Cpr E 281 HW08

ELECTRICAL AND COMPUTER ENGINEERING
IOWA STATE UNIVERSITY

Sequential Circuits
Assigned Date: Eleventh Week
Due Date: Nov. 11, 2013

P1. (20 points) Problem 4.14 in the textbook. Consider joint optimization.

P2. (15 points) Explain the behavior of the circuit in Figure 5.12a with respect to the following input signal combinations. Assume gate delays to be zero. Draw waveforms for Clock, D, Preset, and Clear where the signal values varies as shown below (assume each time step lasts for a fixed value of time). Show the outputs (you may like to draw some intermediate signals).

Time	CLOCK	D	Preset	Clear
0	0	0	0	0
1	0	0	1	0
2	0	0	0	0
3	0	0	0	1
4	0	0	0	0
5	1	0	0	0
6	1	0	1	0
7	1	0	0	0
8	1	0	0	1
9	1	0	0	0
10	0	0	0	0
11	1	0	0	0
12	0	0	0	0
13	0	1	0	0
14	1	1	0	0
15	0	1	0	0

P3. (10 points) Repeat P2 when input D is inverted for all times steps.

P4. (15 points) Repeat P2 for the circuit in Figure 5.13a.

P5. (10 points) Repeat P3 for the circuit in Figure 5.13a.

P6. (10 points) Problem 5.4 in the textbook.

P7. (10 points) Problem 5.6 in the textbook.

P8. (10 points) Problem 5.7 in the textbook.