

CSCIU 210 – Computer Organization

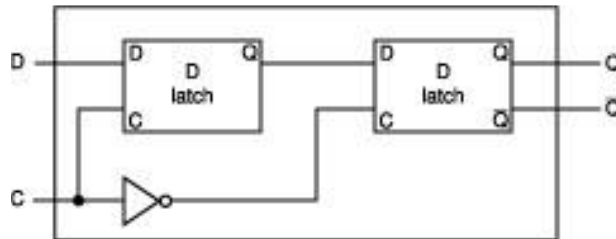
Homework-5, Weight: 30 points

Due on Wednesday, October 31, 2018 at the beginning of the lecture (Hard Copy)

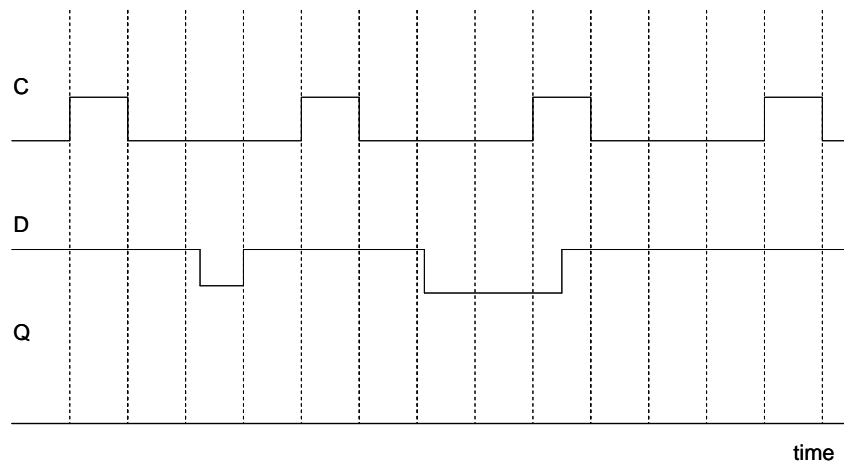
Note: You need to include your calculation details to receive full credit!

Q1. [10 points] Draw a NAND SR latch and write out its truth table.

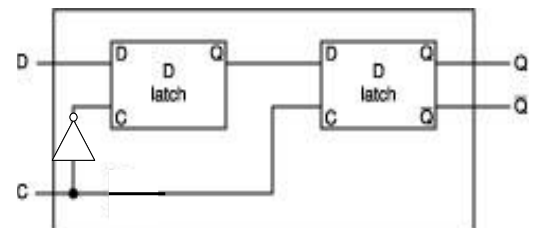
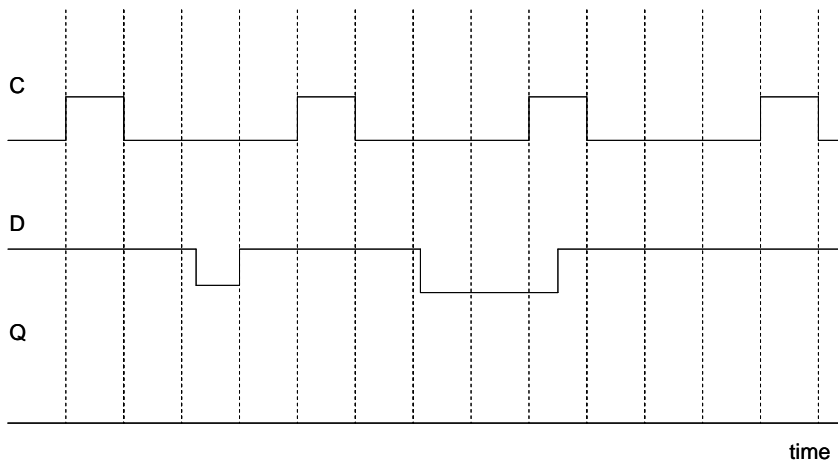
Q2. [5 points] A D flip-flop output diagram is illustrated below



Assuming that (i) the initial value of Q is 0 and (ii) setup and hold time of D-type flip flop is zero, then, based on the clock and input waveform below, plot its output (Q) waveform.



Q3. [5 points] Repeat the previous problem (Q3) with a new D-type flip flop diagram illustrated below.



Q4. [10 points] Based on the processor covered in the lecture notes, answer the following questions

- (a) Translate the assembly code “add r4, r5, r0” to the machine code used in the processor covered in the lecture.
- (b) Translate the machine code [0111100111100110] back to assembly code used in the processor covered in the lecture.