CSE260 LAB ASSIGNMENT-7

NAME : ANIKA ISLAM

ID: 21101298

SECTION: 6

CamScanner

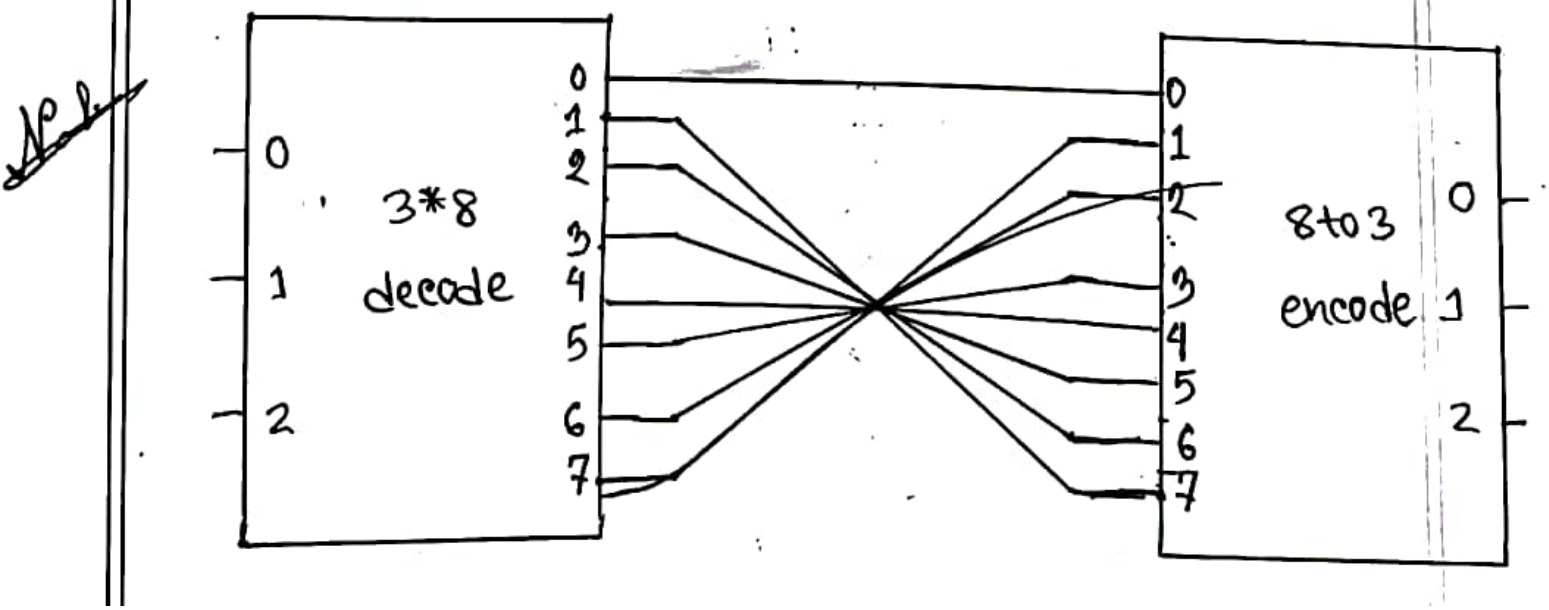
Group-01

10.04.2022

Experiment-07

Truth Table

Inputs				Outputs				Active Low Output			Output line Connection	
Minterm	C	B	A	Minterm	D_2	D_1	D_0	D_2	D_1	D_0	Decoder	Encoder
0	0	0	0	0	0	0	0	1	1	1	0	0
1	0	0	1	7	1	1	1	0	0	0	1	7
2	0	1	0	6	1	1	0	0	0	1	2	6
3	0	1	1	5	1	0	1	0	1	0	3	5
4	1	0	0	4	1	0	0	0	1	1	4	4
5	1	0	1	3	0	1	1	1	0	0	5	3
6	1	1	0	2	0	1	0	1	0	1	6	2
7	1	1	1	1	0	0	1	1	1	0	7	1



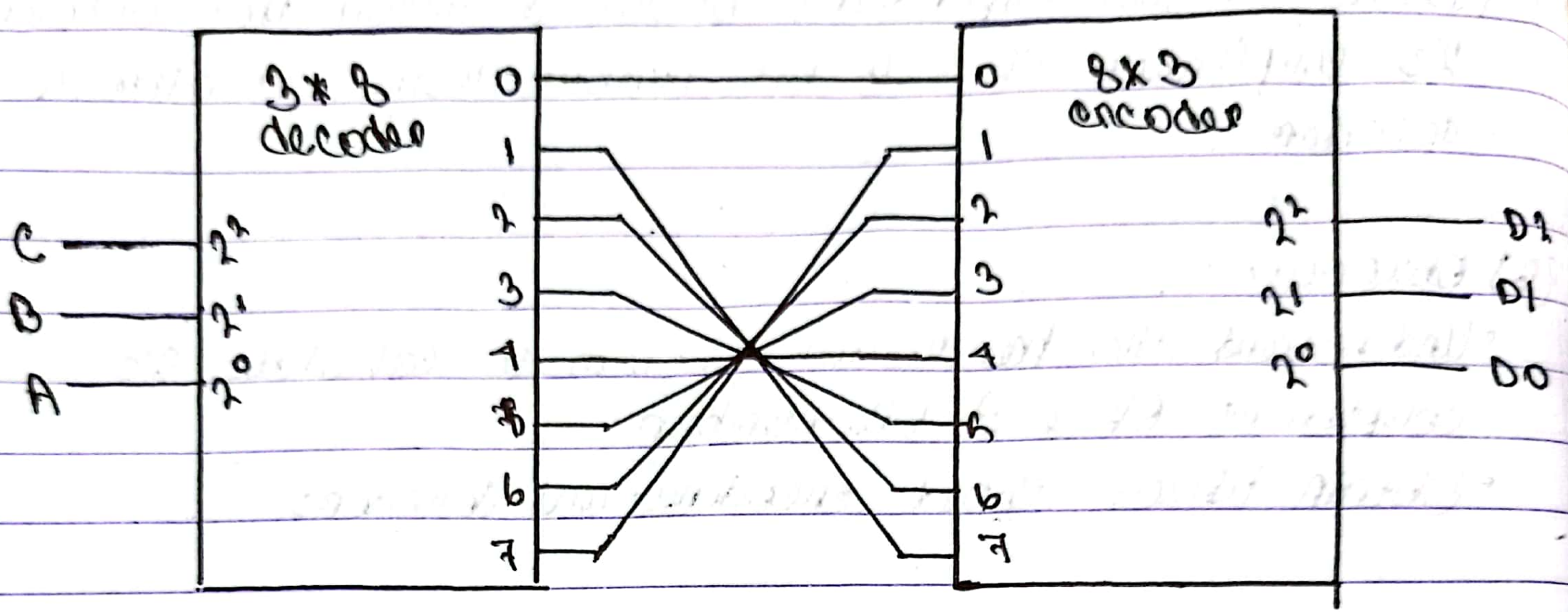
Lab Assignment 7 (Report)

(1) Name of the experiment: Design a circuit that outputs 2's complement of a 3 bit number using encoder & decoder

(2) Objective:
- Understand the hardware system to calculate 2's complement of a 3 bit number
- Obtain ideas about encoders and decoders

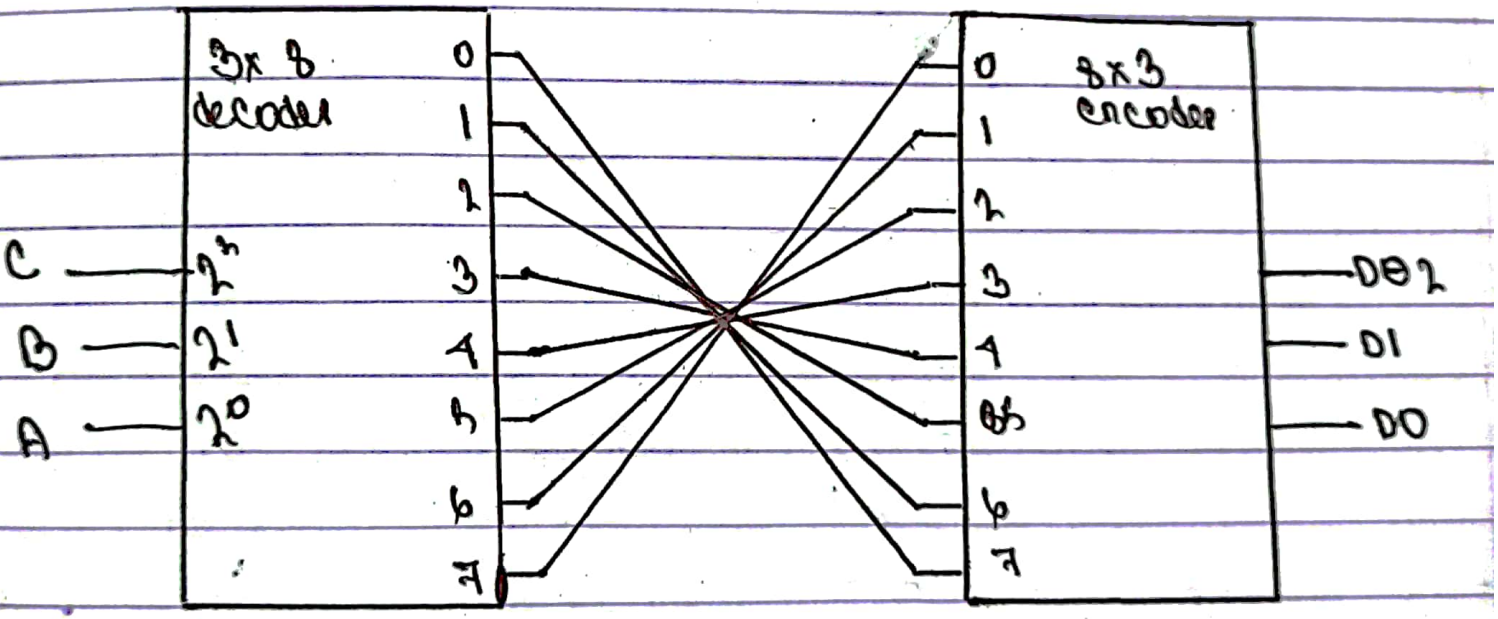
(3) Required components and equipments:
- Breadboard
- Jumper wires
- decoder (IC 74LS138)
- encoder (IC 74LS148)

4) Experimental Setup



(5) Results and Discussions

(a)



b) We can implement a code convert using a decoder and encoder. For example, '3' is given in the input of a 3 x 8 decoder (011) and the 3rd line in the output activates. The 3rd line in the output of the 3 x 8 decoder needs to be connected with the 6th line of the input of the 8x3 encoder. Thus, BCD is converted to excess 3 using 3x8 decoder and 8x3 encoder.