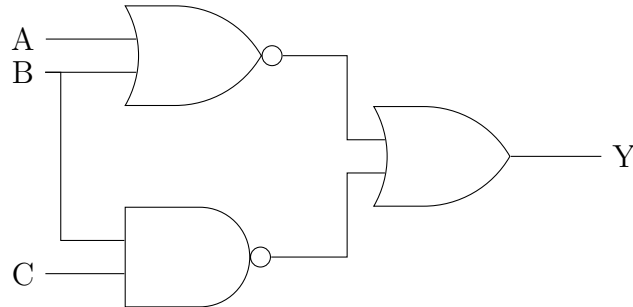


1. Example Paper 1-8.
2. (a) Write the truth table for this circuit:



- (b) Give a simplified expression for the above circuit
3. Give a boolean logic expression (you do not need to draw your circuit) in sum-of-products form where the minimal representation is made up of the following:
 - (a) Four essential prime implicants, each one with 4 inputs.
 - (b) One essential prime implicant with 2 inputs, and one essential prime implicant with 4 inputs.

Recall that an *essential prime implicant* is a prime implicant that covers a True (1) output of the function that no combination of other prime implicants is able to cover.

4. Show how to implement the boolean function F using only NAND gates:

$$F(A, B, C, D, X, Y) = (A \cdot B) + (C \cdot D) + (X \cdot Y)$$