Exercise 3 (Chap 3)

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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. A bit string, 0111101111101111110, needs to be transmitted at the data link layer. What is the string actually transmitted after bit stuffing?
A: 011110111110011111010

#2 Points possible: 10

Q. What is the remainder obtained by dividing x^7 + x^5 + 1 by the generator polynomial x^3 + 1? (give your answer as bit string)
A: 111

#3 Points possible: 10

Q.A channel has a bit rate of 4 kbps and a propagation delay of 20 msec. For what range of frame sizes does stop-and-wait give an efficiency of at least 50 percent?
A.160 bits

#4 Points possible: 10

Q.Consider an error-free 64-kbps satellite channel used to send 512-byte data frames in one direction, with very short acknowledgements coming back the other way. What is the maximum throughput for window sizes of 1, 7, 15? The earth-satellite propagation time is 270 msec. (give your answer as an integer)
A.A. for window size=1: 6781 bps
A.A. for window size=7: 47470 bps
A.for window size=15: 64000 bps

#5 Points possible: 10

Q.A 100-km-long cable runs at the T1 data rate. The propagation speed in the cable is 2/3 the speed of light in vacuum. How many bits fit in the cable?
A. 772 bits

#6 Points possible: 10

A CRC generator polynomial is G(X)= X^16+X^15+X^2+I. How many bits will the checksum be?

- 14
- 15
- 16

- 17

#7 Points possible: 10

Assume the sequence number has 3 bits. What is the maximum number of outstanding sending frames for a go back N protocol?

7

#8 Points possible: 10

Assume the sequence number has 3 bits. What is the maximum number of outstanding sending frames for a selective repeat protocol?

4

#9 Points possible: 10

Which is not the CSMA / CA rule of 802.11?

- If station X received RTS of station A, X must remain silent for a short time
- (•) If station X received RTS, but did not receive CTS, then X may not transmit its data.
- If station X has not received RTS, but received CTS, then X may not transmit its data
- If station X has received both RTS and CTS, then X may not transmit its data

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#10 Points possible: 10

After the sender first sends frames from 0 to 6 and at the end of timeout receives the acknowledgements for frame 1, 3, and 5, the next frame it will re-transmit is frame _____. (assume the protocol is go-back-n)

- 1
- 2
- 5
- (•) 6
