The University of Alabama in Huntsville
ECE Department
EE 202 – 02
Fall 2010
Sample Test 1

1. (1 point) The output of of a two input OR gate is 1 if _____ of the inputs is 1.

2. (1 point) Binary numbers are numbers with a _____ of 2.

3. (1 point) The standard binary code for alphanumeric codes is _____.

4. (1 point) A _____ is a group of binary cells.

5. (1 point) _____ algebra is an algebra that deals with binary variables and logic operations.

6. (10 points) Convert (245_7) to decimal:

7. (5 points) Convert 1011011010010001 to hexadecimal

8. (5 points) We can perform logical operations on strings of bits by considering each pair of corresponding bits separately (called bitwise operation). Given two eight-bit strings A = 10110001 and B = 10101100, evaluate the eight bit result after an AND operation.

9. (20 points) Convert decimal +13 and +85 to binary, using the signed-2's-complement representation and enough digits to accommodate the numbers. Then perform the binary equivalent of (+13) + (-85Convert the answer back to decimal and verify that it is correct.

10. (5 points) Convert F(A, B, C, D) = Σ(0, 1, 2, 4) to the other canonical form.

11. (10 points) Formulate a weighted binary code for the decimal digits, using weights 84-21

12. (10 points) Reduce ABCD + A’BD + ABC’D to two literals.

13. (10 points) Find the complement of (x' + y + z')(x + y')(x + z)

14. (20 points) Obtain the truth table of the following function, and express it in sum-of-minterms and product-of-maxterms form:

    (x +y)z + x'y'z + x(y + z')