Quiz 02 19F-0228

Q1

Design a combinational Circuit with 3 inputs and 3 outputs.

condition 1: 0, 1, 2, 3 one > input

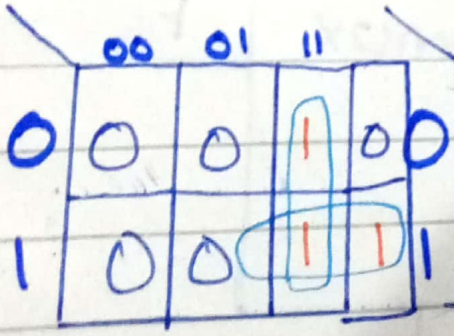
condition 2: 4 5 6 7 two < input

Truth Table

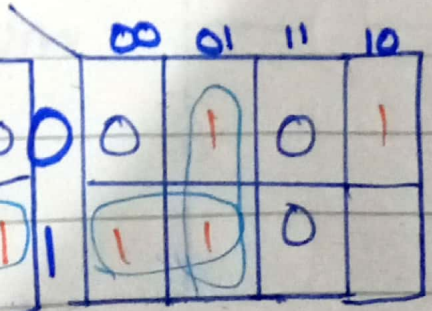
x	y	z	A	B	C	
0	0	0	0	0	1	
0	0	1	0	1	0	// condition1
0	1	0	0	1	1	
0	1	1	1	0	0	
1	0	0	0	1	0	
1	0	1	0	1	1	// condition2
1	1	0	1	0	0	
1	1	1	1	0	1	

k-map

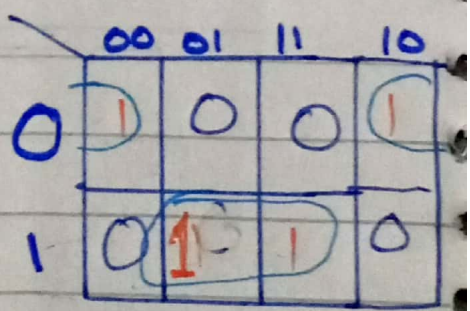
A



B



C

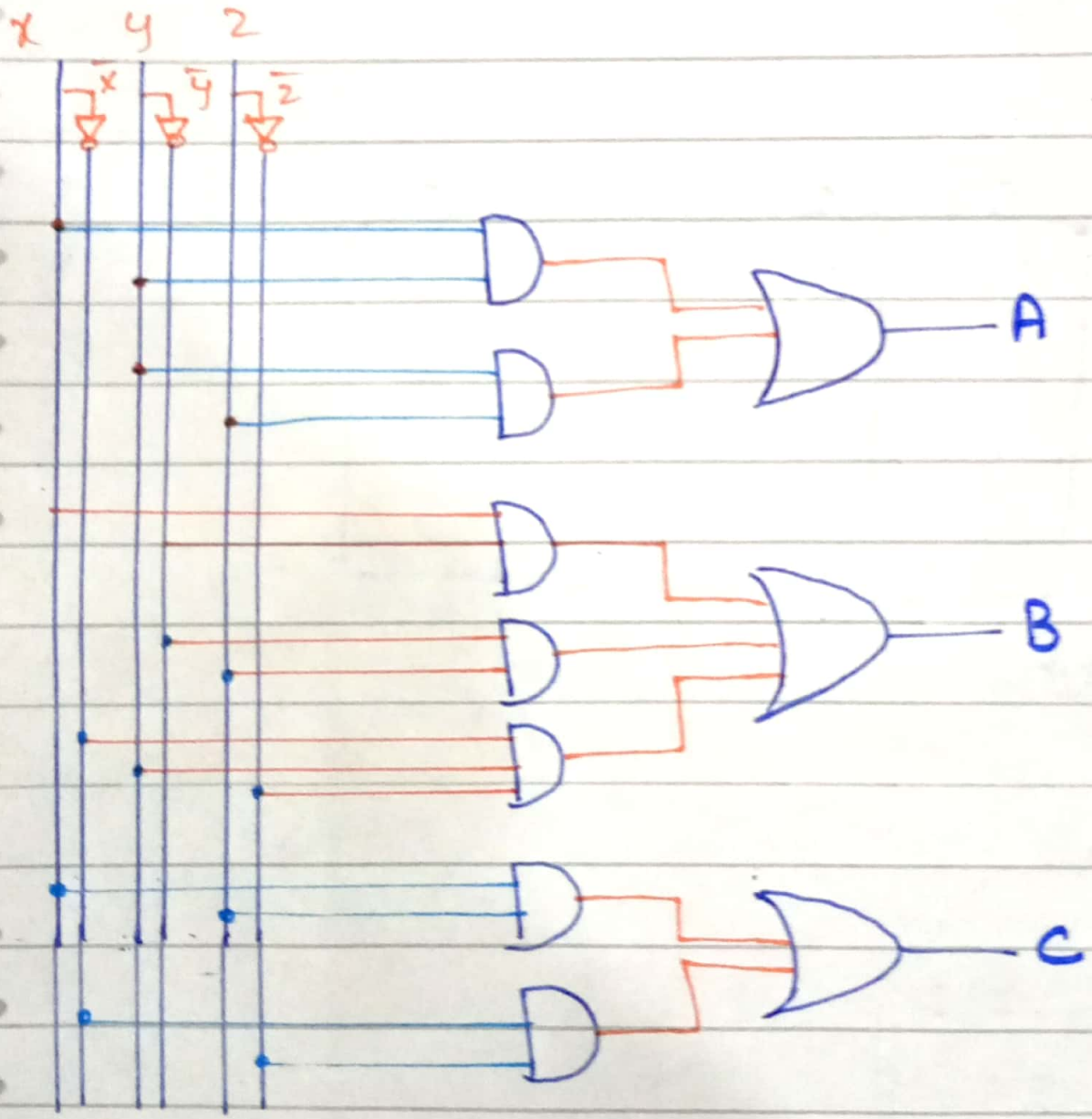


equations

$$A = yz + x\bar{y}$$

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

$$C = xz + \bar{x}\bar{z}$$



Q2

Draw NAND gate logic diagram.

$$F(A,B,C,D) = \sum (0,1,2,3,6,10,11,14)$$

k-map

	00	01	11	10
00	0	0	0	0
01	1	1	1	0
11	1	1	1	0
10	1	1	0	0

Equation

$$B\bar{D} + A\bar{C} + B\bar{C}$$

Circuit