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

EECS150, Spring 2011

Homework Assignment 1: Combinational Logic and MIPS Review
Due January 27, 2pm

Homework submissions will be electronic, details to follow. Please format your homework as plain text with PDF for any necessary figures.

1. Consider the wide range of computer systems in current production, from high-performance supercomputers to small embedded controllers (such as in your car engine). a) Sketch a curve showing what you think would be the performance of all these systems as a function of their cost. Using arbitrary units, put *performance* on the y-axis and *cost* on the x-axis. b) Now, similarly, show a curve that relates *power comsumption* on the x-axis, to *performance* on the y-axis.

   Complete the following problems from "Digital Design and Computer Architecture." Solutions to the *odd-numbered problems* are available online at the publisher's website named on the back-cover of the book. *Turn in only the even-numbered problems for grading.*

2. DDCA problem 1.2

3. DDCA problem 1.4

4. DDCA problem 1.49

5. DDCA problem 1.50

6. DDCA problem 1.51

7. DDCA problem 1.52

8. DDCA problem 1.53

9. DDCA problem 1.54

10. DDCA problem 1.55

11. DDCA problem 1.58

12. DDCA problem 1.59

13. DDCA problem 6.2

14. DDCA problem 6.8

15. DDCA problem 6.9

16. DDCA problem 6.10