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Final Exam ISE 560

**Problem 1**

**(a)**

The state space S={0,1,2}.

**(b)**Let . X: # of calls in the system

Shape

Description automatically generated

**(c)**

R =

**(d)**

|  |  |  |
| --- | --- | --- |
| Arrival rate and Service rate | Values of | System of Equations |
|  |  |  |

Using MATLAB to compute the steady state probabilities for state 0,1,and 2:

Code:

Graphical user interface, text, application, email

Description automatically generated

**(e)**

Utilization of the 2 technicians is 0.57.That means, we are using 57% of the system capacity.

**(f)**

The probability that both technicians are idle is P0=0.226.

**(g)**

The probability that a caller receives a busy signal is the same as the probability of both technicians busy = .

**(h)**

P(4) =

Text

Description automatically generated

Then the probability that both technicians are busy at 12:00 pm the same day is 0.3665

Code attached after exercise (i).

**(i)**

The long run expected number of calls in the system is L = 1.14 calls.