Jobs arrive at a single-CPU computer facility with interarrival times that are IID exponential random variables with mean 1 minute. Each job specifies upon its arrival the maximum amount of processing time it requires, and the maximum times for successive jobs are IID exponential random variables with mean 1.1 minutes. However, if m is the specified maximum processing time for a particular job, the actual processing time is distributed uniformly between $0.55m$ and $1.05m$. The CPU will never process a job for more than its specified maximum; a job whose required processing time exceeds its specified maximum leaves the facility without completing service. You are asked to develop a simulation program to study the computer facility until 1000 jobs have left the CPU assuming that jobs in the queue are processed in a FIFO manner. The system is studied to compute the average and maximum delay in queue of jobs, the proportion of jobs that are delayed in queue more than 5 minutes.

a)	What are the state variable(s) and output variable(s) for the simulation model?	5
b)	Identify the set of events for the simulation model. Assume that the simulation terminates by a terminating event.	4
c)	Write down the state equation(s) and output equation(s) for the simulation model.	8
d)	Write down the state space for the simulation model.	4
e)	Draw separate flow charts of the event routines (i.e., the event handler functions) for each of the events of the simulation model.	9