Homework 3 Sp25

- Due Apr 2 at 11:59pm
- Points 7
- Questions 7
- Available Mar 21 at 5pm - May 1 at 11:59pm
- Time Limit None
- Allowed Attempts 5

Take the Quiz Again

Attempt History

	Attempt	Time	Score
KEPT	Attempt 3	3 minutes	7 out of 7
LATEST	Attempt 3	3 minutes	7 out of 7
	Attempt 2	52 minutes	6.33 out of 7
	Attempt 1	139 minutes	5.67 out of 7

Correct answers are hidden.

Score for this attempt: 7 out of 7
Submitted Mar 21 at 9:36pm
This attempt took 3 minutes.

Question 1
1 / 1 pts

Which option illustrates one of the main differences between TCP and UDP?

- UDP uses congestion control mechanisms; TCP does not.
- TCP is suitable for time-sensitive applications like streaming; UDP is suitable for file transfers.
- UDP uses connection-oriented communication; TCP is connectionless.
- TCP delivers data reliably and in order; UDP does not guarantee data delivery.

Question 2
1 / 1 pts

What is the purpose of using a checksum in UDP?

- To verify IP addresses.
- To detect errors in transmitted data.
- To encrypt headers for additional security.
- To manage network traffic.

Question 3
1 / 1 pts

Which of the following is part of the “four-tuple” used in multiplexing and demultiplexing?

- [x] Source port number.
- [ ] Packet size.
- [ ] Protocol type (TCP or UDP).
- [ ] Type of header used.

Question 4
1 / 1 pts

Online banking applications require secure and reliable transmission of financial data to prevent loss or corruption. Given the choice between **TCP** and **UDP**, which transport protocol would be more suitable for ensuring data integrity and reliability?

- [ ] UDP
- [x] TCP

Question 5
1 / 1 pts

Which of the following features are associated with **TCP**?
(There are several correct options. Select all of them.)

- [x] Congestion control.
- [ ] Out-of-order data delivery.
- [ ] No initial connection setup.
- [x] Flow control.
- [x] Reliable, in-order delivery.
- [ ] No acknowledgment of received data.

Question 6
1 / 1 pts

Which of the following features are associated with **UDP**?
(There are several correct options. Select all of them.)

- [ ] Resending lost packets.
- [x] Connectionless communication.
- [x] Small header size.
- [ ] Guarantee of in-order delivery.
- [ ] High tolerance for packet loss.
- [x] No congestion control.

Question 7
1 / 1 pts

Problem:
Consider the process of calculating a **UDP checksum.**
A segment contains the following two 16-bit values:

1010110010111010 and **1101101011010110.**

Task:

1. Perform the binary addition of these two values.
2. If there's a carry bit, wrap it around and add it back into the result.
3. Invert all the bits of the sum to calculate the checksum.

Hints for Solution:

- Add the two binary values. If the result is longer than 16 bits, add the overflow (carry) to the result.
- Invert the sum by flipping all bits (1 becomes 0 and 0 becomes 1).

Type Final Result For Checksum:

0111100001101110

Quiz Score: 7 out of 7