MASSACHUSETTS INSTITUTE OF TECHNOLOGY
15.082J/6.855J/ESD.78J – Network Optimization (Fall 2010)

Problem Set 1

Due Session 3
at the beginning of class

READINGS in AMO.
- Chapter 1, "Introduction," pages 1 to 20
- Sections 2.1 to 2.3 in Chapter 2, "Paths, Trees, and Cycles," pages 23 to 38
- Chapter 3, "Algorithm Design and Analysis," pages 53 to 85
- Sections A.1 to A.2 in Appendix A, "Data Structures," pages 765 to 773

HOMEWORK EXERCISES.
Notes:
- Each person may discuss problems with other students; however, each individual's work should be his or her own.
- Some of the exercises are odd numbered exercises from the textbook. The solutions to these are available from the course website menu or from "Network Flows" on Professor Orlin's home page (http://jorlin.scripts.mit.edu). We recommend that you attempt solve the odd numbered exercises before consulting the solutions on the web site. These problems do not need to be handed in. (The number of odd numbered exercises on this problem set is larger than is typical for subsequent problem sets.)
- If you become aware of a written solution to any other homework problems, we ask that you not consult the solution.
- Homework will be graded out of 4 points. Each problem (except for odd numbered exercises) will be worth 1 point.

Chapter 1 of AMO
> Exercise 1.1.
> Exercise 1.7. Also, explain how to interpret a solution to the shortest path as a
> solution to the paragraph problem.

Chapter 2 of AMO
> Exercise 2.1
> Exercise 2.3
> Exercise 2.13
> Exercise 2.15
> Exercise 2.31. (You can specify the forward star as in the book, or the adjacency
> lists as in the class notes.)
> 1. **Exercise 2.50**

Chapter 3 of AMO

Exercise 3.1

Exercise 3.3

Exercise 3.5

2. **Exercise 3.10**

Exercise 3.13

3. **Exercise 3.14**

Exercise 3.15

Exercise 3.21

Exercise 3.29

4. **Exercise 3.30**

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