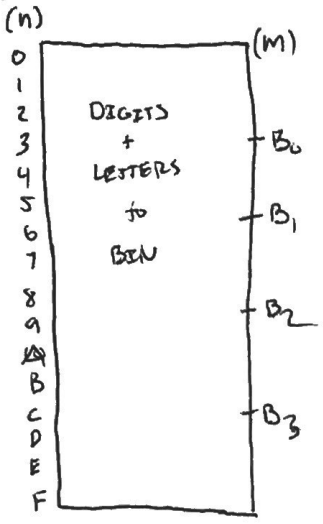
#1

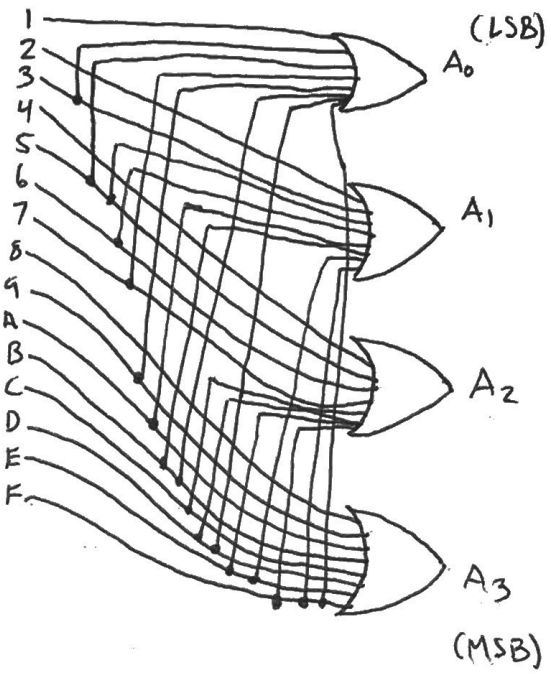
MIDTERM 2

CARLOS MARTIN

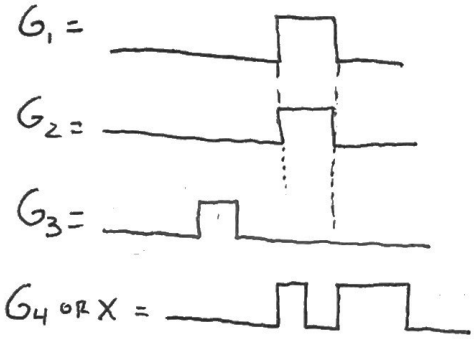


DEC/HEX	BINARY
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
A	1010
B	1011
C	1100
D	1101
E	1110
F	1111

MSB → LSB



#2



SO G_1 OR G_2 IS FAULTY SINCE G_3 IS THE SAME AS THE OUTPUT (OUTPUT OPEN FAILURE).

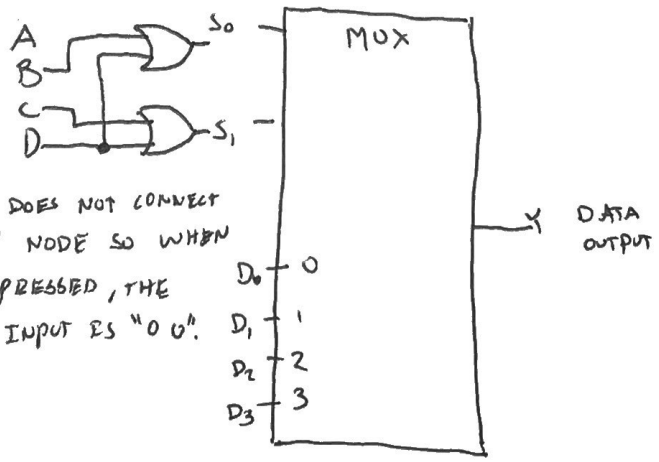
#1 ASSUME A, B, C, D ARE BUTTONS WHERE A TURNS ON THE FIRST FEED, B TUNS ON SECOND FEED, C TURNS ON THIRD FEED, AND D TURNS ON FORTH FEED.

SO

INPUT	OUTPUT
A	0 0
B	0 1
C	1 0
D	1 1

$S_1 \rightarrow S_0$

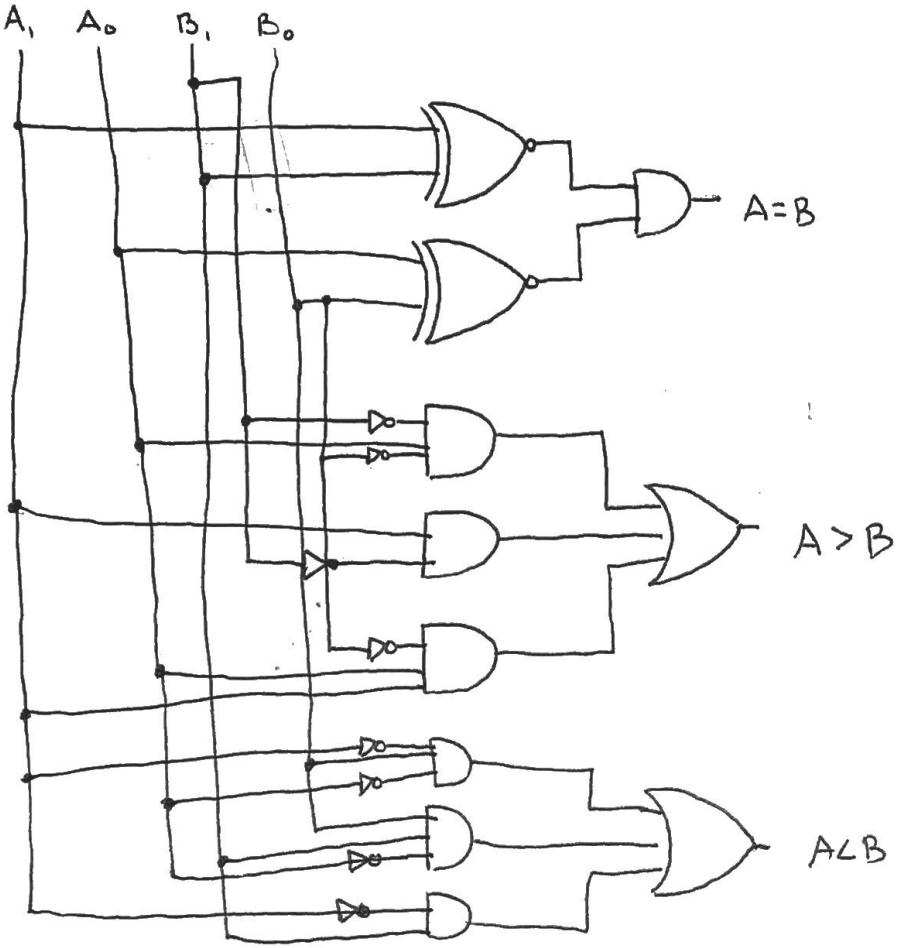
SO



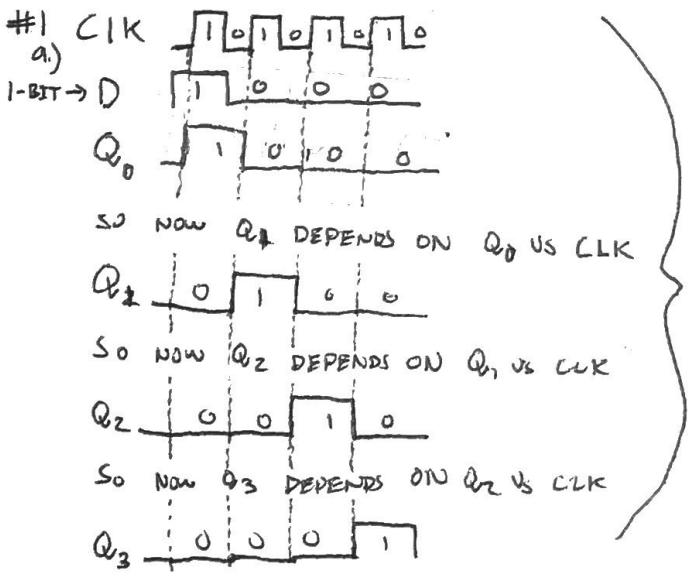
NOTE: A DOES NOT CONNECT TO ANY NODE SO WHEN A IS PRESSED, THE OUTPUT INPUT IS "0 0".

DATA SELECTED INPUTS		INPUT SELECTED
S_1	S_0	
0	0	D_0
0	1	D_1
1	0	D_2
1	1	D_3

#2

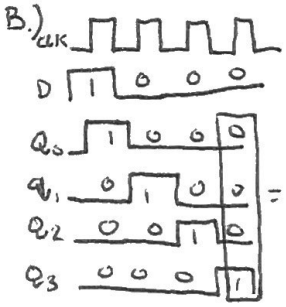


#1 a.)



TIMING DIAGRAM.

B.)



SO THE STORED BIT IS 0001.

THE INPUT CAN BE A TIMER ATTACHED TO Q_0, Q_1, Q_2, Q_3 TO OBTAIN THE LSB OF EACH PULSE AND OBTAIN OUR STORED BIT.

#2.