ASSIGNMENT 1

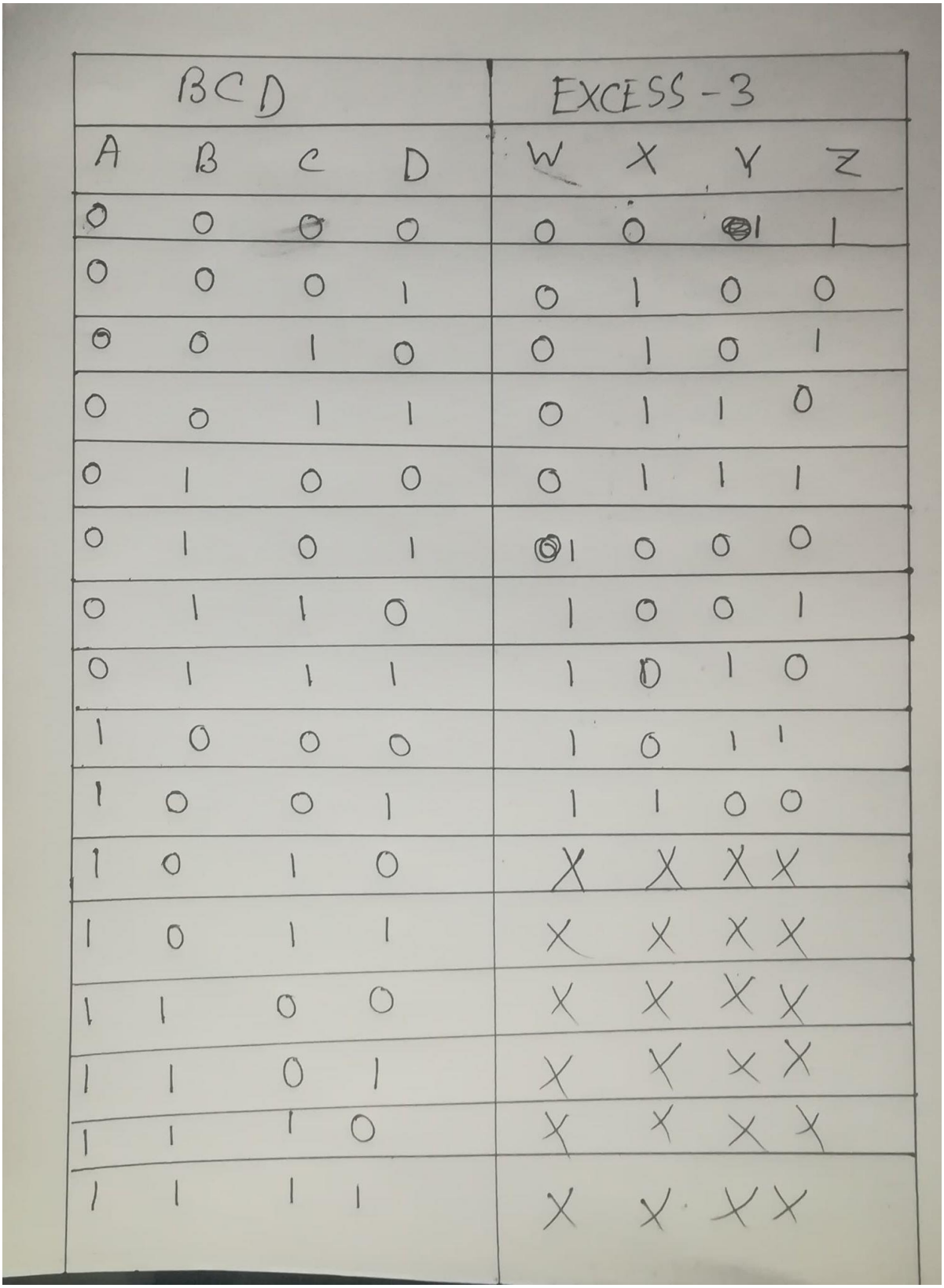
Name: Md Lutfor Rahman Abir

Id: 1811215642

Course: CSE 231 Lab

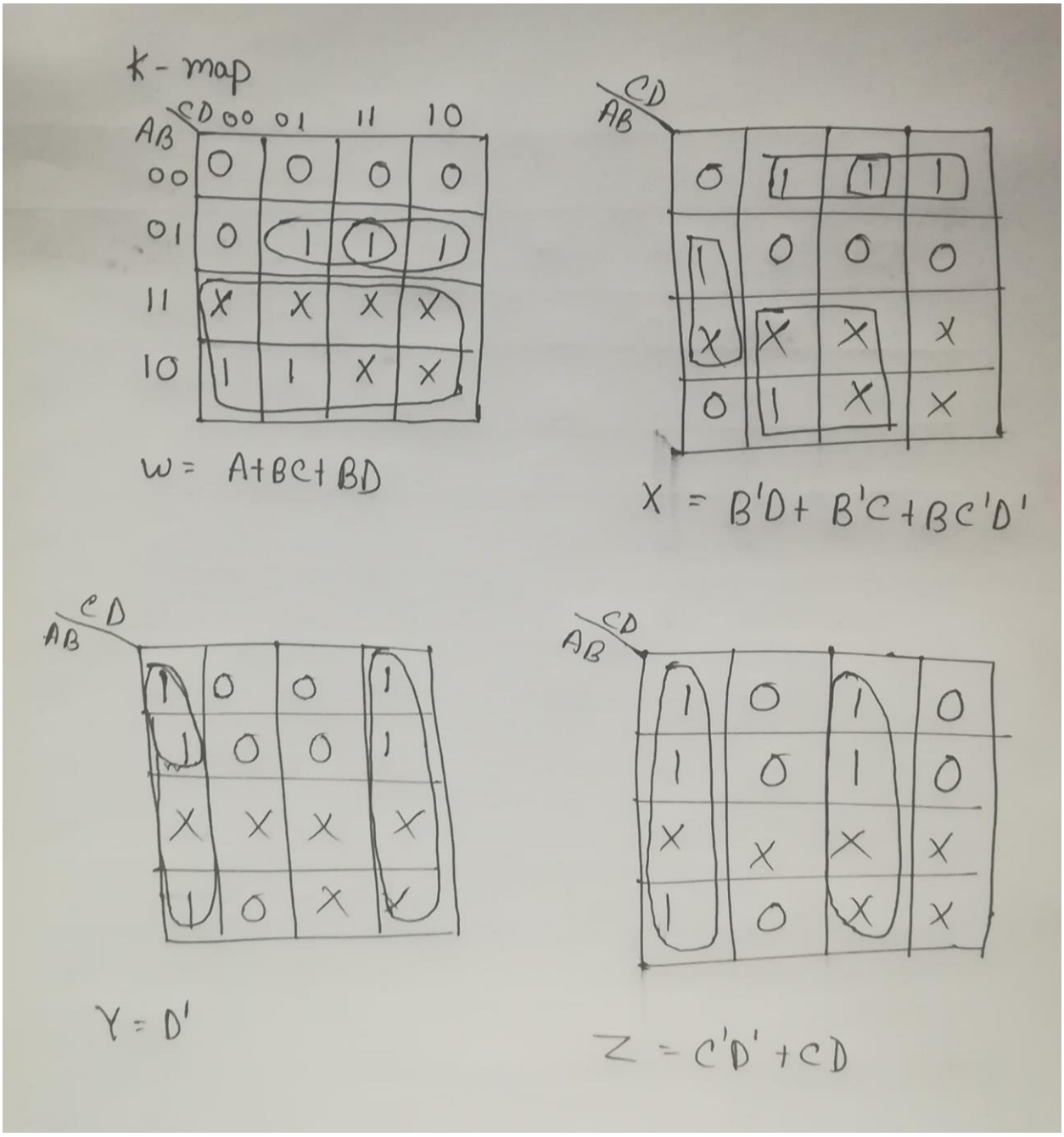
Sec: 10

1.



BCD				EXCESS-3			
A	B	C	D	W	X	Y	Z
0	0	0	0	0	0	1	1
0	0	0	1	0	1	0	0
0	0	1	0	0	1	0	1
0	0	1	1	0	1	1	0
0	1	0	0	0	1	1	1
0	1	0	1	1	0	0	0
0	1	1	0	1	0	0	1
0	1	1	1	1	0	1	0
1	0	0	0	1	0	1	1
1	0	0	1	1	1	0	0
1	0	1	0	X	X	X	X
1	0	1	1	X	X	X	X
1	1	0	0	X	X	X	X
1	1	0	1	X	X	X	X
1	1	1	0	X	X	X	X
1	1	1	1	X	X	X	X

K-map


k - map
CD 00 01 11 10
AB
00 0 0 0 0
01 0 1 1 1
11 X X X X
10 1 1 X X
W = A+BC+BD
CD
AB
0 1 1 1
1 0 0 0
X X X X
0 1 X X
X = B'D+ B'C+BC'D'
CD
AB
1 0 0 1
1 0 0 1
X X X X
1 0 X X
Y = D'
CD
AB
1 0 1 0
1 0 1 0
X X X X
1 0 X X
Z = C'D' +CD

2. The NAND and NOR gates are universal gates. We can construct any logic circuit using universal gates.

Yes, I can design a 7 segment using universal gates.

3. a) I need 3 types of ic to construct the following(fig-1) circuit.

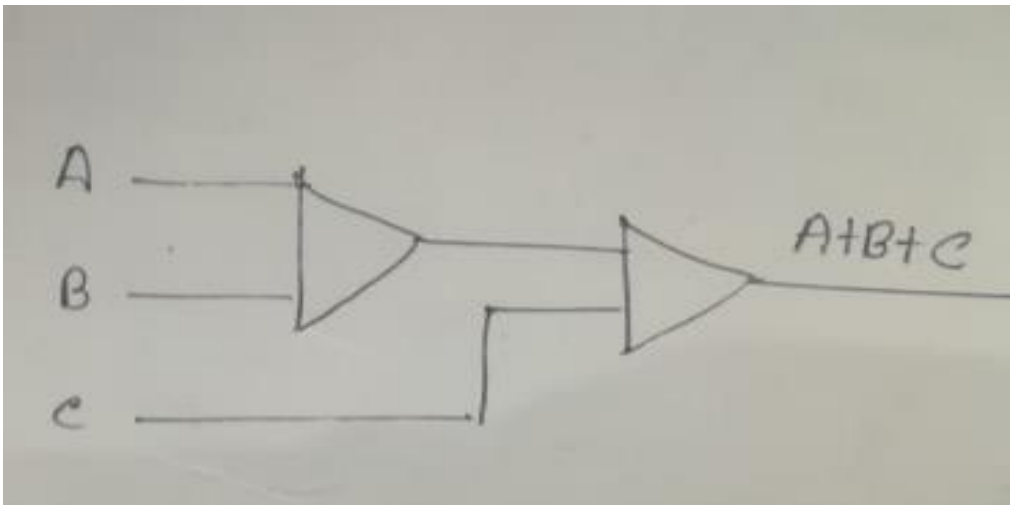
b) F= A'C+AB'+BC in 1st canonical form.

c) to construct the fig-1 circuit using NAND gate we need new equation.

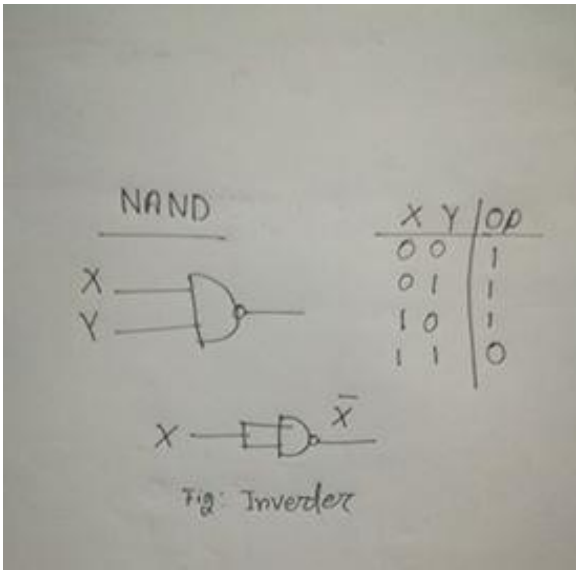
4. To activate the fig-2 circuit positive wire should be connect to vcc , pin number is 7. And negative wire should be connect to ground(gnd) pic number is 14. This is 2 input NAND gate. Ic number is 7400.

5. First task in the lab was Boolean function using logic gates. So far we used OR, NAND,AND,7 SEGMENT, WIRE, BREADBORD,NOT GATES,TRAINER BOARD.

6. Constructing 3 input OR gate using 2 input OR gate.



7. Building an inverter using NAND gate :



8. In Binary number system the first digit (bit) from right to left is called as least significant bit (LSB).

9. In digital systems, 1 byte is equal to 8 bit(s).

10. Maximum number in decimal that can be represented by 4 bits (binary) is 15.

11. a) 01010101

12. The Boolean algebra is mostly based on Boolean theorem.