Digital System Design

Module 4 - SEQUENTIAL LOGIC CIRCUITS

Dr. Deepthi Sasidharan

Assistant Professor, Department of Information Technology
GEC Barton Hill, Thiruvananthapuram

November 4, 2020

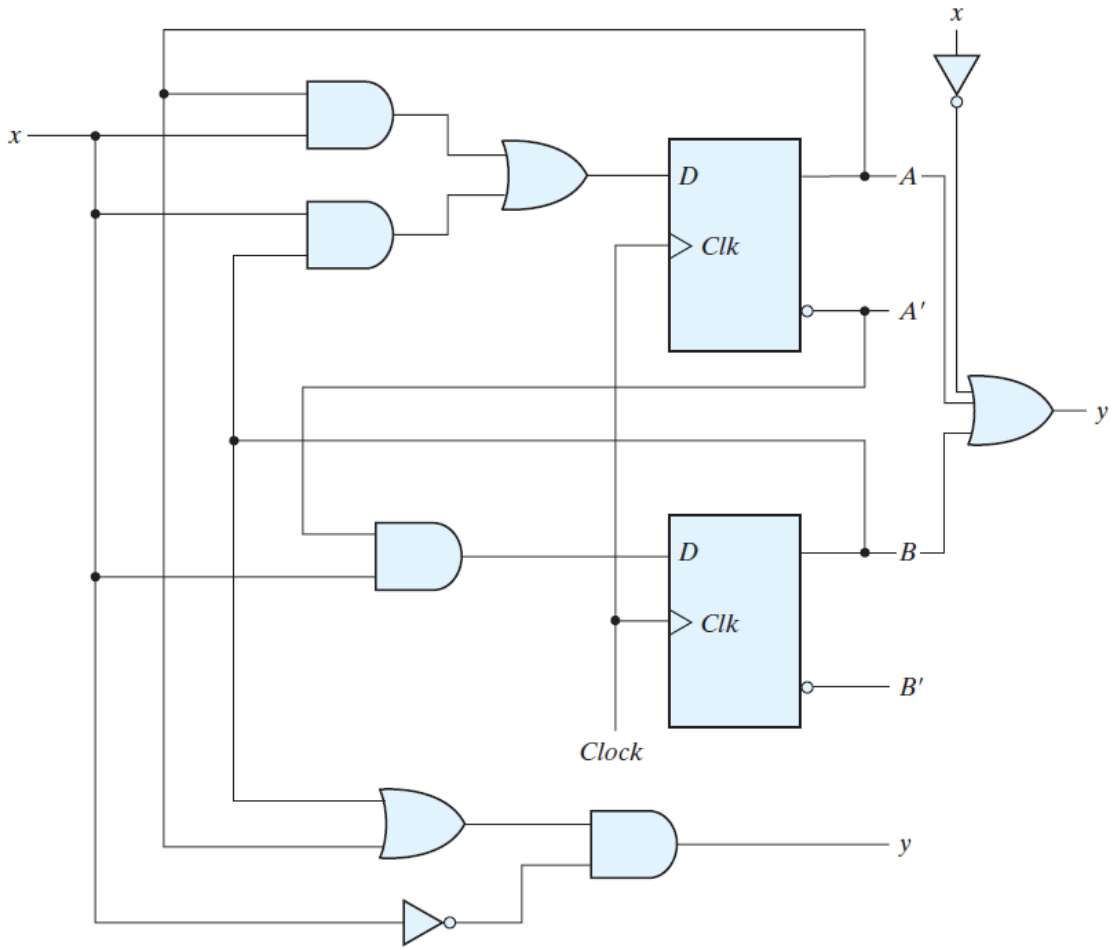
ANALYSIS OF CLOCKED SEQUENTIAL CIRCUITS

- The behavior of a clocked sequential circuit is determined from the inputs, the outputs, and the state of its flip-flops.
- The outputs and the next state are both a function of the inputs and the present state.
- The analysis of a sequential circuit consists of obtaining a table or a diagram for the time sequence of inputs, outputs, and internal states.
- It is also possible to write Boolean expressions that describe the behavior of the sequential circuit.

State Equations

A *state equation* (also called a *transition equation*) specifies the next state as a function of the present state and inputs.

Analyse the Circuit



State Table

Present State		Input	Next State		Output
A	*B*	*x*	*A*	*B*	*y*
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	0	1
0	1	1	1	1	0
1	0	0	0	0	1
1	0	1	1	0	0
1	1	0	0	0	1
1	1	1	1	0	0