EE450 Introduction to Computer Networks

Homework #3, Fall 2019

Due Thursday, September 19th, 2019 in class

Reading Assignment:

Chapter 6

Problems to be solved:

1. Chapter 6, Page 507: R1
Consider the transportation analogy in Section 6.1.1. If the passenger is analogous to a datagram, what is analogous to the link layer frame?

2. Chapter 6, Page 507: R5
In Section 6.3, we listed four desirable characteristics of a broadcast channel. Which of these characteristics does slotted ALOHA have? Which of these characteristics does token passing have?

3. Chapter 6, Page 508: P2
Show (give an example other than the one in Figure 6.5) that two-dimensional parity checks can correct a single bit error. Show (give an example of) a double-bit error that can be detected but not corrected.

4. Chapter 6, Page 509: P5
Consider the 5-bit generator, G = 10011, and suppose that D has the value 1010101010. What is the value of R?

5. Chapter 6, Page 509: P7
In this problem, we explore some of the properties of the CRC. For the generator G (= 1001) given in Section 6.2.3, answer the following questions.

a. Why can it detect any single bit error in data D?

b. Can the above G detect any odd number of bit errors? Why?