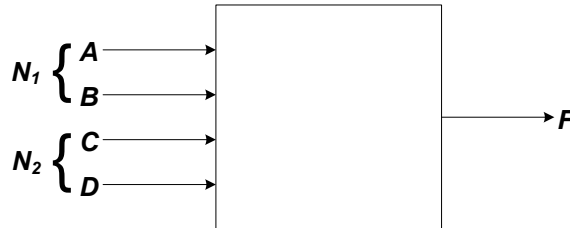
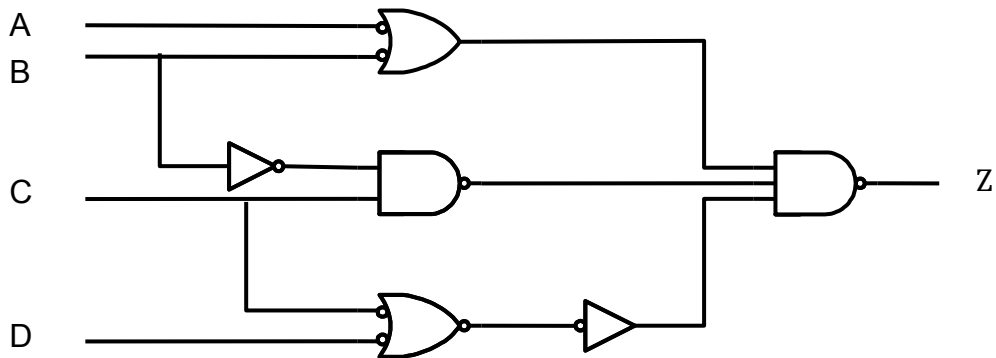


Assignment for Appendix C

1. A switching circuit has four inputs as shown. A and B represent the first(MSB) and second(LSB) bits of a binary number N_1 , respectively. C and D represent the first(MSB) and second(LSB) bits of a binary number N_2 , respectively. The output is to be 1 only if the product $N_1 \times N_2$ is less than or equal to 2.
 - (a) Write the truth table for the system.
 - (b) Write the canonical SOP and POS expressions for F .



2. Develop a Verilog module to describe the following circuit.



3. Show how you would realize the logic function $Z = \overline{A}\overline{B}C\overline{D}$ using only 2-input NAND gates. Draw a circuit diagram to show your implementation.