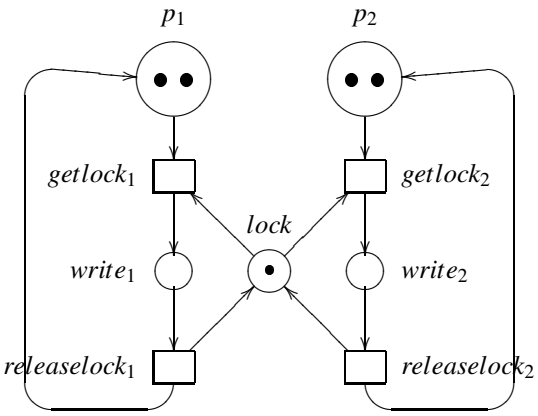
T-79.231 **Autumn 2002**
Parallel and Distributed Digital Systems
Tutorial 8
Nov 11th 2002

1. Let us consider the stochastic Petri net given below:



The firing rates of the transitions: $\Lambda(getlock_1) = 5$, $\Lambda(getlock_2) = 10$, $\Lambda(releaselock_1) = 20$ and $\Lambda(releaselock_2) = 5$.

Construct and solve the steady state equation. Compute the average of tokens in the places p_1 and p_2. How does a change in the firing rate of the transition $releaselock_1$ affect the above averages?

N.B.: Actually, this is a timed Petri net. If it were the case that the firing rates were exponentially distributed, we would be talking about stochastic Petri nets here. However, in order to solve the problem, we would have to construct and solve a system of differential equations which is admittedly quite a bit tougher than with timed Petri nets. For the purposes of this course, we hope that the student gains sufficient insight from this simple exercise.