NSSA-102 Computer system Concepts
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Midterm Worksheet

1) If N = 8A.2B in hexadecimal, what is N in octal? _____

2) If N = 123.11 in base r=4, what is the value of N in decimal? _____

3) If N = 34.02 in decimal, what is N in base r=5? _____

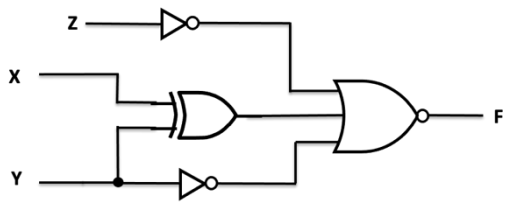
4) If N = 606 in decimal, what is N in BCD? _____

5) What is the minimal number of bits needed to assign binary codes to 71 colors? _____

6) Draw the logic circuit for the Function $F(A, B, C) = \bar{A} + \bar{B}\ (A \oplus C)$

7) Fill-in the truth table for the Function $F(A, B, C) = \bar{A} + \bar{B}\ (A \oplus C)$

8) Write down the equation of the below logic circuit as a sum-of-minterms (SoM)?



9) Using Boolean algebra, prove that

$$\bar{x} + xy + x\bar{z} + x\bar{y}\bar{z} = \bar{x} + y + \bar{z}$$

10) Using Boolean algebra, determine the product-of-maxterms (PoM) expression for

$F(A, B, C) = (A + B)\,(\bar{C} + \bar{A}\,B)$

11) Let $F(A, B, C) = M_3 \cdot M_5 \cdot M_7$

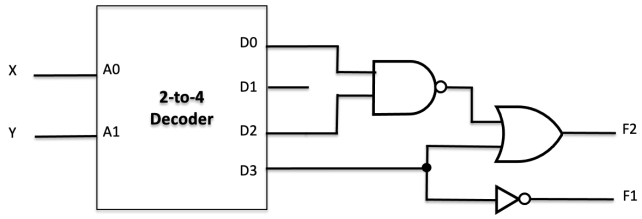
Write $\bar{F}(A, B, C)$ as a SoM expression.

12) Given $F(A,B,C) = (A+B)(\bar{C} + \bar{A}B)$. Determine $\bar{F}(A,B,C) = \sum_m($ $)$

13) Fill-in the truth table for the function $F(A,B,C) = \overline{\overline{A} + \overline{B\,C}}$

14) Fill-in the truth table for the function $F(A,B,C) = \bar{A} \odot (B + A\,\bar{C})$

15) Fill-in the truth for the below circuit.



X	Y	F1	F2
0	0		
0	1		
1	0		
1	1		

16) Write the equation of F(A,B,C) as a sum-of-minterms for the below circuit.