North South University

Department of Electrical & Computer Engineering

LAB REPORT

Course Code : EEE211

Course Title: Digital Electronics

Section: 01

Experiment Number: 06

Experiment Name: Binary Arithmatic

Experiment Date: 14.12.2020

Date of Submission: 21.12.2020

Course Instructor: Fahimul Haque

Submitted To: Fatema Zahra

Experiment Name:

BCD to seven segment decoder.

Objectives:

Learn the conversion & displaying value in a seven segment display.

Theory:

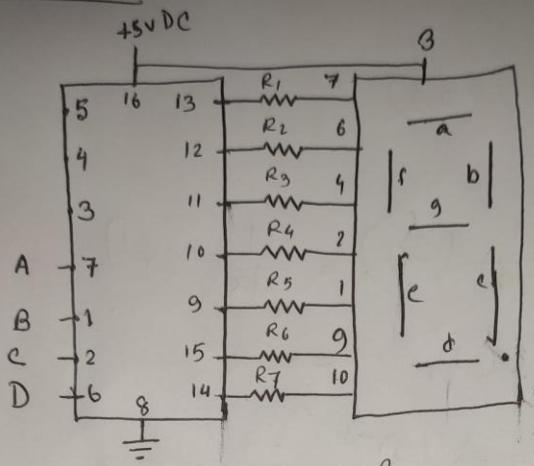
An ABCD to seven segment decoder is a combinational circuit that converts a decimal digit in BCD to an appropriate code for the selection of segments in an indicator used to display decimal digit in a familiar form.

Each elemt of (a, b, c, d, e, f, g) of the seven segment display is turned on when a logic low is applied to it's corresponding input pin.

Equipments:

- Trainer board.
- IC 7447, ~~resistors~~,
- Resistors
- Seven segment display.
- Wire.

Circuit Diagram:

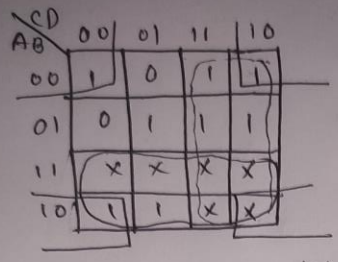


R_1 to R_7 = 220Ω.

Table:

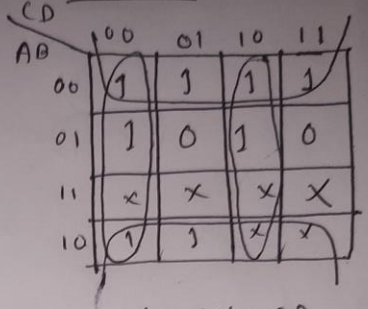
Decimal	Inputs				Output						
	A	B	C	D	a	b	c	d	e	f	g
0	0	0	0	0	1	1	1	1	1	1	0
1	0	0	0	1	0	1	1	0	0	0	0
2	0	0	1	0	1	1	0	1	1	0	1
3	0	0	1	1	1	1	1	1	0	0	1
4	0	1	0	0	0	1	1	0	0	1	1
5	0	1	0	1	1	0	1	1	0	1	1
6	0	1	1	0	1	0	1	1	1	1	1
7	0	1	1	1	1	1	1	0	0	0	0
8	1	0	0	0	1	1	1	1	1	1	1
9	1	0	0	1	1	1	1	1	0	1	1

for: a



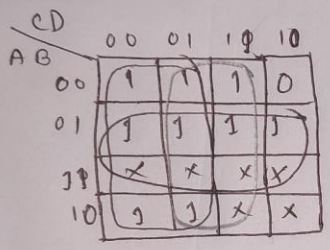
$\therefore a = C + A + BD + B'D'$

for b:



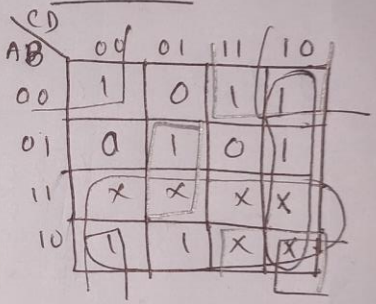
$b = B' + C'D' + CD$

for C:



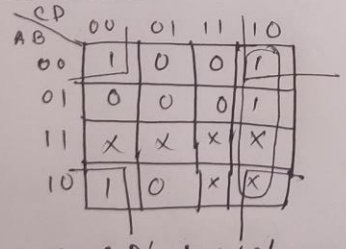
$C = C' + D + B$

for d:



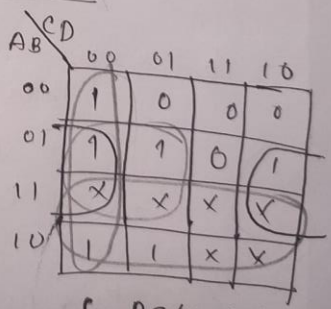
$d = CD' + A + B'D' + B'C + BC'D$

for e:



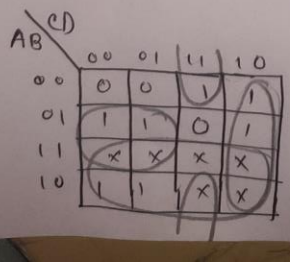
$e = CD' + D'B'$

for f:



$f = BC' + C'D' + A + D'B.$

for g:

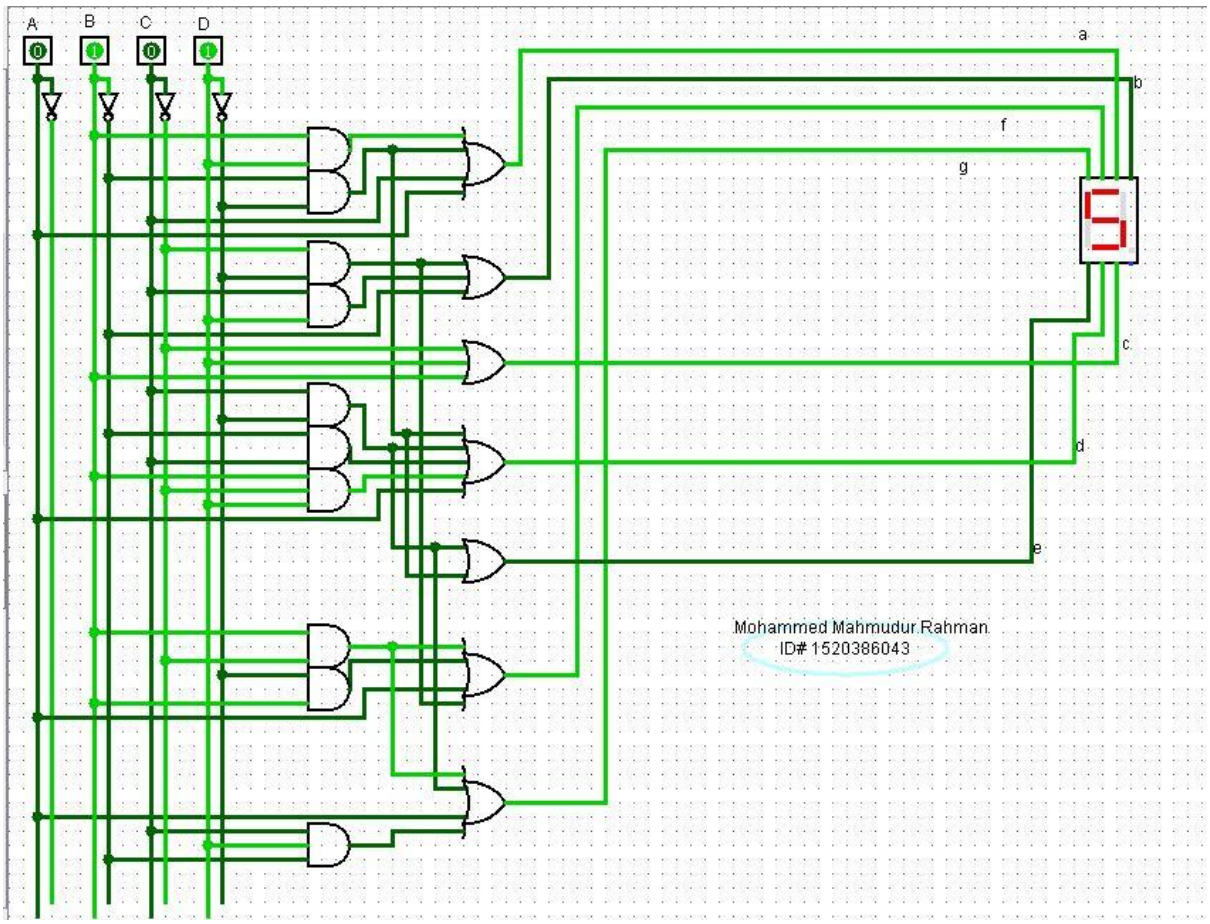


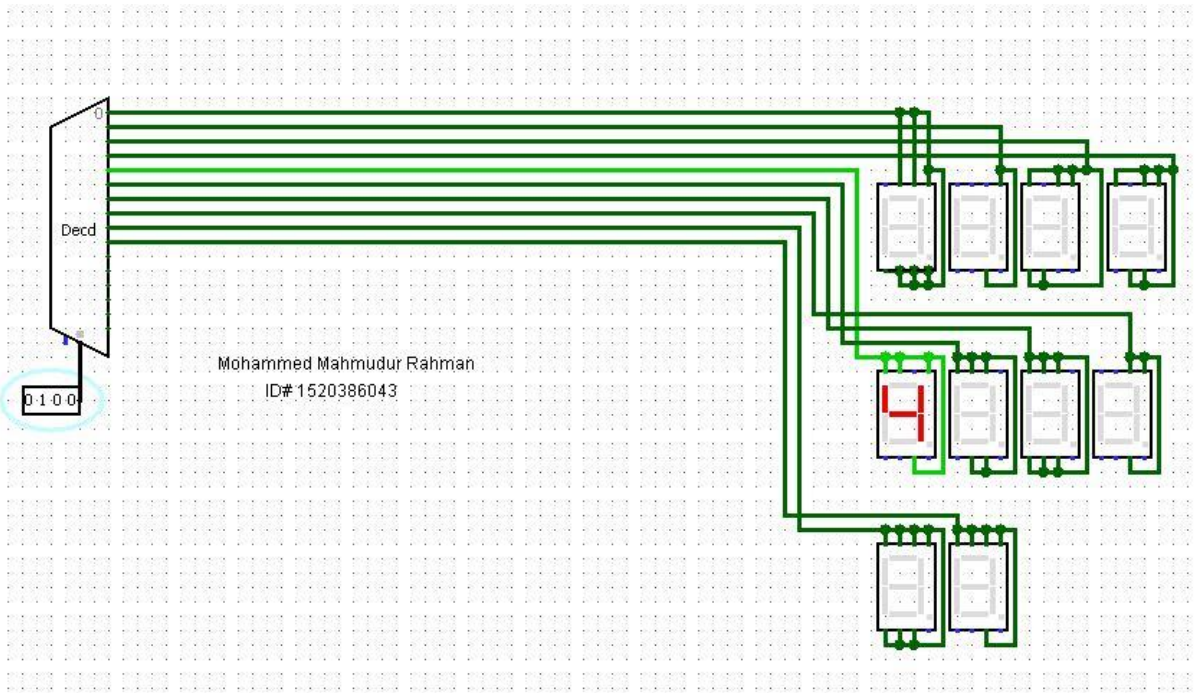
$g = A + C'B + CD' + C'D'B'$

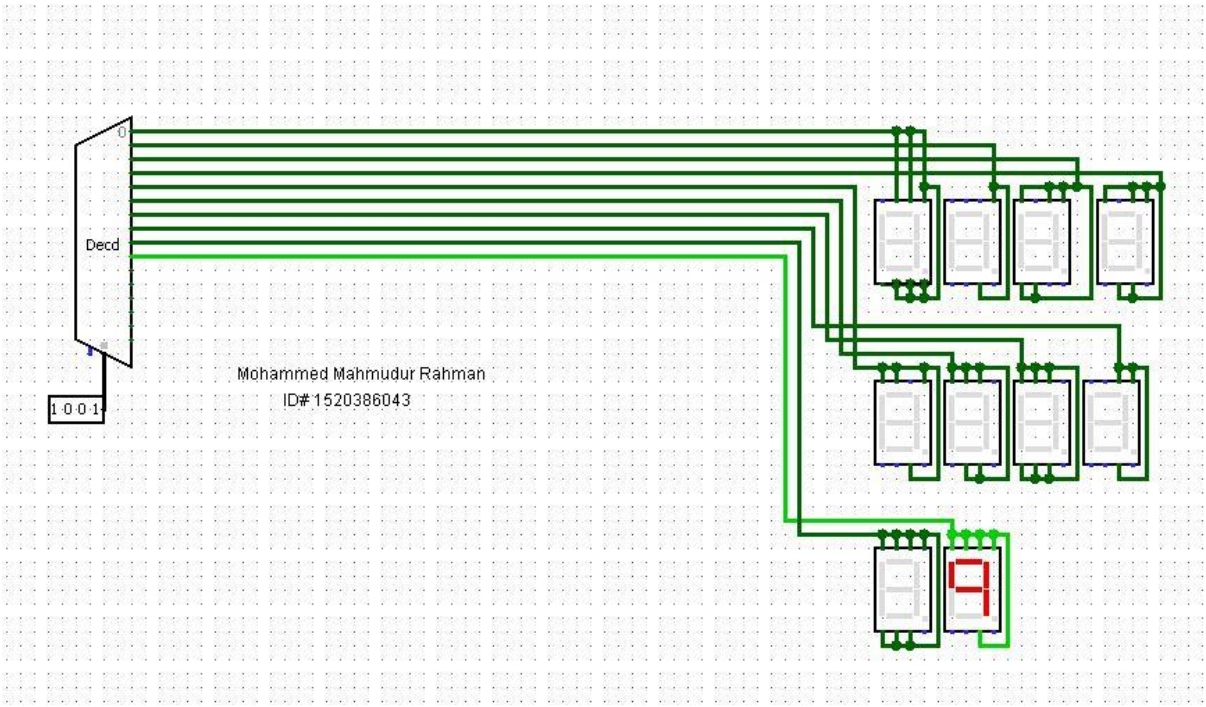
Discussion:

Due to pandemic we are attending in online lab session. Through software simulation we have completed this experiment. This simulation procedure helped us to learn the use of 7-segment display using basic gates & decoder. It helped us to relate the theoretical knowledge with our practical session.

Attachments:






0
Decd
1 0 0 1
Mohammed Mahmudur Rahman
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