UNIVERSITY OF NEVADA LAS VEGAS. DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING LABORATORIES.

Class:	CPE100L - 1002	Semester:	Spring 2020

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		Document topic:	Postlab 10

Instructor's comments:

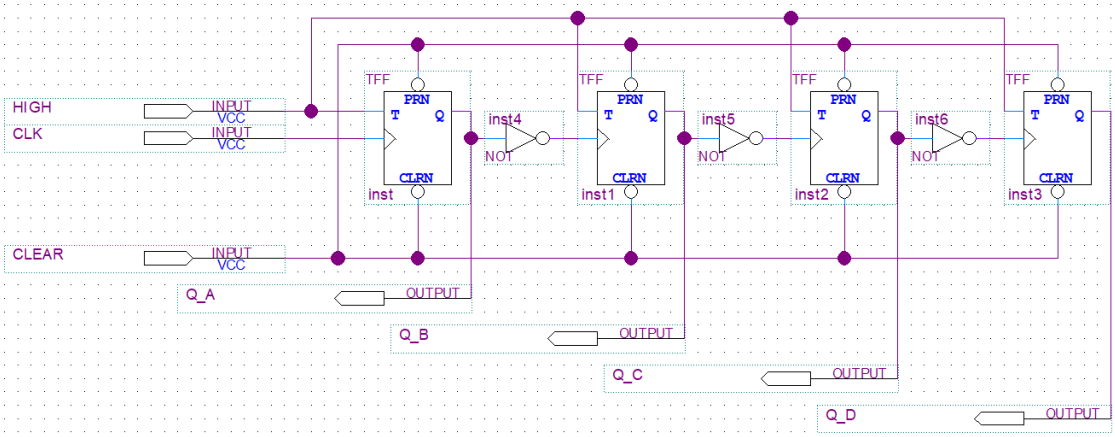
1. Introduction / Theory of Operation

Lab 10 is about sequential circuit design, where we design a simple counter circuit and implement the circuit. In this lab, we will design a 4-bit sequential counter with preset and reset input.

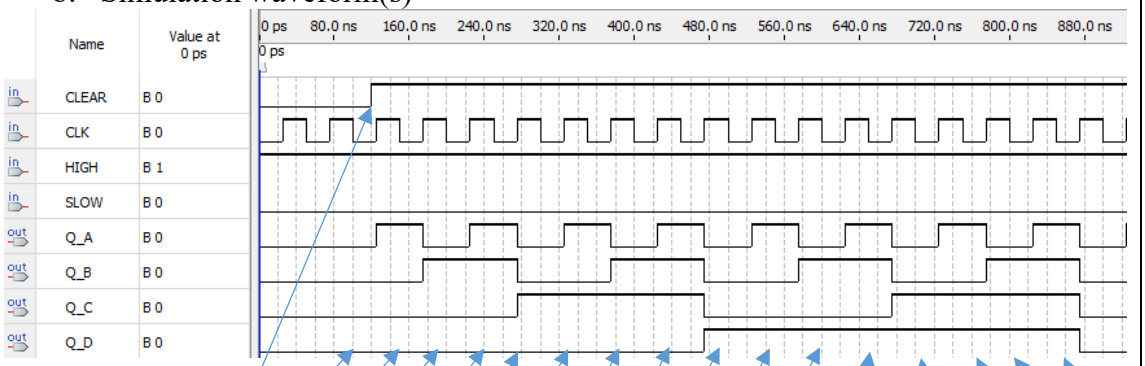
2. Prelab Report

My prelab report will be attached with the submission.

3. Results of the Experiments

Exp.	Experiment Results
1	a. Schematic 

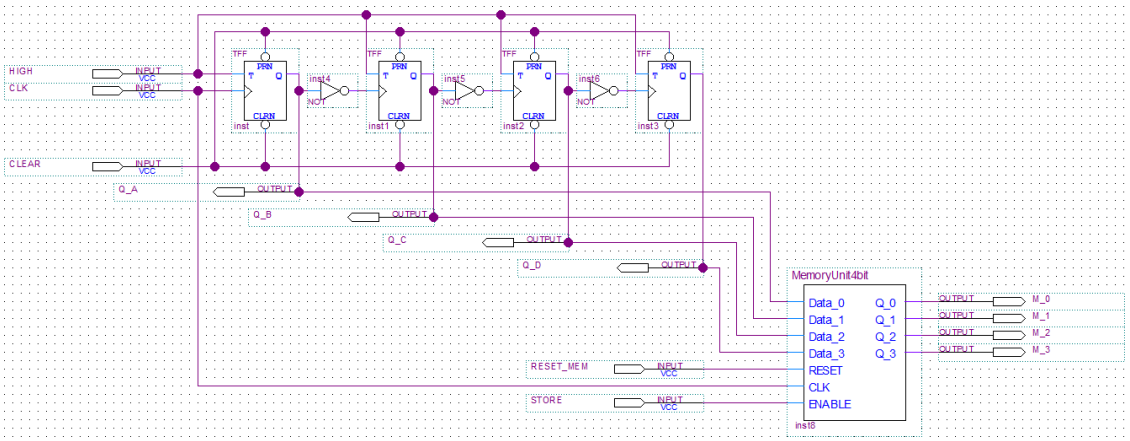
b. Simulation waveform(s)



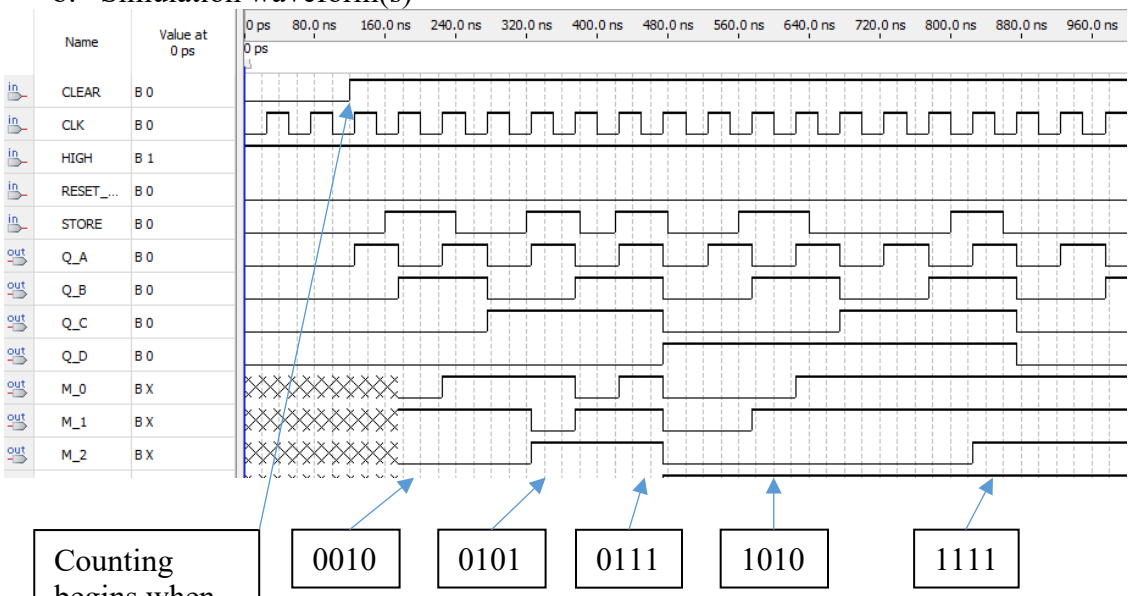
Counting begins when CLEAR input goes to 1 on the rising edge of clock.

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

2 a. Schematic

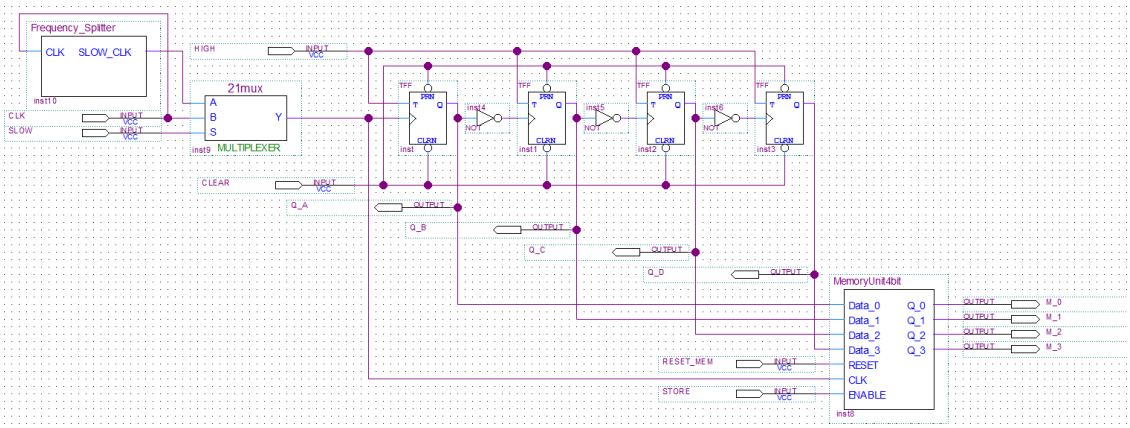


b. Simulation waveform(s)

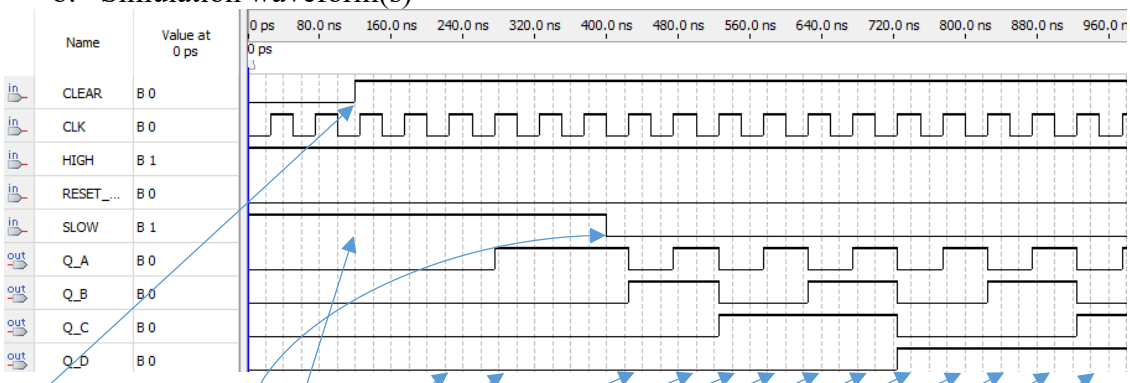


Counting begins when CLEAR input goes to 1 on the rising edge of clock.

3 a. Schematic



b. Simulation waveform(s)



Counting begins when CLEAR input goes to 1 on the rising edge of clock.

0	1	2	3	4	5	6	7	8	9	10	11	12

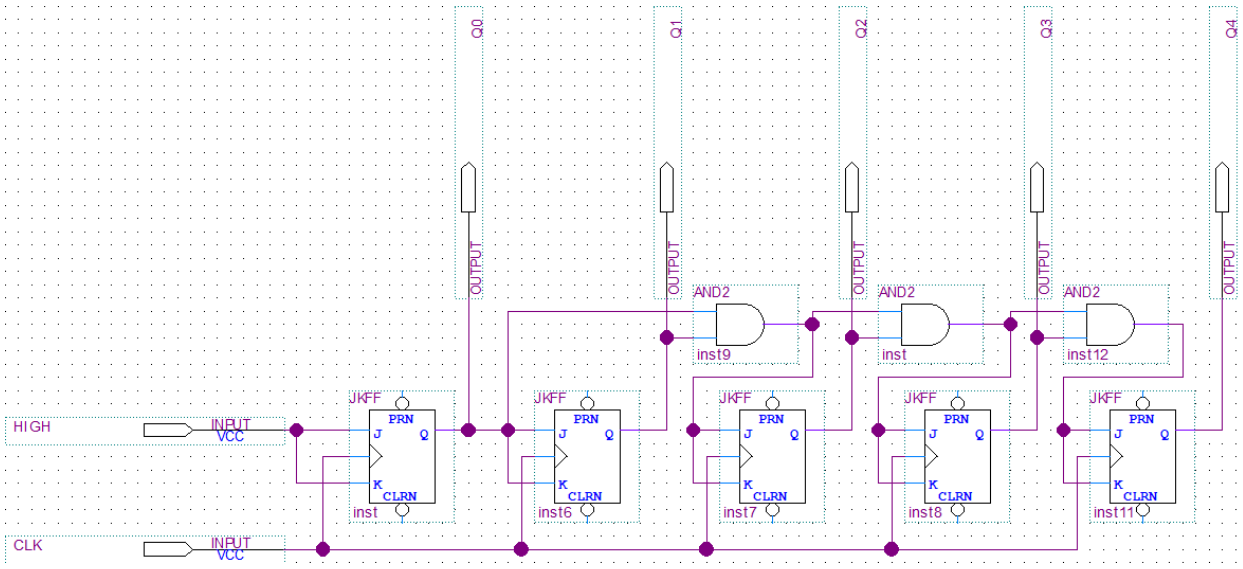
Slow=1:
counter increases every 4 active states of clock signal

Slow=0:
circuit works same way

4. Answer the questions

1. 3 examples of counters in home electronics are ovens, washing machines, and microwaves. These home electronics use time measurement or calculates the time in timers.

2.



3. 3 examples of counters that count other than 1, 2, 3… are up/down counters, decade counter, and modulus counter.

5. Conclusions

This lab was fairly straightforward and much simpler than the other labs. Thanks to Smit's helpful description, I was able to successfully complete experiment 3 with a thorough understanding. The problem I had was how to make a frequency splitter, but Smit's explanation definitely helped me out. I learned that a frequency splitter can change the output for every 4 or other number of active states of clock signals. My knowledge of memory bits are strengthened for each time that I use the memory bit unit to store numbers.