Student Background Questionnaire and Diagnostic Quiz (Legible Please!)

Name: _____________________________________________________________

Student ID: _______________ Card Key # (for lab access): _____________________

Social Net Website: _____________________________________________________

Circle one:       Freshman          Sophomore       Junior       Senior       Graduate

Have you taken CS 61C?  Yes  No      When? Semester/Year: ___________________

Have you taken EE 40?    Yes  No       When? Semester/Year: ___________________

What is your most ambitious software project (not limited to course projects)?
_____________________________________________________________________
_____________________________________________________________________

What is your most ambitious hardware project (not limited to course projects)?
_____________________________________________________________________
_____________________________________________________________________

How would you describe your skills and interests (circle one per line)?

Mathematical/Analytical                      Engineering/Building Things

Hardware                                     Software

Electrical Engineering                      Computer Science

Components                                   Architecture

Systems                                      Applications

Technology                                   Business
The following are diagnostic questions to test your retention of basic knowledge from CS 61c. If they are mysterious, then you probably are not ready to take CS 150.

1. Logic Gates and Boolean Equations

The following implements a logic function $Z(X,Y)$. Write Boolean equations within the boxes below that correspond to the logic function at that point in the schematic. Write down the simplest possible form of the logic function here: $Z(X,Y) = \overline{X + Y}$.

$$\begin{align*}
\overline{X + Y} \\
(X + Y) \& (X + Y)
\end{align*}$$

2. Flip-flops and State Diagrams

Given the state machine implementation shown on the left below, complete the state diagram shown at the right.