# Written Assignment 3

1. A facility has *m* machines, each subject to randomly occurring breakdowns. Each machine runs for a certain (random) amount of time and then fails. Failed machines are repaired by one of *r* repair people. If a repair person is available, repair begins immediately upon failure. If a repair person is not available, failed machines are processed in a first-come first-served manner when a repair person becomes available.

Formulate an Event Graph model for this situation. Be sure to define all your variables.

*Hint*: The ArrivalProcess is not a good model for the successive machine failures! Also, before time advances beyond 0.0 there need to be *m* events on the event list representing the respective machine failures at their times of first failure. Be sure that your model schedules those events at the beginning.

1. This is the multiple server queue situation with the following modification. Customers arrive in batches of a random size. That is, instead of arriving one at a time, an “arrival” could mean that 1, 2, or more arrive at exactly the same time.

Formulate an Event Graph model for this situation. Note that a parameter for this model will be a sequence of integers representing the number of customers arriving at each batch.