Math. Methods in Decision Making
D Term, Sections D01-D02
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April 3, 2004

Decision Making Assignment 3

DUE DATE: Thursday, April 8, by 4pm in the course mailbox, SH108. (This mail slot has a dayglo pink label "MA2210 Assignments".)

Please keep in mind Professor Martin's basic rules for composing and presenting assignments.

1.) *[10 points]* Using the network on the bottom of page 430 in the text (the network for problem 5) use Dijksta's algorithm to find the shortest path from node 2 to each other node in the network. Show your steps!

2.) *[10 points]* Solve Problem 8 on p431 in the text. Show your steps!

3.) *[10 points]* Solve Problem 9 on p432.

4.) *[10 points]* Find a minimal cost spanning tree in the network appearing on the back of this sheet. (This is Problem 10 on p433 with adjusted numbers. Please read it to see why we want a spanning tree.)

5.) *[10 points]* Please read the Ambulance Routing case study on page 438 in the text. Refer to Figure 9.20.

(a) Find the shortest path from each service zone to the Western Medical zone.

(b) Find shortest paths from all service zones to the Binghampton General zone.

(c) Make a careful picture of the network (a marked-up photocopy will do) with two trees highlighted.

- The first tree will connect Zone 1 to all service zones for which Western Medical is the closer hospital.
- On the same diagram, the second tree will connect Zone 20 to all service zones for which Binghampton General is the closer hospital.
- Label each zone with the estimated time to reach the closest hospital.
- Label each highlighted edge with an arrow pointing towards the hospital.