CTMC Performance Indices

To have this assignment evaluated for the in-class exam, please upload on WeBeep a ZIP file including:

- the source code used to solve this assignment
- this file, with the table below properly filled

Name (Family + given)	Servidio Elisa
Student ID (codice persona)	10544789
QR-code ID (8 digits of the QR that was given you)	27207143

CTMC drawing:

1 - Idle
2 - CPU computation
3 - GPU computation
4 - I/O

Infinitesimal generator matrix:

```
Q = [-l1,          l1,      0,      0;
      m1,    -m1-l2-l3,     l2,     l3;
      0,           m2,    -m2,      0;
      0,           m3,      0,    -m3];
Q =     -0.1000      0.1000         0         0
         0.0200     -0.1700    0.0500    0.1000
              0      0.5000   -0.5000         0
              0      0.2000         0   -0.2000
```

State reward vectors, and transition reward matrices:

```
a1 = [0,1,1,1];

a2 = [0.1,2,10,0.5];

eps1 = [ 0,      0,      0,      0;
         1,      0,      0,      0;
         0,      0,      0,      0;
         0,      0,      0,      0];

eps2 = [ 0,      0,      0,      0;
         0,      0,      0,      0;
         0,      1,      0,      0;
         0,      0,      0,      0];

eps3 = [ 0,      0,      0,      0;
         0,      0,      0,      0;
         0,      0,      0,      0;
         0,      1,      0,      0];
```
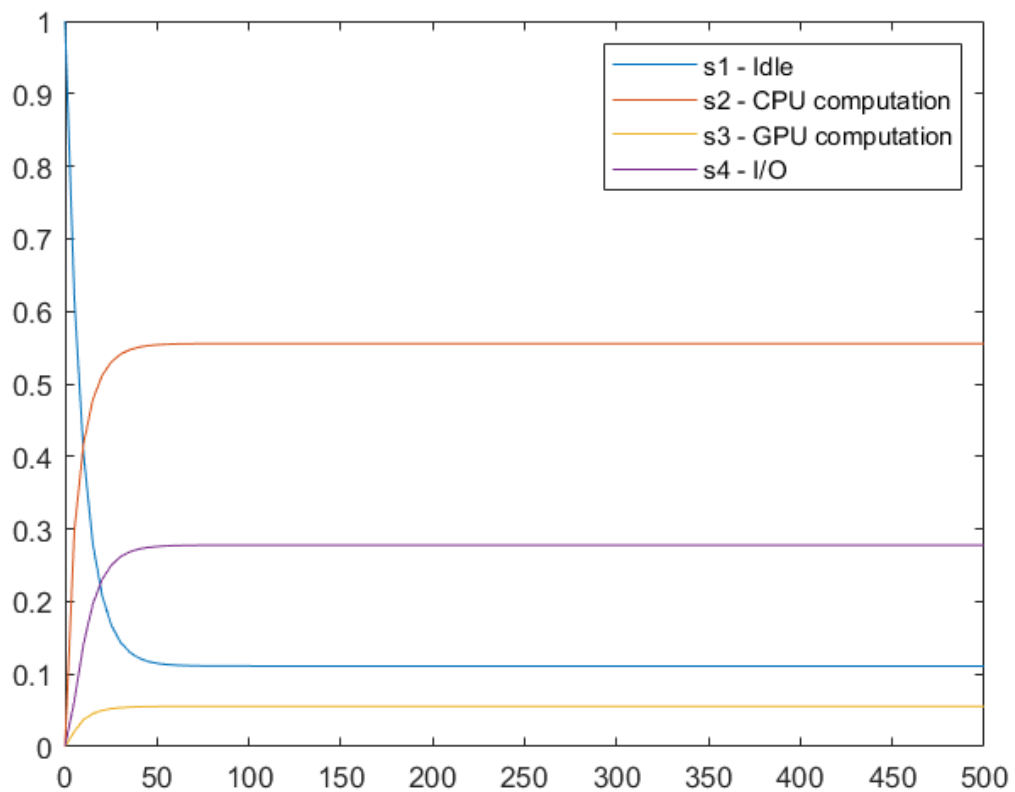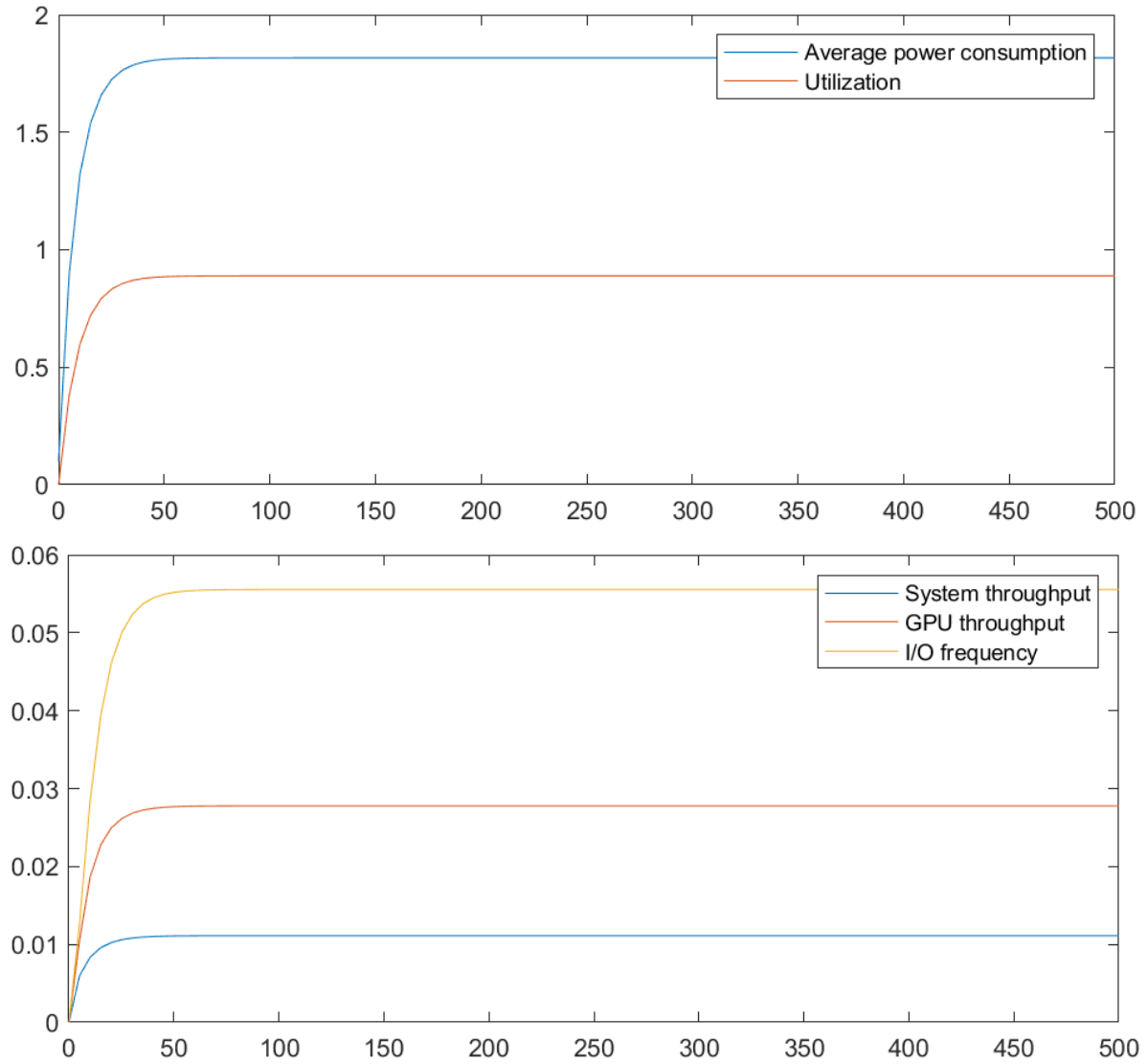
Figure with the evolution of the state probabilities as function of time.

Figure with the evolution of the rewards as function of time

Steady state probabilities, and limit rewards.
p1 = 0.1111
p2 = 0.5556
p3 = 0.0556
p4 = 0.2778

average power = 1.8167   Average power consumption
U = 0.8889   Utilization [time the system is not idle]
X = 0.0111   System throughput [when it returns to the idle state]
X3 = 0.0278   GPU throughput
X4 = 0.0556   I/O frequency