

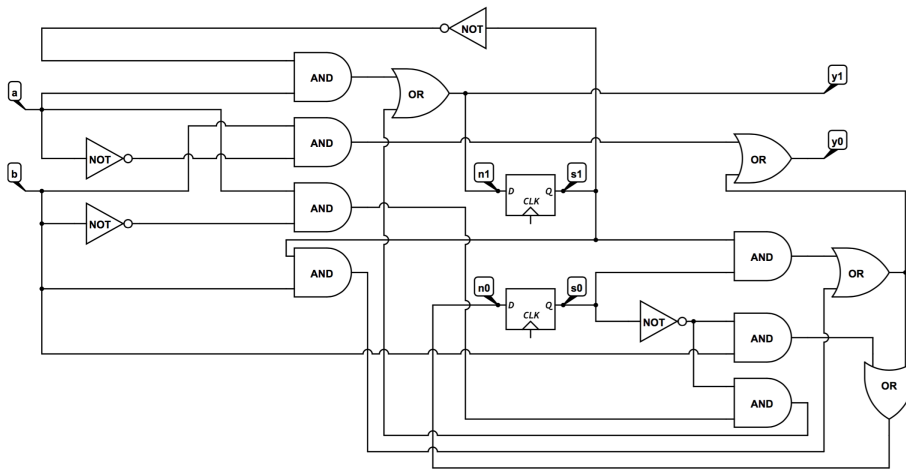
## Experiment 4 (Analysis of a Sequential Circuit)

### Aim

In this experiment, you will analyze a given sequential circuit.

### Problems

In the circuit below, the initial state is  $s_1 = 0, s_0 = 0$ .  $a$  and  $b$  are inputs.  $y_1$  and  $y_0$  are outputs. (Reset is Synchronous High).



### Preliminary Work

1. State the inputs and outputs of the state registers.
2. State the inputs and outputs of the combinational block of the sequential circuit.
3. Draw the truth table for the combinational circuit.
4. Draw the finite state machine by using the table obtained in previous step.
5. Is this a Moore or Mealy Machine? (No explanation, only short answer)
6. Write the testbench and the **behavioral level** verilog code for the corresponding finite state machine.

Then, submit your code, and report under the name <StudentID>\_PRE4.zip through Moodle.