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 mak	e sure you	h	ave your d	esigns and	circuit diag	rams ready
before the	lab sessio	n. You ma	y refer to y	01	ur text book	k, Chapter (6.	
Q1. Design	n a simple	counting	device (Sec	tic	on 2.0).			
Number of	f States:							
Number of								
State Table	e:				State-Assi	gned Table	: :	
Present	Next	State	Outout		Present	Next State		Ot.ot
State	w=0	w=1	Output		State	w=0	w=1	Output
А	Α	В	0		000	000	001	000
В	В	С	1					
С	С	D	2					
D	D	E	3					
E	Е	F	4					
F	F	Α	5					
	·		Next State	Lo	ogic:			
Simplified Circuit Dia		e Logic Exp	ressions:					

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Q2. Desig	n a simple	counter (Section 3.0).				
Number o	_	riables:						
State Table: State-Assigned Table:								
Present State	Next State		Outrot		Present	Next State		Outrout
	w=0	w=1	Output		State	w=0	w=1	Output
А	Α	В	0					
В	В	С	2					
С	С	D	4					
D	D	А	5					
Canonical	SOP Expre	essions for	Next State	Logic:				
Simplified	Logic Exp	ressions:						
Circuit Dia	gram:							

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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:
Canonical 301 Expressions for Next State Logic and Output Logic.
Simplified Logic Expressions:
Circuit Diagram:



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2.0 A Simple Counting DeviceHow 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:	