Notes on EE 2310 Test #2

Conditions:
1. You may bring a 1-page formula/data sheet to the test (8.5” by 11”). Write on both sides, put on as much as you want, but only one sheet.
2. No calculators (as usual).
3. Bring your student ID; it will be checked either at the door or in your seat.
4. Have your formula/data sheet ready to be examined – it will be initialed by the TA.
5. Sit where you want, but do not move after sitting.
6. Any other materials, back-packs, etc., brought into the room must be stored at the front or back of the room.
7. Go to the restroom BEFORE the test!

Items Covered on the Test (Logic = 70%, Programming = 30%):

Logic
1. Master-slave flip-flops (T, D, J-K).
2. Clocks and timing diagrams. Make SURE you can construct a timing diagram!
3. Synchronous (parallel) counters.
4. Shift registers.
5. Diagnosing and describing the operation of a complex sequential circuit, which might be made up of both combinational and sequential circuits.
6. Combinational logic concepts (necessary with many sequential circuits).
7. Designing a simple sequential logic circuit which might contain both sequential and combinational elements.
8. “Don’t care’s” – very useful in counters!

Programming
1. Simple arithmetic and logical reg.-reg. instructions (add, sub, and, or, xor, etc).
2. Shift and rotate instructions.
3. Memory access instructions (lw, sw, lb, sb).
4. Simple jump instructions (j, jal, jr).
5. Branch instructions (bne,bgtz, etc.). No “set” (such as slt) or shift instructions.
6. Hexadecimal and binary arithmetic as needed to interpret assembly instructions.
7. Syscalls.
8. Instruction bit formats (fields) – bonus question only.
9. Note: YOU WILL HAVE TO WRITE TWO SIMPLE PROGRAMS!