McGill University COMP360 Winter 2011   **Instructor: Phuong Nguyen**

Sample questions for Test 2

1. Specify the four steps in solving a problem using the dynamic programming technique.

2. Describe the array that is used in the dynamic programming algorithm for solving the All-Pairs Shortest Paths problem.

3. Prove that the following algorithm is within ϵ additional factor of the optimal solution for Knapsack.

   The algorithm is ... (the algorithm given in class).

4. Give pseudo-code for the Ford-Fulkerson algorithm.

5. Define Circulation with Demands problem.

6. Give a dynamic programming algorithm for solving the following problem...

7. Give an algorithm for solving the following problem using max flow. Clearly describe the flow network, and specify how to use the max flow in the network to solve the problem. Prove the correctness of your algorithm.

   The problem is ...