

CSE 310 Recitation 8

Objectives:

- Red-Black Tree insertion & deletion

Rules:

1. Except for diagrams, charts or tables, answers **MUST** be provided in typed form.
2. For grading purposes, do **NOT** just submit the answers, instead copy each question, and put your answer under it. Unreadable and unclear answers will be graded with 0 points.
3. Submit your recitation on Canvas as a single PDF file.
4. For each recitation, you have 2 attempts to submit, but we will **ONLY** grade your last submission! It's your own responsibility to make sure that you submit the correct file! We will not accept any submissions through email.
5. **Equipment defects and technological difficulties cannot become excuses for late submission. No late submissions will be accepted!**

Question

1. [6 pts] Show the red-black tree that result after successively inserting keys 1, 2, 5, 15, 4, 7, 8, 14, 11 into an initially empty red-black tree. Show each step whenever you change a node's color or make a rotation, mark your operations (with case #) clearly.

2. [4 pts] Given the following red-black tree, show the red-black trees that result from the successive deletion of the keys in order of 2, 7, 13, 25, 32 and 35. Show each step whenever you change a node's color or make a rotation, mark your operations clearly. (Note: shaded nodes are **black**)

