Assignment 5

1. Which of the following are valid? (5 points)
   a. If node 3 is deselected, then unselect all nodes in the circuit.
   b. If node 3 is deselected, then unselect nodes 1 and 5.
   c. If node 3 is deselected, then unselect all nodes in the circuit.
   d. If node 3 is deselected, then unselect nodes 1 and 5.
   e. All of the above.

2. Which of the criteria listed below are true if the circuit is not simplified? (5 points)
   a. Path validity
   b. Node validity
   c. Component validity
   d. All of the above
   e. None of the above

3. Which of the criteria listed below are true if the circuit is not simplified? (5 points)
   a. Path validity
   b. Node validity
   c. Component validity
   d. All of the above
   e. None of the above

4. What is the critical path length of circuit A, where would you add delays with influence on this diagram? (5 points)

5. How many microcontroller pins are needed to interface with a matrix and monitor individual button configuration? (5 points)

6. Which of the following is a valid approach to use for monitoring buttons with microcontrollers? (5 points)
   a. The number of buttons must be known in advance
   b. The number of buttons can be determined during runtime
   c. The number of buttons is not important
   d. All of the above
   e. None of the above

7. If the circuit shown below has a microprocessor configured with a microcontroller, PM+V, PM-, PM+ and PM- pins are used, is it? (5 points)

8. If the circuit shown below, what will be the logic value of VCC when used with a 5V power supply? (5 points)

9. What is the correct schematic for the given input? (5 points)

10. Draw the logic diagram for the 4-bit full adder. (10 points)