ELEX 3525: Data Communications
2022 Fall Term

Quiz 3
11:30 – 12:05
Wednesday, November 15, 2022
SW01-2590

This exam has one (1) questions on one (1) pages. The marks for each question are as indicated. There are a total of ten (10) marks. Answer all questions. Write your answers and all rough work in this paper and nowhere else. Show your work. Draw a box around your final answer. Numerical answers must include units. Books and notes are allowed. No electronic devices other than calculators are allowed. **Show your work.**

This exam paper is for:

Questions Version 1   A00123456

Each exam is equally difficult.

Answer your own exam.

Do not start until you are told to do so.

Name: _____

BCIT ID: _____

Signature: _____

Question 1   10 marks

A code is composed of the following four 6-bit codewords: `111111`, `010101`, `101010`, `000000`.

(a) What is the minimum distance of this code?

(b) What are the *values* of n, k, and the code rate?

(c) How many errors is this code guaranteed to detect?

(d) How many errors is this code guaranteed to correct?

(e) If the codeword `100110` is received, which codeword was most likely transmitted?

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This exam paper is for:

Questions Version 2   A00123456

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Name: _____

BCIT ID: _____

Signature: _____

255

Question 1

10 marks

A code is composed of the following four 6-bit codewords: `000000`, `010101`, `101010`, `111111`.

(a) What is the minimum distance of this code?

(b) What are the *values* of n, k, and the code rate?

(c) How many errors is this code guaranteed to detect?

(d) How many errors is this code guaranteed to correct?

(e) If the codeword `011001` is received, which codeword was most likely transmitted?