University of California at Berkeley
College of Engineering
Department of Electrical Engineering and Computer Science

EECS 150   R. H. Katz
Fall 2005

Student Background Questionnaire and Diagnostic Quiz

Name: _____

Student ID: _____ Card Key # (for lab access): _____

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.
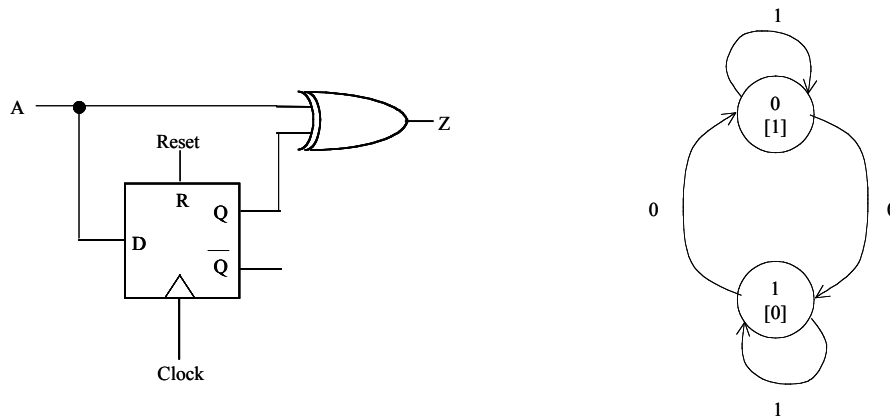
1. Logic Gates and Boolean Equations

The following implements a logic function Z(X, Y). Write a Boolean equation that corresponds exactly to the schematic and a second equivalent equation with the fewest possible Boolean operations and operands. You may use any kind of Boolean operation in your solution to the second part of this question. Write the schematic for this simplest form in the box at the right.

Exact equation for Z = _____

Simplest form of Z = _____
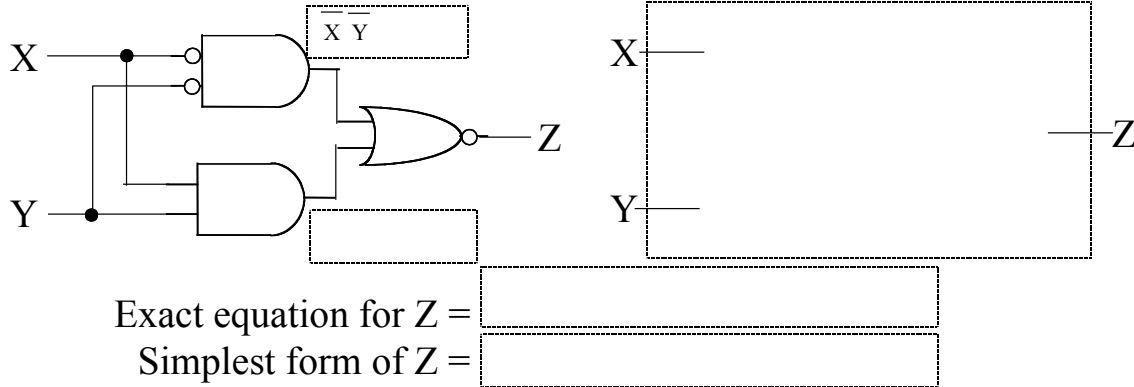
2. Flip-flops and State Diagrams

The state diagram on the right purportedly represents the sequential circuit at the left. It has many mistakes, sometimes repeated more than once. Give THREE unique things that are GENERICALLY wrong this diagram:

1. _____

2. _____

3. _____