CS 3310 Test 2 – Chapters 4 and 1 Rosen’s 7th edition fall 2021 NAME\_\_\_\_\_\_\_\_\_\_\_\_\_

Closed book, notes, computer, calculator, and neighbor. 50 minutes. Remember to turn in your homework!

1. Add in hex 63F16 + B5316
2. What sequence of pseudorandom numbers is generated using the linear congruential generator xn+1 = (3xn+2) mod 5 with seed x0 = 3? List the numbers until they start repeating.
3. Convert 63F16 from base 16 to base 10
4. Convert 15010 from base 10 to base 2
5. Find the GCD of 192 and 80 using Euclidean Algorithm
6. Find the inverse of 11 mod 32 using Extended Euclidean Algorithm. Show your work.
7. Construct a truth table for the compound proposition p ® (!q V r)
8. Convert these math statements into good English. C(x) is “x is a comedian” and F(x) is “x is funny” and the domain consists of all people.
   1. x(C(x) → F(x))
   2. x(C(x) Ù F(x))
9. Let L(x,y) be the statement “x loves y” where the domain for both x and y consists of all people. Use quantifiers to express each of these statements.
   1. Everybody loves Jerry
   2. Everybody loves somebody
   3. There is somebody whom everybody loves
10. Use a direct proof to show that the sum of two even integers is even. (Remember to start with the definition of Even for both integers.)