Q0:

Your SID: 57854329

Logisim Version and OS: logisim-generic-2.7.1 on Windows

Q2(1):

i1	i2	i3	o1	o2	o3	o4
0	0	0	0	1	0	1
0	0	1	0	1	1	1
0	1	0	1	0	0	0
0	1	1	0	1	0	1
1	0	0	0	1	0	0
1	0	1	0	0	1	1
1	1	0	0	0	1	0
1	1	1	1	0	0	1

Q2(1)

O_1 :

i_3 \ $i_1 i_2$	00	01	10	11
0	0	[1]	0	0
1	0	0	0	[1]

$\therefore O_1 = (\sim i_1 \wedge i_2 \wedge \sim i_3) \vee (i_1 \wedge i_2 \wedge i_3)$

O_2 :

i_3 \ $i_1 i_2$	00	01	10	11
0	[1]	0	[1]	0
1	[1]	[1]	0	0

$\therefore O_2 = (\sim i_1 \wedge \sim i_2 \wedge \sim i_3) \vee (i_1 \wedge \sim i_2 \wedge \sim i_3) \vee (\sim i_1 \wedge i_3)$

O_3 :

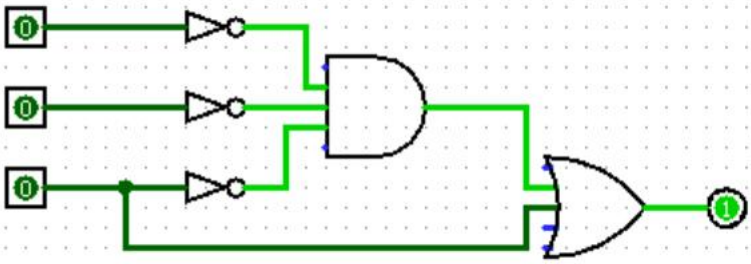
i_3 \ $i_1 i_2$	00	01	10	11
0	0	0	0	[1]
1	[1]	0	[1]	0

$O_3 = (\sim i_1 \wedge \sim i_2 \wedge i_3) \vee (i_1 \wedge \sim i_2 \wedge i_3) \vee (i_1 \wedge i_2 \wedge \sim i_3)$

O_4 :

i_3 \ $i_1 i_2$	00	01	10	11
0	1	0	0	0
1	1	1	1	1

$O_4 = (\sim i_1 \wedge \sim i_2 \wedge \sim i_3) \vee (i_3)$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0
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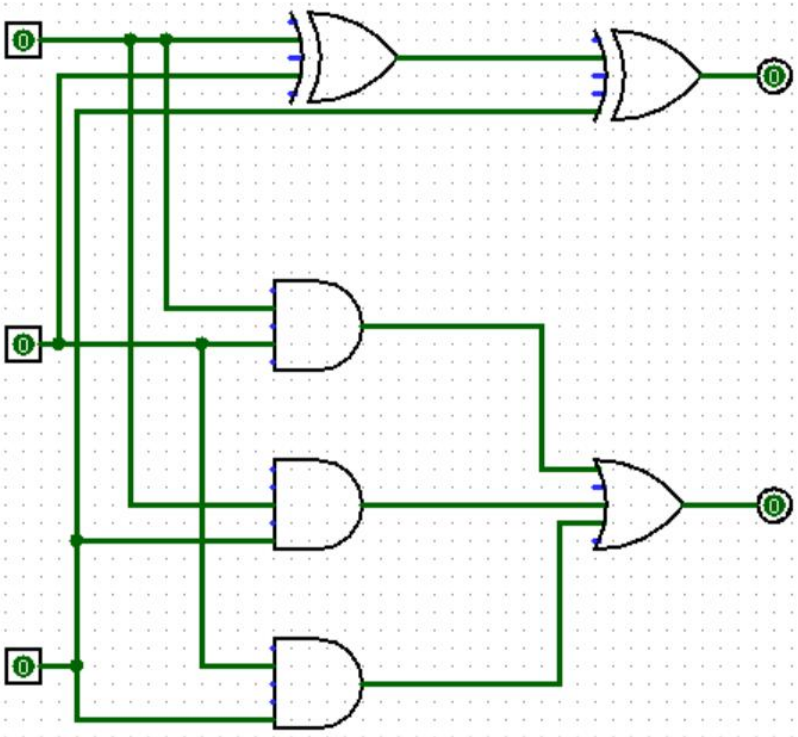
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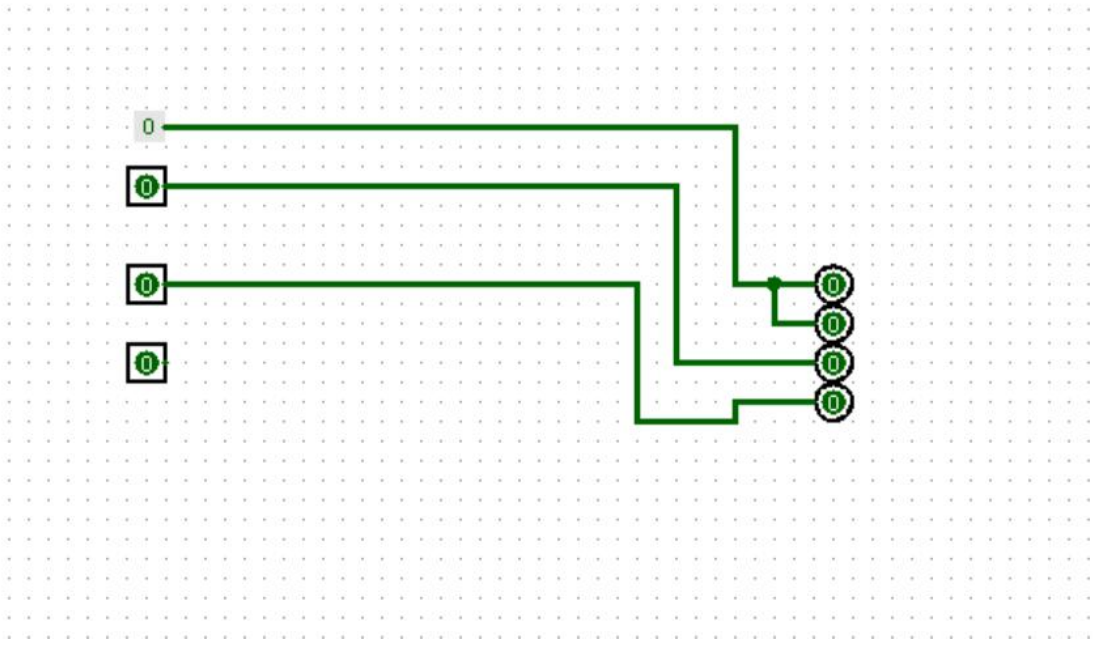
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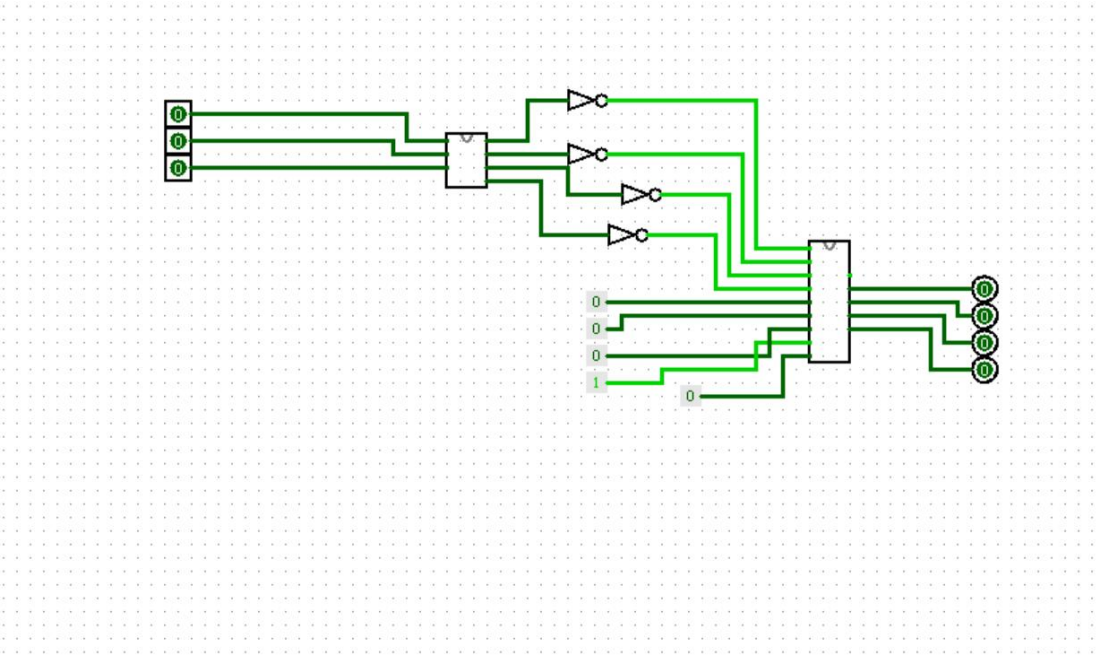
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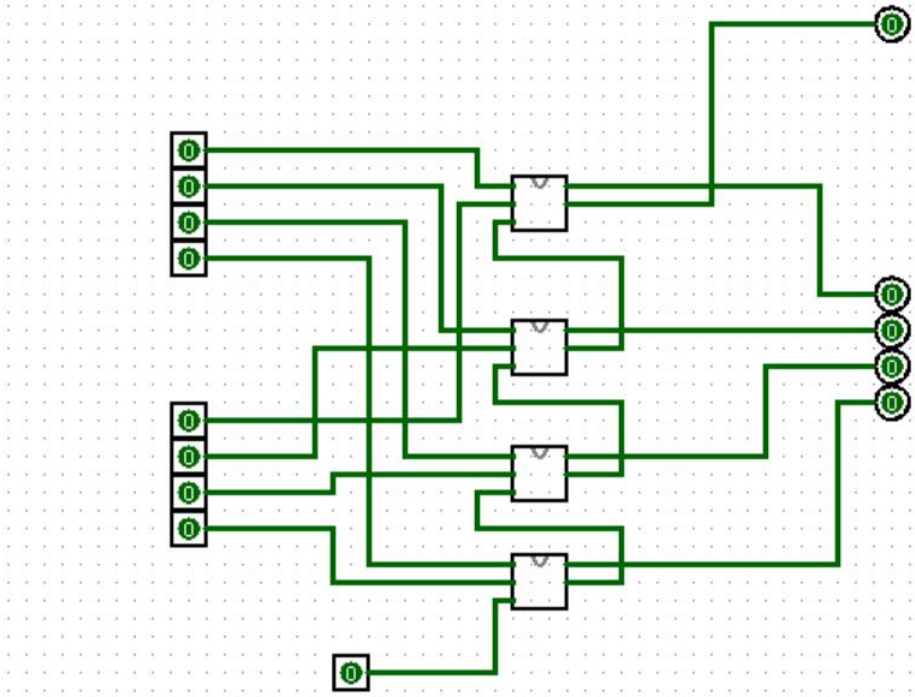

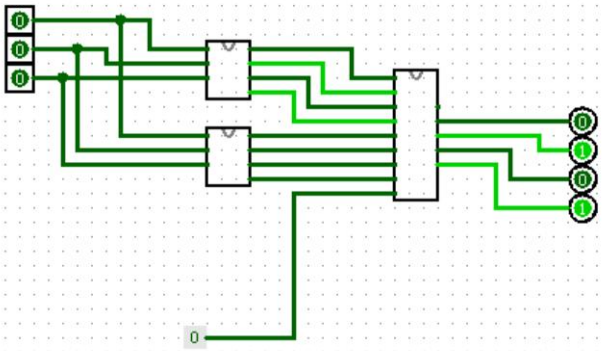

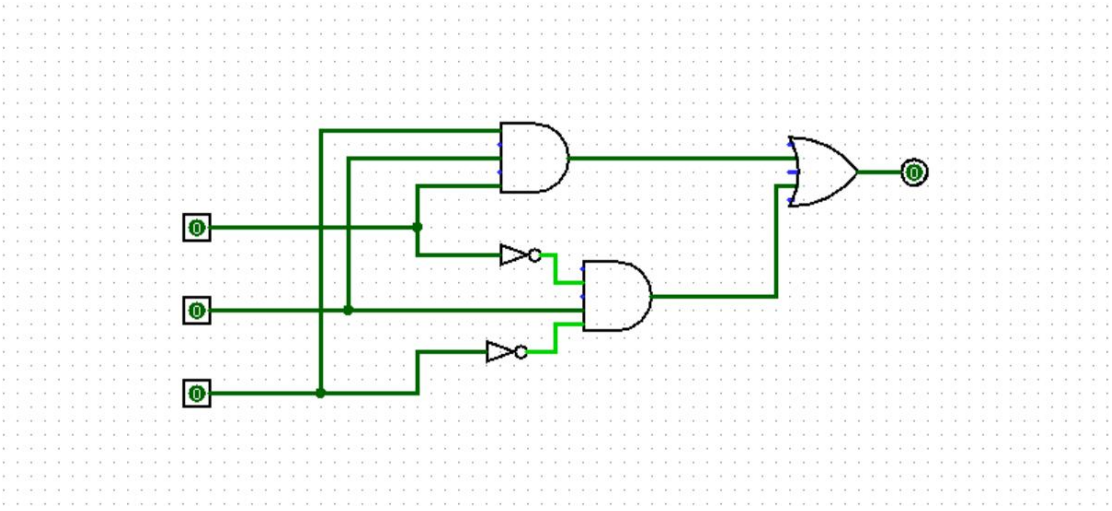
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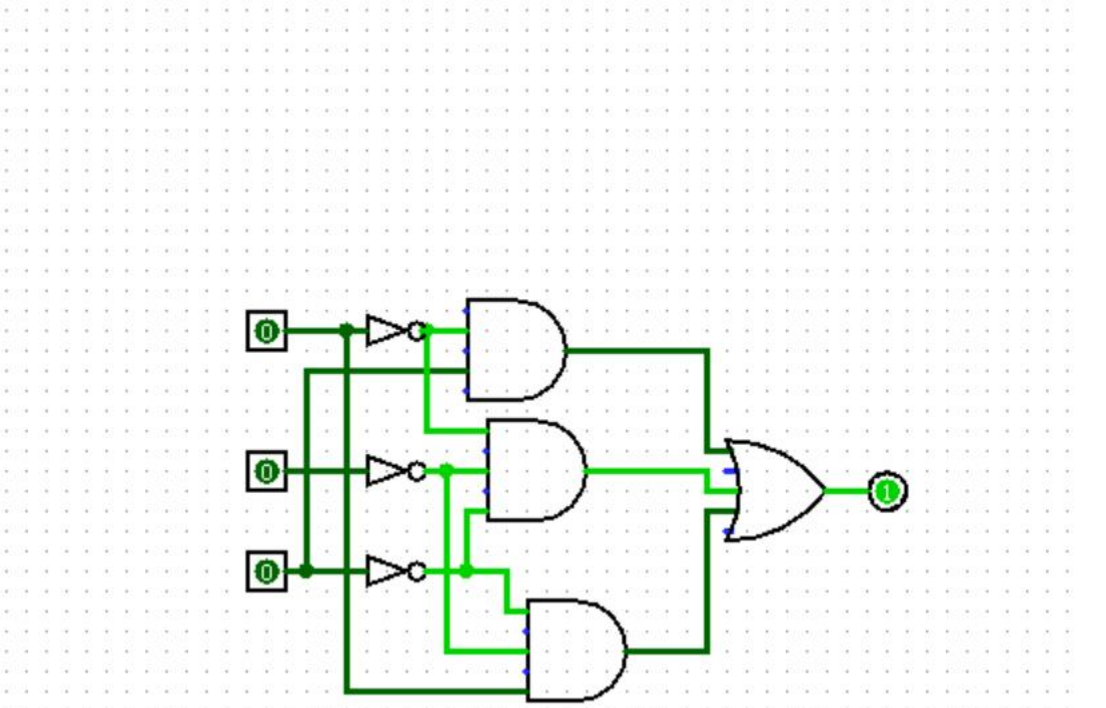
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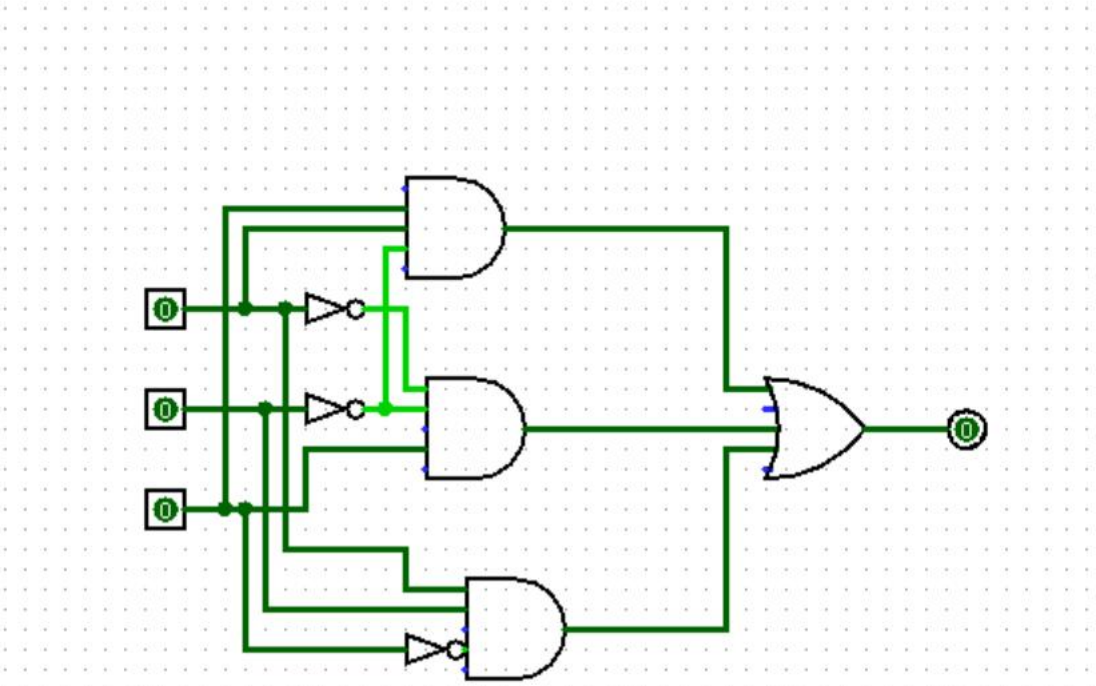
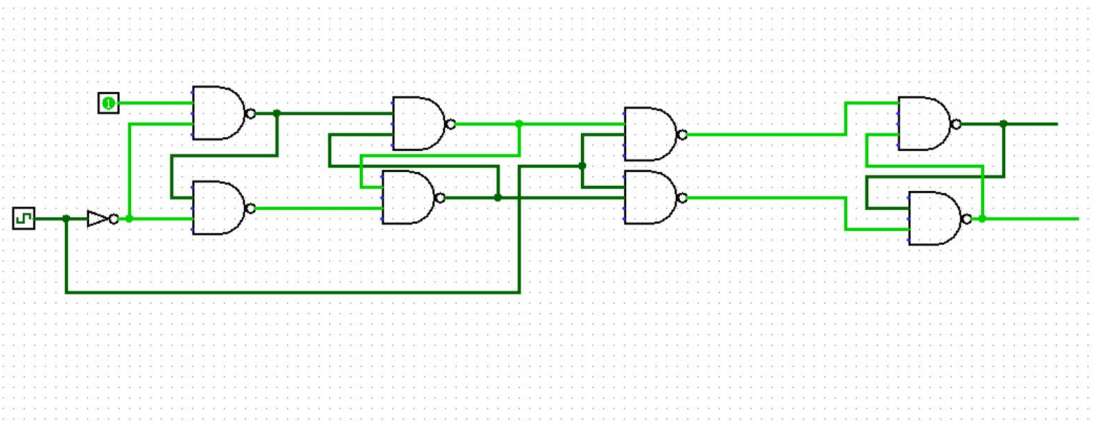
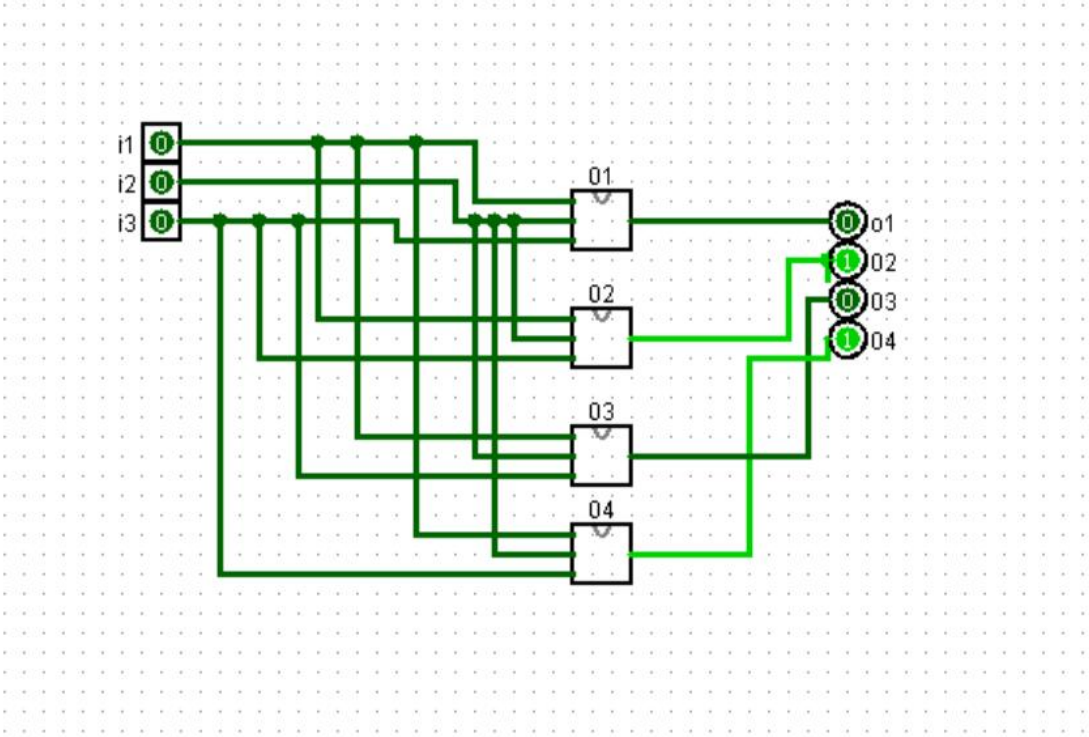




g(x) check-list

x		f(x) - x/2	result
000	→	5 - 0 = 5	0101
001	→	7 - 0 = 7	0111
010	→	8 - 1 = 7	0111
011	→	5 - 1 = 4	0100
100	→	4 - 2 = 2	0010
101	→	3 - 2 = 1	0001
110	→	2 - 3 = -1	1111
111	→	9 - 6 = 6	0110


i1
i2
i3
01
02
03
04
o1
02
03
04