pts

A simple checksum can detect some 2-bit errors.

Correct!

- (•) True
- ( ) False

Question 25

0 / 1 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
10001111
```

You Answered

1000.0000

orrect Answers

10010.0 (with margin: 0)

Question 26

1 / 1 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).

```
10010110
10011100
```

Correct!

110011.0000

orrect Answers

110011.0 (with margin: 0)

Question 27

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 #4321. HostA now sends segments of the same application data stream in order:

P: 335 bytes
Q: 434 bytes
R: 339 bytes

What is the sequence number on segment R?

Correct!

5091.0000

Correct Answer

5091.0

Question 28

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 #2250. HostA now sends segments of the same application data stream in order:

P: 153 bytes
Q: 299 bytes
R: 466 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?

Correct!

2251.0000

Correct Answer

2251.0

Question 29

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 #3319. HostA now sends segments of the same application data stream in order:

P: 331 bytes
Q: 297 bytes
R: 131 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 R?

Correct! 4079.0000

Correct Answer 4079.0

Question 30

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 #2953. HostA now sends segments of the same application data stream in order:

P: 290 bytes
Q: 173 bytes
R: 362 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! 3779.0000

Correct Answer 3779.0

Question 31

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 #3990. HostA now sends segments of the same application data stream in order:

P: 270 bytes
Q: 139 bytes
R: 228 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 P?

Correct!

4261.0000

Correct Answer

4261.0

Question 32

8 / 8 pts

Assume a TCP sender is continuously sending 1053-byte segment. If a TCP receiver advertises a window size of 7955 bytes, and with a link transmission rate 12 Mbps an end-to-end propagation delay of 27.3 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!

8.9000

Correct Answer

8.9 margin of error +/- 0.1

Quiz Score: **73** out of 78