EGE534 HW #4 *Dr. Izadi*

Name: _____

Problem 1 (20 Points)

a. Mark all single stuck faults on Figure 1, taking one fault from each equivalence class.
b. Use the Boolean difference to determine all possible tests for the fault "primary input A stuck-at-0" in Figure 1.

Problem 2 (20 Points)

a. Use the D-algorithm to obtain a test pattern T that detects the fault "line α stack-at-1" in the logic circuit of Figure 1.
b. Identify at least three other stuck at faults that are detected by the same test T.

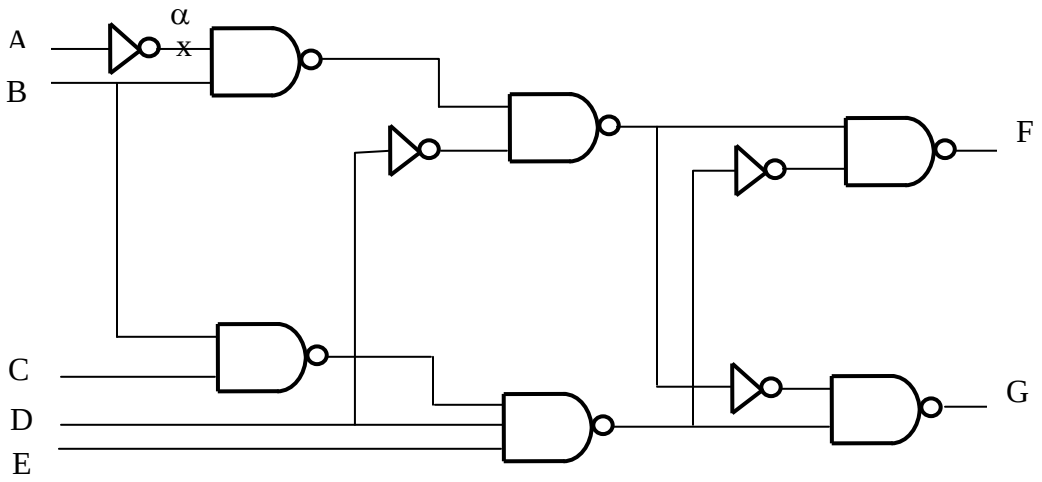


Figure 1

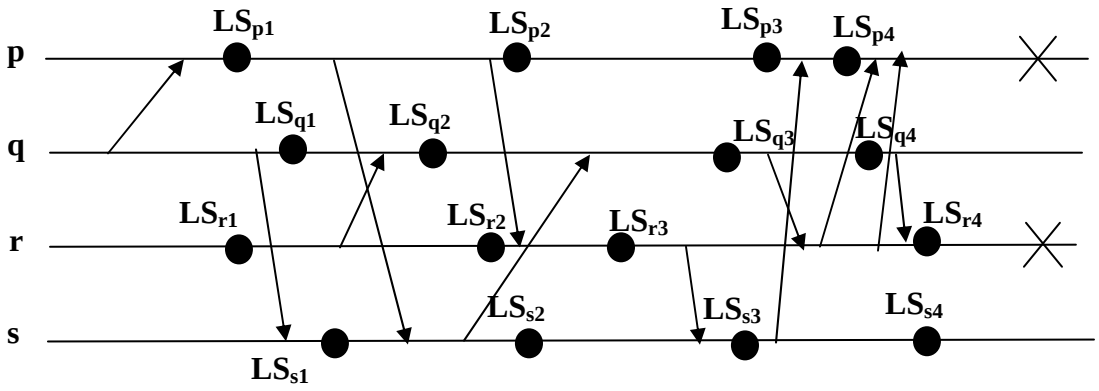
Problem 4 (20 Points)

Consider the following figure in which 4 processes (p, q, r, and s) execute concurrently and exchange information by message passing. Consider the following global states

I. $GS_1 = \{LS_{p1}, LS_{q1}, LS_{r1}, LS_{s1}\}$
II. $GS_2 = \{LS_{p2}, LS_{q2}, LS_{r2}, LS_{s2}\}$
III. $GS_3 = \{LS_{p3}, LS_{q3}, LS_{r3}, LS_{s3}\}$
IV. $GS_4 = \{LS_{p4}, LS_{q4}, LS_{r4}, LS_{s4}\}$

Discuss whether each of the indicated global state is a consistent or inconsistent global state.

c. Construct a dependency graph and determine the recovery line for the indicated faults.



Problem 5 (10 Points)
Read the following papers and write a summary (maximum length: one page double spaced) for each paper.

- G. Candea, A.B. Brown, A. Fox, D. Patterson, "Recovery-Oriented Computing: Building Multitier Dependability," IEEE Computer, Vol. 37, No. 11, p p. 60-67, November 2004. (PDF)
- J.O. Kephart, D.M. Chess, "The Vision of Autonomic Computing," IEEE Computer, Vol. 36, No. 1, pp. 41 - 50, January 2003. (PDF)

Due: Monday June 23, 2008