

## CS 475/575 – Final Exam

April 29, 2005

***Bring a hardcopy to the final, 12:30, May 4, 2005***

The work you turn in must be your own work. Do not discuss the exam with other class member. Good luck!

If you get stuck on a question or don't understand what is expected, feel free to ask the instructor for clarification.

1. (10 pts) For the data example of the size of group arrivals at the restaurant in slide set 10 (Random Variates-1), plot the PDF, the CDF, and the inverse CDF.
2. (20 pts) Develop a C++ function that can be used to reproduce the restaurant data mentioned above. Include evidence that your code works (that is, write a driver that repeatedly calls your function, and generates values that you can plot with Arena to graph the distribution your code generates).
3. (20 pts) Two techniques for generating Normal(0,1) random variates were presented in class. Which is the better generator? Justify your answer with concrete data. Hint: use Arena to analyze the output of your code. Also compare the execution efficiencies of the two generators.
4. (5 pts) If we use  $f(z) = 6z \bmod 17$  as a pseudo-random number generator, what is the period if our initial seed value is 5?