Cpr E 281 LAB11
ELECTRICAL AND COMPUTER ENGINEERING
IOWA STATE UNIVERSITY

Lab 11 Answer Sheet

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 and Output Logic Expressions:

Circuit Diagram:

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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	1
B	B	C	2
C	C	D	5
D	D	A	7

State-Assigned Table:

Present State	Next State		Output
	w=0	w=1	

Canonical SOP Expressions for Next State Logic:

Simplified Logic Expressions:

Circuit Diagram:

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LAB:

2.0 A Simple Counting Device

How does the **clock_generator** module produce a signal with a period of about 670 milliseconds?

Hardware results demonstrate a functional design: _____

3.0 A Simple Counter

Hardware results demonstrate a functional design: _____

4.0 Switch Debouncing

Hardware results demonstrate a functional design: _____