CS493-02 Cluster Computing
Test 1
2 pm - 2:50 pm, Monday September 29th, 2003

Name: ....

Part I is closed book. Do not refer to any materials for this part. Part II is open book. You may refer to any materials for this part (but not others in the class). Return Part I to get Part II.

Mark/30

Part I

Do not refer to any materials for this part

Qu. 1   Answer each of the following <u>briefly</u>:

(a)   Define speedup factor *fully* as applied to multiprocessors.   2

(b)   What is the essential difference between an MPI blocking send routine and an MPI non-blocking send routine?   2

(c)   Explain the following typed in at a command line:

   lamboot   2

   mpicc -o file file.c   2

```
mpirun -np 2 file
```

(d)   What is a communicator in MPI? What is the name of the default communicator?   2

(e)   Why are Monte Carlo methods embarrassingly parallel computations?   2

(f)   What does an all-to-all broadcast routine do? Explain with three processes.   2

Part II

Name: ....

You may refer to any materials for this part (but not others in the class).

Qu. 2   Write a complete MPI program that uses a partitioning approach to find the first zero in a list of integers stored in an array. There are 500 integers. Use 5 processes.

Provide comments in your code to help the grader! If I do not understand the code, I will assume it is incorrect.

14