Quiz 8: Encoding Scheme & Error Detection/Correction

1. Please write the entire 4-bit Gray code by reflecting and prefixing.

In [ ]:

2. Please Convert the following Gray code word to Binary code.

1 0 0 1 1 0 1 0

In [ ]:

3. Convert the following Binary code word to Gray code.

1 0 0 1 1 0 1 0

In [ ]:

4. The following hamming coded message was received. Use it to answer questions 4.1 - 4.6

0 1 0 1 1 0 1

(4.1) Circle the parity bits p3, p2 and p1

In [ ]:

(4.2) What position number is generated to determine if an error has ocurred in transmission?

In [ ]:

(4.3) Did an error occur in transmission?

In [ ]:

(4.4) What was the original correct coded message?

In [ ]:

(4.5) What was the original correct message?

In [ ]:

(4.6) If the message is binary, what is the decimal value?

In [ ]:

5. Convert a Negative Decimal Number –15 to an 8-bit binary number using Two's Complement.

In [ ]:

6. Converting a signed Binary Number 1111 0001 in Two's Complement to its Decimal Number.

In [ ]:

7. Encode a decimal number 4 using each of the following codes.

A. Binary Code
B. BCD Code
C. Gray Code
D. Excess-3 Code
E. 7-bit Hamming Code

In [ ]:

8. A self-complementing code has the special property that the 1's complement of a digit's code represents the code for its 9's complement. Using the (2,4,2,1) weighted code

8.1 what is the (2,4,2,1) binary code for decimal number 7?

In [ ]:

8.2 what is the 1's complement of the above (2,4,2,1) code?

In [ ]:

8.3 what is the decimal value of its flipped code (1's complement)?

In [ ]:

8.4 What is the necessary condition that a weighted code must satisfy in order to be self-complementing?

In [ ]: