HOME WORK ASSIGNMENT#1

Due Date: OCT 5, 2006 (10x100=1000 points)
CS 4/56101 DESIGN & ANALYSIS OF ALGORITHM
Fall 2006, Department of Computer Science, Kent State University

1. Devise an efficient divide-and-conquer algorithm for the Tower-of-Hanoi problem when the disks are colored alternately red and blue, and we add the extra rule that no disk may be placed on any other disk of the same color. Proof the correctness of your result.

2. Derive among Binay1 and Binary2 searches given in class notes which one performs better for successful search.

3. Explain how Strassen's algorithm divides and conquers the matrix multiplication problem (Read book from page 272).

4. Problem R-5.4.

5. Problem R-5.9

6. Problem R-1.6

7. Problem R-1.25

8. Problem C-1.7

9. Find all the solutions for n-queen problem with n=4 using the algorithm given in the class note. (Draw on paper to show the steps).

10. We have seen two algorithms that can search a list of n numbers faster than (log n time). Can there ever be any better algorithm? Provide proof of your answer.