Practice problems

1. Find a solution using Tabu search. Compare the solution (number of steps to reach solution) with that solved in class.

Tabu list – last three moves cannot be swapped again. Initial solution 2143.

Jobs j 1 2 3 4

pj 10 10 13 4

dj 4 2 1 12

wj 14 12 1 12

1. Minimize f(y) = y2-30 y cos(50y)+20 y sin(70y) using a binary representation of length 5. Initial solution 00011. Use Tabu search with Tabu list of length 2
2. Solve problem 2 with simulated annealing. Use initial temperature 100 and 500. Use 0.9 cooling rate between iterations.
3. Solve the assignment problem. 4 jobs and 4 machines. Each job must go on to a machine. Objective is to minimize total set up time. Table below gives setup times. Initial solution job 4213 to machine 1 2 3 4. Use any search method.

Job 1 job 2 job 3 job 4

Machine

1 14 5 8 7

2 2 12 6 5

3 7 8 3 9

4 2 4 6 10