

**Exercise 6 (Chap 6)****Name:** 任皓天

每个题目有10分，最多可以尝试3次，以最后一次回答为准，客观题答完后会自动批改，并且给出标准答案。题目类型为Essay的不会自动批改，分数由老师阅后再给

#1 Points possible: 10

**Q.** What is the total size of the minimum TCP MTU, including TCP and IP overhead but not including data link layer overhead?

**A.** 576 bytes

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#2 Points possible: 10

**Q.** Consider the effect of using slow start on a line with a 10-msec round-trip time and no congestion. The receive window is 24 KB and the maximum segment size is 2 KB. How long does it take before the first full window can be sent?

**A.** 40 msec

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#3 Points possible: 10

**Q.** Suppose that the TCP congestion window is set to 18 KB and a timeout occurs. How big will the window be if the next four transmission bursts are all successful? Assume that the maximum segment size is 1 KB.

**A.** 9 KB

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#4 Points possible: 10

**Q.** A TCP machine is sending full windows of 65,535 bytes over a 1-Gbps channel that has a 10-msec one-way delay. What is the maximum throughput achievable? What is the line efficiency? (give your answer as xx.x)

**maximum throughput:** 3.3 MB/s

**line efficiency:** 2.6 %

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#5 Points possible: 10

**Q.** In a network that has a maximum TPDU size of 128 bytes, a maximum TPDU lifetime of 30 sec, and an 8-bit sequence number, what is the maximum data rate per connection?

**A.** 8.7 kbps

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#6 Points possible: 10

What is used at the transport layer to stop a receiving host's buffer from overflowing?

- ☐ Segmentation
  - ☐ Packets
  - ☐ Acknowledgments
  - ☒ Flow control
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#7 Points possible: 10

Which type of service is provided by TCP?

- ☐ request-reply
  - ☐ acknowledged datagram
  - ☐ reliable message stream
  - ☒ reliable byte stream
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#8 Points possible: 10

TCP uses \_\_\_\_\_ handshake scheme to establish connections.

- ☐ one-way
  - ☐ two-way
  - ☒ three-way
  - ☐ four-way
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#9 Points possible: 10

Which socket primitive is used to block the caller until a connection attempt arrives?

- ☐ bind
  - ☐ listen
  - ☐ connect
  - ☒ accept
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#10 Points possible: 10

If the window size field of the acknowledgement TCP segment is 40 KB, and the congestion window size is 40 KB, how many bytes could the sender transmit next time?

40

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