

COMPUTER ENGINEERING DEPARTMENT

COE-202 – Fundamentals of Computer Engineering (section 02)

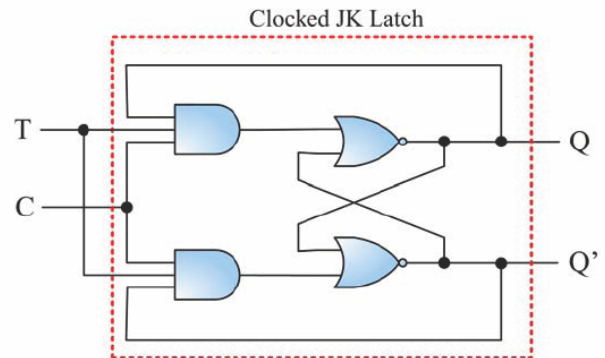
POP QUIZ

Student Name:

Student Number:

Q1. (20 points) Consider the T-Latch shown in figure.

- a) Write the functional table.
- b) Write the characteristic table for the latch.
- c) Derive the characteristic equation for the latch.
- d) Write the excitation table for the latch.



Solution:

Refer to Lesson 4_1 page 13 and 14 of the corresponding pdf file.

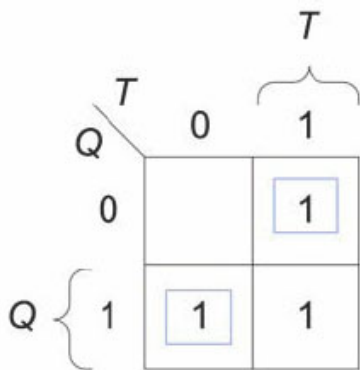
a) The functional table:

C	T	Next State of Q
0	X	No Change
1	0	No Change
1	1	Q'

b) The characteristic table:

Q(t)	T	Q(t+1)
0	0	0
0	1	1
1	0	1
1	1	0

c) The characteristic equations:



$$Q(t+1) = TQ' + T'Q$$

d) The excitation table:

Q(t)	Q(t+1)	T
0	0	0
0	1	1
1	0	1
1	1	0