

University of Illinois at Urbana-Champaign
Department of Electrical and Computer Engineering

ECE 362/CS 362/MATH 391 : LOGIC DESIGN

Spring 2002

Problem Set 6

Hazards, Hazard-Free Design, Faults and Testing

Issued: Thursday, February 28th.

Due: Thursday, March 7th.

Reading from McCluskey: Chapter 3, Section 3.6, and Chapter 6, Sections 6.10–6.13.

Problem 6.1

Problem 3.9 from McCluskey.

Problem 6.2

Problem 6.21 from McCluskey.

Problem 6.3

Problem 6.22 from McCluskey. (Hint: Use the path sensitization method.)

Problem 6.4

Problem 6.24 from McCluskey (use the Boolean differences method).

Problem 6.5

Obtain a minimal two-stage hazard-free network for the function

$$f(v, w, x, y, z) = \sum(2, 6, 14, 17, 18, 25, 26, 29, 30, 31) .$$

(This function was considered in Problem 4.6; you do not need to re-derive the prime implicants.)