Quiz Number 2
Open Book; Open Notes
Time Given=15 minutes (25/03/2003)

“I certify that I have neither received nor given unpermitted aid on this examination and that I have reported all such incidents observed by me in which unpermitted aid is given.”

Signature ________________________________

Name ___________________________ Student ID ___________________________

Problem 1: [5points] IP addresses in IPv4 have 32 bit fixed length. The routers usually store prefixes to reduce the number of routing table entries (and hence the lookup time). Note, however, that full length address entries may also exist in the routing tables. Consider a similar system in which we have fixed length keys of length 5 to search for in a table. A DP-Trie data structure is used to store the prefixes. What is the maximum possible number of nodes required?

Problem 2: [5points] We are interested in the complete DP-Trie data structure as the keys are added to it. Show a complete data structure after each addition as the following keys are added, one by one, in the given order: (you will need five figures!)

10000100, 10001, 1000, 1010, 1011