Homework 13

Due at the beginning of your scheduled lab period

Last Name (Printed): _____ **Lab Div:** _____ **Date:** _____

E-mail: __ __ __ __ __ __ __ __ **@**purdue.edu **Signature:** _____

*Printed copies of these pages along with your original (**hand-annotated**, **not photocopied**) written solution in the space provided (unless otherwise indicated) are required in order to receive credit. NOTE: The purpose of homework is to provide an opportunity for practicing the kinds of problems you will be asked to solve on quizzes and exams – **copying the work of someone else does not accomplish this.***

1. [11 pts] Complete the system control table, below, and derive the system control equations needed to complete Step 5 of Experiment 13. Write out each equation using Verilog syntax.

Decoded State	Instruction Mnemonic	MWE	PCC	POA	IRL	IRA	AOE	ALE	ALX	ALY	IPE	OPE
S0	—											
S1	HLT											
S1	LDA											
S1	ADD											
S1	SUB											
S1	AND											
S1	STA											
S1	INA											
S1	OUA											

Equations for each system control equation (written as assignment statements in Verilog):

2. [14 pts] Referring to Step 5 of the `lab13_top_template.v` file provided for Experiment 13 on the course website, sketch a **block diagram** of the entire circuit below, showing the interconnections among the various modules as well as all the inputs and outputs.

Score: _____ / 25