Homework 13; 30.00/50.00 (60.00%)

January 3, 2020

Problem 1 (score: 0/10)

NOT ok

Problem 2 (score: 10/10)

(a) OK

(b) OK

(c) OK

Problem 3 (score: 0/10)[1]

(a) NOT ok. When $Q_1, Q_2 = 01, X = 0$,

$$J_1 = \text{NAND}(\text{NAND}(X, Q_2'), \text{NAND}(X', Q_2)) = \text{NAND}(\text{NAND}(0,0), \text{NAND}(1,1)) = \text{NAND}(1,0) = 1,$$
$$K_1 = X'Q_2 = 1,$$
$$J_2 = K_2 = \text{NOR}(X', Q_1) = 0,$$
$$Q_1^+ = J_1 Q_1' + K_1' Q_1 = 1,$$
$$Q_2^+ = J_2 Q_2' + K_2' Q_2 = 1,$$

Hence, when $X = 1$, we should have $s_1 \to s_3$ transition, thus contradicting your state table.

(b) NOT ok

(c) NOT ok

Problem 4 (score: 10/10)

OK

Problem 5 (score: 10/10)

waveform diagram is OK

[1] similar problems: 13.10,13.11