Assignment 1

1. List the ASCII code for the 10 decimal digits with an odd parity bit in the leftmost position.
2. What bit must be complemented to change an ASCII letter from capital to lowercase and vice versa?
3. How many printing characters are there in ASCII? How many of them are special characters (not letters or numerals)?
4. Decode the following ASCII code:

   1000010 1101001 1101100 1101100 1000111 1100001 1110100 1100101 1110011
5. Write the expression "G. Boole" in ASCII using an eight bit code. Include the period and the space. Treat the leftmost bit of each character as a parity bit. Each eight bit code should have even parity.
6. Using even parity, which of the following words contain an error?

   (a) 10101010 (b) 11110110 (c) 10111001 (d) 10101111 (e) 11110111 (f) 10111101
7. Encode the following decimal numbers into 8421 code

   (a) 27 (b) 628 (c) 5026
8. Assign a binary code in some orderly manner to the 52 playing cards. Use Minimum number if bits.
9. Formulate weighted binary code for decimal digits using weights: (a) 6,3,1,1 (b) 6,4,2,1
10. Represent the unsigned decimal numbers 842 and 535 in BCD, and then show necessary steps to form their sum.
11. (a) Convert decimal 8723 to both BCD and ASCII code. For ASCII, an even parity bit is to be appended at the left.

    (b) Repeat part (a) for $(1234)_{10}$.
12. Express the following XS-3 numbers as decimal

    (a) 1011 1000 1100

    (b) 0110 1010 0111.1000

    (c) 1001 1100 1000.0111

    (d) 0111 1000 0101 1001.1000

13. Add the following in (i) BCD and (ii) XS-3 codes

    (a) 275 + 496

    (b) 108+789

    (c) 89.6+273.7

    (d) 205.7+193.65

14. Which of the following characters contain an error for odd parity

    (a) 10010101 (b) 11010101 (c) 10110110 (d) 1010 (e) 110101

15. Subtract the following decimal numbers by the 9's and 10's complement method

    (a) 93 -615 (b) 274 - 86