Name:

SA421 – Simulation Modeling
Assoc. Prof. Nelson Uhan

Fall 2017

Assignment 5 – Quiz – 1 November 2017

Instructions. You have 25 minutes to complete this quiz. You may use your notes and a calculator/computer. No collaboration allowed. Show all your work.

Problem	Weight	Score
1	1	
2	1	
3	1	
Total		

Problem 1. Use the linear congruential method with modulus 10, increment 7, multiplier 3, and seed 2 to generate three samples from a Uniform$[0,1]$ distribution.

Problem 2. Using the inverse transform method and the samples you generated in Problem 1, generate three samples from an exponential distribution with mean $1/2$. Recall that the cdf of this distribution is

$$F_X(a) = \begin{cases} 0 & \text{if } a < 0, \\ 1 - e^{-2a} & \text{if } a \geq 0. \end{cases}$$

Problem 3. Suppose you have two JaamSim files, `A.cfg` and `B.cfg`, that contain simulation models of the box office at the Maryland Renaissance Festival. `A.cfg` simulates how the system currently operates exactly once, and `B.cfg` simulates an alternate version of the system exactly once. In both versions of the system, the service times at the box office follow the same gamma distribution. Both files have a GammaDistribution object to model these service times. How can you make sure that the simulated service times are identical in both simulations?