Fall 2011 **Mahmut Parlar**

McMaster University—DeGroote School of Business

Bus O711: Operations Analysis Under Uncertainty

Assignment #4 (Simulation)

`Due Date: Class immediately following the completion of Simulation`

`Check <http://www.business.mcmaster.ca/courses/o711/> for exact date`

Late assignments will not be accepted!

Question	1	2	3	4	5	TOTAL
Mark	20	20	20	20	20	100

1. Pr. 20-1-3 (a,b,c,d,e), p. 983 (Kitchen appliances: Demand simulation)

2. Pr. 20-1-4 (a,b), p. 983 (William Graham Entertainment: Queue simulation)

3. Pr. 20-4-11, p. 987 (Richard's Tire Service: Inverse transformation)

4. Pr. 20-6-2 (a), p. 988 (Aberdeen Development Corporation: NPV)

5. A newsvendor sells newspapers and tries to maximize profits. The number of papers sold each day is a random variable. However, analysis of the past month's data shows the distribution of daily demand in Table below. A paper costs the vendor 20¢. The vendor sells the paper for 30¢. Any unsold papers are returned to the publisher for a credit of 10¢. Any unsatisfied demand is estimated to cost 10¢ in goodwill and lost profit. If the policy is to order a quantity equal to the preceding day's demand, determine the average daily profit of the newsvendor by simulating this system. Assume that the demand for day 0 is equal to 32. Run the simulation for 1000 days.

Demand per day	Probability
30	.05
31	.15
32	.22
33	.38
34	.14
35	.06