

5. Using the block editor of Quartus Prime, draw a logic schematic to implement NAND-only logic circuit.

- Note: Quartus Prime does not have a five input NAND gate. In case you need to use five-input NAND, you can use a six-input NAND gate with input pins 5 and 6 connected to the same signal.

6. Print out the truth table on the next page and fill out the expected values in the output column F and the remaining output columns during your lab session.

Inputs				Outputs				
C <sub>1</sub>	C <sub>0</sub>	A	B	F	vhd	vhd DE1	bdf	bdf DE1
0	0	0	0	1	1		1	
0	0	0	1	0	0		0	
0	0	1	0	0	0		0	
0	0	1	1	0	0		0	
0	1	0	0	0	0		0	
0	1	0	1	0	0		0	
0	1	1	0	0	0		0	
0	1	1	1	1	1		1	
1	0	0	0	1	1		1	
1	0	0	1	0	0		0	
1	0	1	0	0	0		0	
1	0	1	1	1	1		1	
1	1	0	0	0	0		0	
1	1	0	1	1	1		1	
1	1	1	0	1	1		1	
1	1	1	1	0	0		0	

		C <sub>0</sub>			
		00	01	11	10
A B	00	1	0	0	1
	01	0	0	1	0
	11	0	1	0	1
	10	0	0	1	0

$$F = m_0 + m_7 + m_{13} + m_{14} + m_8 + m_{11}$$

$$= (\bar{C}_1 \bar{C}_0 \bar{A} \bar{B}) + (\bar{C}_1 C_0 A B) + (C_1 C_0 \bar{A} B) + (C_1 C_0 A \bar{B}) + (C_1 \bar{C}_0 \bar{A} B) + (C_1 \bar{C}_0 A \bar{B})$$

