

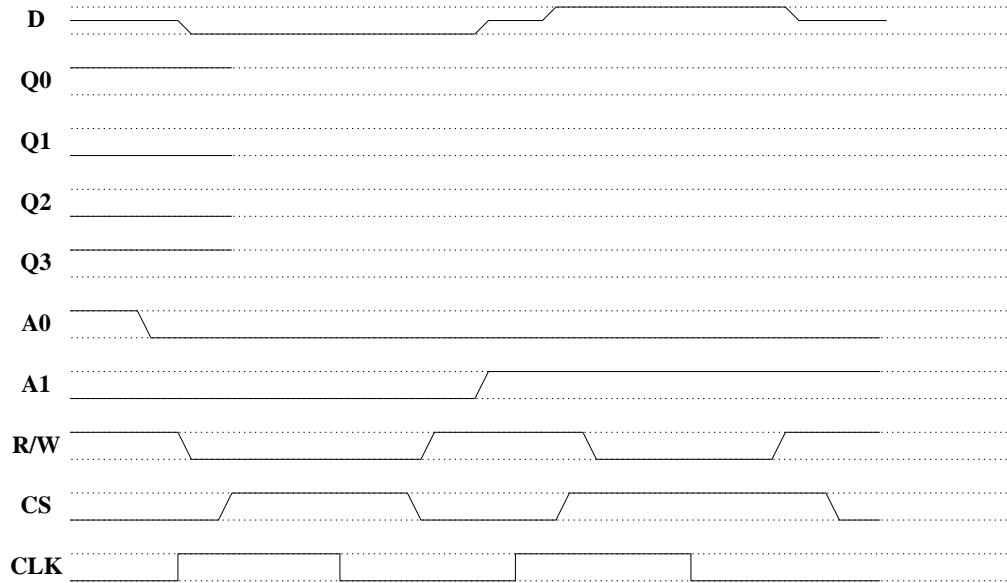
Embedded Real-Time Systems (AME 3623)

Homework 4 Solutions

February 28, 2006

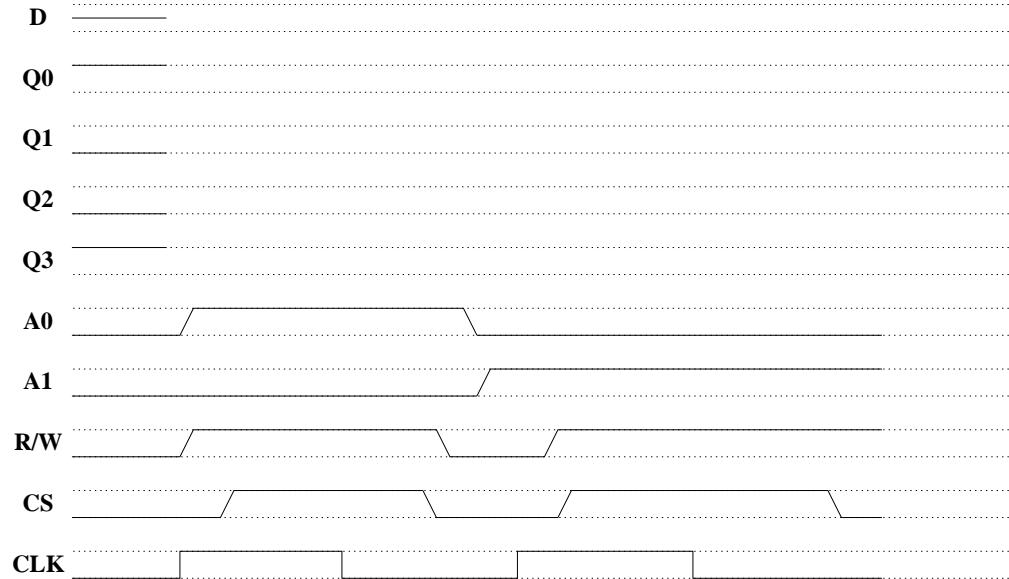
Question 1

(10pts) Consider the four-element memory “chip” that we discussed in class. Given the following timing diagram, fill in the missing traces (Q_0 , Q_1 , Q_2 , and Q_3).



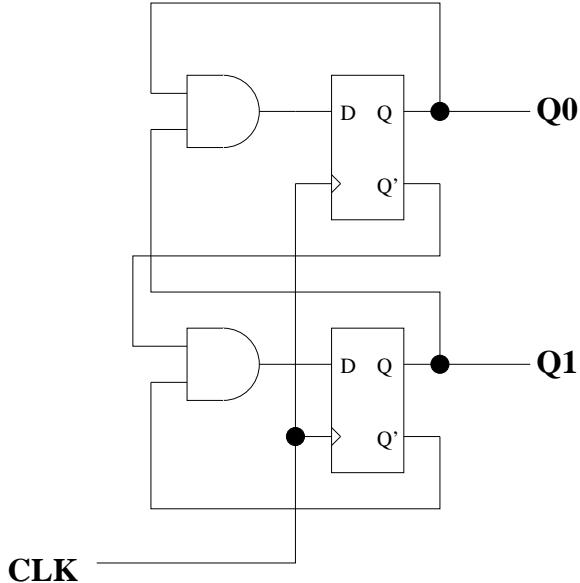
Question 2

(10pts) Consider the same four-element memory chip. Given the following timing diagram, fill in the missing traces (D , $Q0$, $Q1$, $Q2$, and $Q3$).



Question 3

Consider the following circuit:



1. (5pts) List all possible states that this circuit can be in (the possible combinations of Q_1 and Q_0).
2. (10pts) Assume an initial state of $Q_1 = 1$ and $Q_0 = 1$. List the sequence of states given six clock cycles (6 high-low transitions).

Question 4

(10pts) Is the “chip select” signal for a memory chip an input or an output (with respect to the chip)? Explain in brief its function.

Question 5

How much time did you spend on this assignment?