1. (25%) What are the concepts of thin client and thin server? What is Information Appliance (IA)? What is Security Appliance? What is High Performance Computing (HPC)?

2. (25%) What is the maximum number of comparisons a sequential search and a binary search would need to determine that a particular item is not in a stored list of 5 items? 1,023 items? 65,535 items? Write a program to calculate the difference.

3. (25%) A computer whose processes have 1024 pages in their address spaces keeps its page tables in memory. The overhead required for reading a word from the page table is 500 nsec. To reduce this overhead, the computer has an associative memory, which holds 32 (virtual page, physical page frame) pairs, and can do a look up in 100 nsec. What hit rate is needed to reduce the mean overhead to 200 nsec?

4. (25%) Network devices, i.e. router, switching, etc…, usually don’t support display capability. However, some configurations are not adequate to your current network environment. Could you design one scenario to set up the initial configuration through network?