

**OA 3302 Summer 2004 Assignment 2**

**Due: 22 July 2004**

1. A facility has  $k$  parallel and identical servers that process customers that arrive according to an arrival process. An arriving customer who finds a server available starts service immediately. However, there is no waiting room at the facility. An customer who arrives and finds all servers are busy is lost. It is desired to determine the approximate proportion of customers who are lost in this way. Formulate an Event Graph model for this situation.
2. Two workcenters in a production facility operate in tandem. Each part must be processed by workcenter 1 and then by workcenter 2 in succession. Each workcenter has a number of identical machines operating as a multiple server queue. The number of machines at each workcenter is not necessarily the same. Parts arrive to the system according to an arrival process. It takes an amount of time (possibly random) for a part to move from the first to the second workcenter. Formulate an Event Graph model of this facility.

For each of your models, be sure to define your parameters and state variables and give a clear drawing of your Event Graph.