***Karnaugh Map***

1.    Design a 4-bit combinational circuit incremented (the circuit that adds one to a 4-bit binary number). The circuit can be designed using four half adders.

Cn = BC +AB +AC

Sn = Cn-1 xor AnxorBn

Co = AoBo

So = AxorB

Design a circuit with inputs x, y, z and w. When the binary input is 0, 1, 2, 3,4,5,6, and 7 the binary output is one greater than the input.  When the binary input is 8, 9, 10, 11, 12,13,14, and 15 the binary output is one less than the input.

1. Design a 4bits combinational circuit 2’s complementer (Unsigned system)
2. Simplify the following functions, using K map
   1. F(A,B,C,D,E)=m0,m1.m4,m5,m16,m17,m21,m25,m29
   2. F(w,x,y,z) = Σ (2,3,10,11,12,13,14,15)
   3. F(x,y,z) = Σ (0,2,6,7)
   4. F(A,B,C ) = Σ (0,2,3,4,6)
   5. F(a,b,c) = Σ (0,1,2,3,7)
   6. F(x,y,z) = Σ (3,5,6,7)