Homework Week 4

Please remember:
- Always include your name and
- Always include the homework and week #: Example: Homework 3

This homework is due September 25th, either in my email or within the first 10 minutes of class. This is homework for the entire week, including material we have not yet covered; don't worry, we will cover it before the end of the week.

The Assignment

1. Multiplexor
   a) Draw the circuit diagram for 1 3-control, 8-data multiplexer.
   b) Write the function outputs (truth table) for the multiplexer.

2. For each of the following circuits, write the function.
   a) ![Circuit Diagram](image1)
   b) ![Circuit Diagram](image2)
   c) ![Circuit Diagram](image3)

3. What is the difference between a combination circuit and sequential circuit? Discuss 2-3 differences.

4. Explain the difference between Mealy machine and Moore machine.

5. Explain how a master-slave circuit prevents race conditions.

6. Draw a master-slave circuit using J-K type flip-flops. Draw the actual gates, not just the block diagram. Label all inputs and outputs.

7. Memory
   a) Explain the primary difference between a SRAM and DRAM.
   b) Why would SRAM be preferable?
   c) Why would DRAM be preferable?

8. Explain why the address bus limits the size of addressable memory.