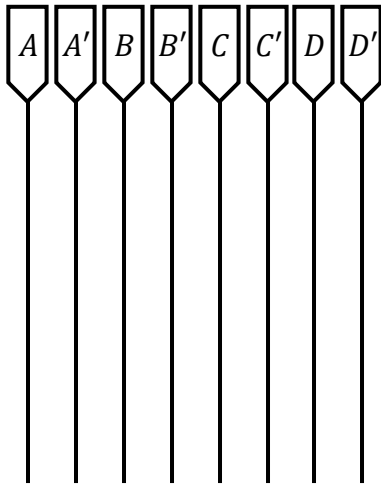


Draw a logic circuit that uses only NAND gates to implement a fully reduced sum of products expression for the following functions.

For this problem the output of the previous block of the system has each of A, A', B, B', C, C', D and D' available as inputs to your circuit on the wires that are shown.

a) $F(A, B, C, D) = \sum m(1, 3, 6, 8, 11, 14) + \sum d(5, 9, 10)$



b) $G(A, B, C, D) = AB'C'D' + ABCD + A'BCD' + ABCD'$ where the input combinations $(A = 0, B = 0, C = 0, D = 1)$, $(A = 0, B = 1, C = 1, D = 1)$, and $(A = 1, B = 1, C = 0, D = 0)$ can never occur.

