| | |
|---|---|
| **Started on** | Monday, 7 November 2022, 3:08 PM |
| **State** | Finished |
| **Completed on** | Wednesday, 9 November 2022, 2:11 PM |
| **Time taken** | 1 day 23 hours |
| **Grade** | **15.10** out of 22.00 (**68.64**%) |

**Question 1**

Partially correct

Mark 0.60 out of 1.00

True/False

- True  ❌  SMTP is a protocol used for transferring large files.

- True  ✔  A user agent enables email's users to send and receive emails.

- True  ✔  FTP requires two connections; control and data, while HTTP uses only one connection.

- True  ❌  In active FTP, a client initiates data connection.

- False  ✔  A web cache is used to provide error control for HTTP.


The correct answer is:
True/False

- [False] SMTP is a protocol used for transferring large files.
- [True] A user agent enables email's users to send and receive emails.
- [True] FTP requires two connections; control and data, while HTTP uses only one connection.
- [False] In active FTP, a client initiates data connection.
- [False] A web cache is used to provide error control for HTTP.

**Question 2**

Correct

Mark 3.00 out of 3.00

Using 5-bit sequence numbers, what is the maximum size of the sending and receiving windows for each of the following protocols?

- Stop-and-Wait
  - Max size of sending window:   `1`   ✔
  - Max size of receiving window:   `1`   ✔
  - 
- Go-Back-N

  - Max size of sending window:   `31`   ✔
  - Max size of receiving window:   `1`   ✔

- Selective-Repeat
  - Max size of sending window:   `16`   ✔
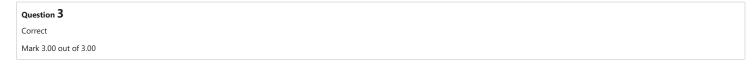  - Max size of receiving window:   `16`   ✔

The correct answer is:

Using 5-bit sequence numbers, what is the maximum size of the sending and receiving windows for each of the following protocols?

- Stop-and-Wait
  - Max size of sending window:  [1]
  - Max size of receiving window:  [1]
  - 
- Go-Back-N

  - Max size of sending window:  [31]
  - Max size of receiving window: [1]

- Selective-Repeat
  - Max size of sending window: [16]
  - Max size of receiving window: [16]

**Question 3**

Correct

Mark 3.00 out of 3.00

Select the type of below address.

- FE80::345:1000:CDEF  | an IPv6 link-local address |  ✔
- 192.167.85.1  | an IPv4 public address |  ✔
- 10.1.2.3  | an IPv4 private address |  ✔
- 2002:10:31:74:ABCE  | not an IP address |  ✔

The correct answer is:

Select the type of below address.

- FE80::345:1000:CDEF [an IPv6 link-local address]
- 192.167.85.1       [an IPv4 public address]
- 10.1.2.3           [an IPv4 private address]
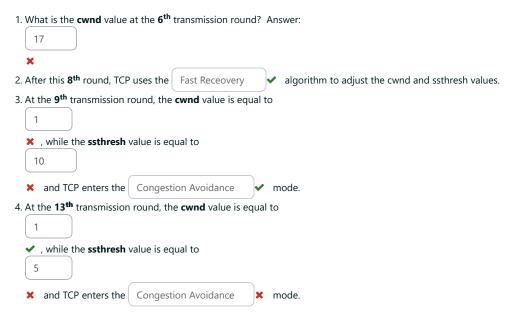- 2002:10:31:74:ABCE  [not an IP address]

**Question 4**

Partially correct

Mark 1.50 out of 4.00

Specify the congestion window size (**cwnd**) and the ssthresh value of the **TCP Reno** according to the given information below, and answer the questions.

- The first ssthresh value is set at **15** at the first transmission round.
- After the **8th** transmission round, we have the segment loss by a triple **duplicate ACK.**
- After the **12th** transmission round, we have segment loss detected by **timeout.**

1. What is the **cwnd** value at the **6th** transmission round?  Answer:

   | 17 |

   ✘

2. After this **8th** round, TCP uses the  | Fast Receovery |  ✔  algorithm to adjust the cwnd and ssthresh values.

3. At the **9th** transmission round, the **cwnd** value is equal to

   | 1 |

   ✘ , while the **ssthresh** value is equal to

   | 10 |

   ✘  and TCP enters the  | Congestion Avoidance |  ✔  mode.

4. At the **13th** transmission round, the **cwnd** value is equal to

   | 1 |

   ✔ , while the **ssthresh** value is equal to

   | 5 |

   ✘  and TCP enters the  | Congestion Avoidance |  ✘  mode.

**Question 5**

Correct

Mark 4.00 out of 4.00

When using Selective-Repeat ARQ Protocol for a network with bandwidth 300 Mbps, average distance between sender and receiver is 2000 km, the data size is 10 Kbits, and propagation speed in the media is 2x10^8 m/s. Find the following values:

a. What is the RTT of this network? *Hints*: RTT = 2 * distance/propagation speed

Answer:

| 20 |

✔ ms

b. What is the bandwidth-delay product of this network? *Hints*: Bandwidth in bps multiply RTT; Answer just the numeric, no comma

Answer:

| 6000000 |

✔ bits

c. What is the maximum size of the sending window? Hints: Answer from (b) divided by packet size

Answer:

| 600 |

✔ packets

**Question 6**

Partially correct

Mark 1.00 out of 3.00

Given the initial state of the sender's sliding window.

1    2    3    | **4** | 5    6    7    8 |    9    10    11

Suppose the sender sends **bytes 5 and 6.** Then, it receives **AckNo = 5** and **window size = 6.**

At this stage, the left wall of the sliding window will be before byte#

| 4 |

✘ , the right wall of the sliding window will be after byte#

| 10 |

✔ , and the vertical line is placed before byte#

| 6 |

✘ .

**Question 7**

Incorrect

Mark 0.00 out of 2.00

Suppose a web page contains **3** images and links to **5** files

- Server 1 contains this web page, 2 image, and 2 files.
- Server 2 contains 1 image, and 1 file.
- The remaining files are stored separately on different servers.

How many TCP connections are required for a client to request this web page, the three images and five files under persistent and non-persistent approaches?

Persistent:

| 6 |

✖

Non-Persistent:

| 8 |

✖

**Question 8**

Correct

Mark 2.00 out of 2.00

About the SLAAC, suppose the MAC address is 3A-53-AF-71-88-1F and the Global network prefix is 2007:0010:2165:A245,

a.    What is the link local address of this device?

| FE80::3853:AFFF:FE71:881F |

✔

b.    What is the global address of this device?

| 2007:0010:2165:A245:3853:AFFF:FE71:881F |

✔