Assignment

**Binary System and Boolean Algebra & K-Map**

1. Convert the following numbers as per instructions
   1. (1010.11)2 = (\_\_\_\_\_\_\_\_\_\_)10
   2. (1111.0011)2=(\_\_\_\_\_\_\_\_\_\_\_)10
   3. (54)10 = (\_\_\_\_\_\_\_\_\_\_)2
   4. (25.56)**10 =** (\_\_\_\_\_\_\_\_\_\_\_\_\_)2
   5. (258.25)10 = (\_\_\_\_\_\_\_\_\_\_\_)8
   6. (355.758)10 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)8
   7. (67.25)8 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)10
   8. (165.77)8 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)10
   9. (125.65)10 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)16
   10. (345.625)10 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)16
   11. (AB6.FF)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)10
   12. (FACE.DAB)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)10
   13. (3D.FACE)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)8
   14. (BAFE.34F)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)8
   15. (2F45.101)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)2
   16. (FFF.25)16 = (\_\_\_\_\_\_\_\_\_\_\_\_\_\_)2
   17. (10101101.10001)2 = (\_\_\_\_\_\_\_\_\_\_)8
   18. (11100100001.0110011)2=(\_\_\_\_\_\_\_\_\_\_\_)8
2. Subtract the following using r's complement method.

* Using 10's complement subtract 75325 - 56789
* Using 9's compliment subtract 878903 - 120045
* Using 2's compliment subtract 11011 -1111
* Using 1's compliment subtract 111 -11111

1. Simplify the following using K-map
   * F(A,B,C,D)=∏(1,3,4,5,7,10,12,15)
   * F(A,B,C,D)=∑(0,1,2,3,6,10,13,14,15)
   * F(A,B,C,D)=∑(0,1,2,3,6,14,15)+d(4,9,11)
   * F(A,B,C,D)=∏(1,3,4,5,12,15) and d(A,B,C,D)=∏(0,2, 7,10)
2. Simplify the following using theorem and postulates.

* ZX+ZX’Y
* (A+B)’(A’+B’)’
* Y(WZ’+ WZ) + XY