Quiz #2 Solution
Multiple Choice

1. Question 1

An (n, 1) repetition error detection code is defined as follows: each codeword is n-bit long; the first bit of a codeword is a single information bit, and the following (n – 1) bits are repetitions of the information bit.

Consider the (4, 1) repetition error detection code in this quiz.

How many valid codewords does this code have?

*a. 2

b. 4

c. 8

d. 16

Feedback:
*a) The two valid codewords are: 1111 and 0000.

2. Question 2

What is the FUE (Fraction of Undetectable Errors) of this code?

a. 1/3

b. 1/7

*c. 1/15

d. 1/31

Feedback:
*c) Out of 2^4 - 1 = 15 valid errors, the only one that is undetectable is e = [1111]. Therefore, FUE = 1/15.