

디지털 공학 (MEC520)

Final Examination

Spring, 2005

1. Design a 4-input priority encoder with input D0 (the Lowest Significant Bit) having the highest priority and input D3 (the Highest Significant Bit) having the lowest priority. Assume that x , y are outputs, and y is the Lowest Significant Bit (20pt)
2. Design the negative edge triggered synchronous 3-bit binary counter using T flip-flops. (20pt)
3. Design a negative edge triggered synchronous sequential circuit with two D flip-flops A and B, and one input x . when $x=0$, the state of the circuit remains the same. When $x=1$, the circuit goes through the state transitions from 00 to 01 to 11 to 10 back to 00, and repeated. (20pt)
4. Obtain the input Boolean functions for a synchronous BCD counter with J-K flip-flops. (20pt)
5. Obtain the input Boolean functions for a synchronous counter with the following repeated binary sequence: 0, 1, 2, 4, 6. Use D flip-flops. And obtain the next number when it start at 3, 5 or 7 (20pt)

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이름 _____