EIE2050 Assignment 1

Answer the questions and submit hardcopies to TC fifth floor **before 5:30pm, 10th October**.

Note: 1. There are four assignments in the course, totally having 25% weight in final evaluation.

2. A mark of zero will be given if plagiarism is found.

1. Convert the following binary numbers into decimal:

(a) 100010 (b) 100101 (c) 101010 (d) 110110

(e) 1100011 (f) 11110010 (g) 11111101 (h) 11111111

2. Convert each decimal fraction to binary using repeated multiplication by 2:

(a) 0.75 (b) 0.646 (c) 0.328

3. Divide the binary numbers as indicated:

(a) 110÷10 (b) 1100÷11 (c) 1111÷101

4. Determine the decimal value of each signed binary number in the 2's complement form:

(a) 10011010 (b) 01101011 (c) 10111001

5. Determine the values of the following single-precision floating-point numbers:

(a) 1 10000010 01101001110001000000000

(b) 0 11001111 10000111101011000000000

6. Perform each subtraction in the 2's complement form:

(a) 00110100 – 00010010 (b) 01100100 – 11100100

7. Perform the following subtractions:

(a) $\mathbf{60_{16} - 38_{16}}$ (b) $\boldsymbol{A6_{16} - 97_{16}}$ (c) $\boldsymbol{F2_{16} - B6_{16}}$ (d) $\boldsymbol{BC_{16} - 10_{16}}$

8. Convert each pair of decimal numbers to BCD, and add as indicated:

(a) 4+2 (b) 5+3 (c) 7+3 (d) 15+13

(e) 23+18 (f) 68+56 (g) 123+111 (h) 287+154

9. Decode the following ASCII coded message:

1001000 1100101 1101100 1101100 1101111 0101100 1001000 1101111
1110111 0100000 1100001 1110010 1100101 0100000 1111001 1101111
1110101 0111111 1011110 1011111 1011110

10. Determine which of the following odd parity codes are in error:

(a) 11111001 (b) 00110110 (c) 01010101010101011