

CS 5220 Homework Assignments

- Note that the specific due date of each homework assignment will be posted at the course website (announcements) about one week before the actual due time. Please turn in the hardcopy in an envelope at the due time only (no early submission).

Homework assignment 1

Textbook exercises: 2.4, 2.6, 2.10, 2.15, 2.19, 2.28, 2.39(b).

Homework assignment 2

Textbook exercises: 3.2, 3.60, 3.62, 3.63, and following questions

A-1: What is the even parity bit for a binary code 10001010?

A-2: An 8-bit byte with binary value 10101111 is to be encoded using an even-parity hamming code. What is the binary value after encoding?

A-3: A 12-bit hamming code whose hexadecimal value is 0xE4F arrives at a receiver. What was the original value in hexadecimal. Assume that not more than 1 bit is in error.

A-4: Given bit error rate $p = 10^{-6}$, in a 10-bit block, what is the probability of single bit errors and double bit errors.

Homework assignment 3

Textbook exercises: 5.3, 5.4(a)&(b), 5.7, 5.12, 5.19, 5.22, 5.52, 5.53 and 5.64.

Homework assignment 4

Textbook exercises:

6.2, 6.4,

6.9 (Consider the typical bit rate at 10Mbps, 100Mbps, 1Gbps, respectively.

Frame size: 1500 Bytes (or 12000 bits)

Signal Propagation Speed: 300,000 km/sec.

For a LAN, consider the distance be 100 meters.

For a WAN, consider the distance be 100 km.

Clue: consider the normalized delay-bandwidth product a with the efficiency analysis.

6.42 (clue: from error rate, station mobility, and collision detection perspectives)

6.47

6.52

Homework assignment 5

Exercise questions 7.33, 7.34, 7.56, 7.59, 8.2, 8.4, 8.5, 8.6, 8.7, 8.9, 8.12, 8.20, 8.25.