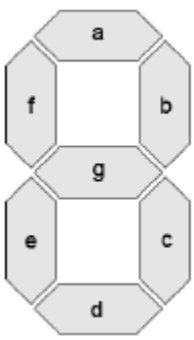
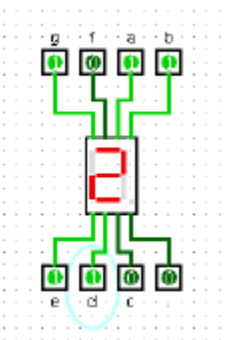
BIM203 LOGIC DESIGN
HOMEWORK 2

Design a circuit that performs F(N)=N+1 operation for 3-bit inputs (N) and display the result on a seven-segment display (shown below). The system should accept inputs between decimal 0 and 8. Then, implement your design in Logisim;

a) using only primitive gates
b) using only NAND gates and necessary inverters
c) using the multiplexer approach (refer to Combinational Functions slides – Multiplexer approach 1)



Number	g f e d c b a	Hexadecimal
0	0 1 1 1 1 1 1	3F
1	0 0 0 0 1 1 0	06
2	1 0 1 1 0 1 1	5B
3	1 0 0 1 1 1 1	4F
4	1 1 0 0 1 1 0	66
5	1 1 0 1 1 0 1	6D
6	1 1 1 1 1 0 1	7D
7	0 0 0 0 1 1 1	07
8	1 1 1 1 1 1 1	7F
9	1 1 0 1 1 1 1	6F



NOTES

- Archive the design files (truth table, optimization steps with K-maps, etc.) and Logisim files and submit via MERGEN
- Each group should make a single submission. The group members must be the same as the previous submissions.
- Indicate IDs and names of group members within the archive file.