**Logic Course Assignment #2**

1- Reduce the following Boolean expressions:
(a) A'C' + ABC + AC'
(b) (x'y' + z)' + z + xy + wz
(c) A'B(D' + C'D) + B(A + A'CD)
(d) (A' + C)(A' + C ')(A + B + C'D)

2- Express each function in sum of minterms and product of maxterms:
(a) F(x,y,z) = (xy + z)(y + xz)
(b) G(w,x,y,z) = y'z + wxy' + wxz' + w'x'z

3- Draw the K-map for the following functions:
(a) F(A, B, C, D) = $\sum$m (0, 2, 4, 5, 6, 7, 8, 10, 13, 15)
(b) F(A,B,C,D,E)= $\prod$M(1,5,8,10,12,13,14,15,17,21,24,26,31)

4- Draw the K-map for the complement of the following function:
F(A, B, C, D) = $\sum$(0, 1, 2, 3, 4, 8, 9, 12)

5- Implement the following Boolean expression with exclusive-OR and AND gates:
F = AB'CD' + A'BCD' + AB'C'D + A'BC'D