

Name & Std. No.: _____ Lab Section: _____

Date: _____

PRELAB:

Complete the prelab and make sure you have your designs and circuit diagrams ready before the lab session. You may refer to your text book, Chapter 6.

Q1. Design a simple counting device (Section 2.0).

Number of States: _____

Number of State Variables: _____

State Table:

Present State	Next State		Output
	w=0	w=1	
A	A	B	0
B	B	C	1
C	C	D	2
D	D	E	3
E	E	F	4
F	F	A	5

State-Assigned Table:

Present State	Next State		Output
	w=0	w=1	
000	000	001	000

Canonical SOP Expressions for Next State Logic:

Simplified Next State Logic Expressions:

Circuit Diagram:

Q2. Design a simple counter (Section 3.0).

Number of States: _____

Number of State Variables: _____

State Table:

Present State	Next State		Output
	w=0	w=1	
A	A	B	0
B	B	C	2
C	C	D	4
D	D	A	5

State-Assigned Table:

Present State	Next State		Output
	w=0	w=1	

Canonical SOP Expressions for Next State Logic:

Simplified Logic Expressions:

Circuit Diagram:

Q3. Design an up/down counter (Section 4.0).

Number of States: _____

Number of State Variables: _____

State-Assigned Table:

Canonical SOP Expressions for Next State Logic and Output Logic:

Simplified Logic Expressions:

Circuit Diagram:

LAB:

2.0 A Simple Counting Device

How does the `clock_generator` module produce a signal with a period of about 2.68 seconds?

Hardware results demonstrate a functional design: _____

3.0 A Simple Counter

Hardware results demonstrate a functional design: _____