Homework2.5 Sp25

- Due Mar 16 at 11:59pm
- Points 7
- Questions 7
- Available Feb 28 at 12am - Mar 16 at 11:59pm
- Time Limit None
- Allowed Attempts 5

Take the Quiz Again

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	1,460 minutes	5.75 out of 7

Correct answers are hidden.

Score for this attempt: 5.75 out of 7
Submitted Mar 15 at 10:14pm
This attempt took 1,460 minutes.

Question 1
1 / 1 pts

A video streaming application needs to deliver real-time content to users with minimal delay. Given the choice between TCP and UDP, which protocol would be more suitable?

- (●) UDP
- ( ) TCP

PartialQuestion 2
0.75 / 1 pts

In a peer-to-peer (P2P) file-sharing network, a file of **2 GB** needs to be downloaded by a peer. The peer can download chunks of the file simultaneously from multiple seeders. Assume:

- There are **4 seeders**, each uploading at a constant rate of **5 Mbps**.
- The peer has a maximum download bandwidth of **15 Mbps**.

What is the total upload bandwidth available from all seeders? 20 Mbps

What is the effective download speed for the peer? 15 Mbps

How long will it take for the peer to download the entire **2 GB** file? 1092.27 seconds (round to 2 decimal places)

">

(Assume 1 GB = 1024 MB and ignore protocol overheads for simplicity.)

Answer 1:
20
Answer 2:
15
Answer 3:
1092.27
Answer 4:
(You left this blank)

Question 3
1 / 1 pts

A client needs to download **6 small images** (each **50 KB**) from a web server over an HTTP connection. Assume:

- The **RTT (Round-Trip Time)** between the client and server is **100 ms**.
- The **transmission time** for each image is **50 ms**.
- The **bandwidth** is high enough that congestion is not an issue.
- The client can use either **non-persistent HTTP** (opening a new TCP connection for each request) or **persistent HTTP** (reusing a single connection).

How long will it take to download all 6 images using **non-persistent HTTP (in milliseconds)?**

1700

How long will it take to download all 6 images using persistent HTTP (in milliseconds)

1100

Answer 1:
1700
Answer 2:

1100

Question 4

1 / 1 pts

In the DNS hierarchy, what DNS server has the IP address of cs.uh.edu?

- Root DNS server
- Authoritative DNS server
- TLD DNS server

IncorrectQuestion 5

0 / 1 pts

A UDP segment contains the following fields:

- **Source Port:** `0xC000` (49152 in decimal)
- **Destination Port:** `0x2710` (10000 in decimal)
- **UDP Length:** `0x001C` (28 bytes)
- **UDP Data:** `0x48656C6C6F2055445000`
- **UDP Checksum Field:** Initially set to `0x0000`

What is the UDP checksum in **hex** format?

(Note: you might need to add padding to fill your message into bytes)

0x4F9C

Question 6

1 / 1 pts

A sender is transmitting packets using the **Stop-and-Wait ARQ protocol** over a network with the following parameters:

- **Packet size:** 8000 bits
- **Transmission rate:** 2 Mbps (Mega= 10 ^ 6)
- **Propagation delay:** 50 ms (milliseconds) one-way
- **ACK transmission time:** Negligible
- **Processing delay:** Negligible

1) What is the transmission time of the packet in milliseconds? 4

2) Assuming that the receiver transmits the ACK after completely receiving the packet and the communication link between the sender and the receiver is dedicated only to them, how efficient are they using the link? 3.85% (answer in % with two decimal places, e.g. 5.21%)

Answer 1:
4
Answer 2:
3.85%

Question 7
1 / 1 pts

A sender is transmitting packets using the **Stop-and-Wait ARQ protocol** over a network with the following parameters:

- **Packet size:** 8000 bits
- **Transmission rate:** 2 Mbps (Mega= 10 ^ 6)
- **Propagation delay:** 50 ms (milliseconds) one-way
- **ACK transmission time:** Negligible
- **Processing delay:** Negligible

1) What will the efficiency be if we use a **sliding window protocol** with a window size of 5?
19.23% (answer in % with two decimal places, e.g. 5.21%)

2) What should be the window size if the sender wants to completely utilize the channel by constantly sending packets? 26

Answer 1:
19.23%
Answer 2:
26

Quiz Score: 5.75 out of 7