National Chiao Tung University
Dept. of Computer & Information Science
Intro. to Digital Systems, Spring 1998

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Handout #6
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Homework #2 (due April 1st in-class)

Problems 1–14 are from M. M. Mano and C. R. Kime, *Logic and Computer Design Fundamentals*, Prentice-Hall, Inc., 1997.

1. Problem 2–10 (a), (b), (c), (d), and (e) (pages 93–94).
2. Problem 2-11 (a) and (c) (page 94).
3. Problem 2–12 (c) (page 94). **Refer to Pages 86–87 of the lecture notes. What are the total number of transistors required and the longest path delay (including the delays of inverters)?**
4. Problem 2–14 (c) (page 94).
5. Problem 2–15 (b) and (c) (page 94).
6. Problem 2–18 (c) (page 94).
7. Problem 2–20 (a) and (b) (page 94).
8. Problem 2–23 (b) and (c) (page 94).
9. Problem 2–24 (a) (page 94).
10. Problem 2–27 (b) (page 94).
11. Problem 2–30 (a) and (b) (page 94).
12. Problem 2–35 (a) (page 94). **Refer to Pages 86–87 of the lecture notes. What are the total number of transistors required and the longest path delay (including the delays of inverters)?**
13. Problem 2–40 (a) and (b) (page 94). **Refer to Pages 86–87 of the lecture notes. What are the total number of transistors required and the longest path delay (including the delays of inverters)?**
14. Problem 2–42 (page 94).
15. Is the set {Exclusive-OR, OR} functionally complete? (You may assume that 0 and 1 are available as gate inputs.) Justify your answers.
16. (DIY Problem 2) For this problem, you are asked to design a problem set related to Chapter 2 of the text and give a sample solution to your problem set. Grading on this problem will be based upon the *quality* of the designed problem as well as the *correctness* of your sample solution.