CptS 483 / 580: Applied Graph Theory

Fall 2016

School of EECS, Washington State University

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Homework #5

Due date: Friday, December 9, 2016
(by 11:59pm PST)

All problems are from the textbook (Gross & Yellen, 2nd edition; heretofore [GY] for short).

The coding/implementation exercise is worth 30 points. You will need to submit a text file with the code, a text/pdf file with the output, a screen shot with the output (converted to pdf), and a brief (about 1 standard page) explanation about what is the problem asking for, how you implemented your solution, what is the input and the output, and what are your conclusions about the algorithm that you implemented, based on your experimental runs of your program on the provided input. (You are encouraged to test your prototypes on other inputs, from the book or that you come up with yourselves; but you are required to run the code, and include the output in your submission, on the test graphs / strings as specified in the computer exercises in the book.)

The remaining problems are standard mathematical and/or conceptual exercises testing your understanding of key concepts. Their total worth is 70 points. I will select a subset of those math/conceptual problems and only grade that subset.

Programming Exercise: 9.1.47 in [GY]

- test, include in your submission the vertex colorings produced by each of the two algorithms just on input graphs from exercises 9.1.3 – 9.1.6

Mathematical Exercises:

- **6.1:** 2, 3, 20, 21 (for 20-21, brief explanations suffice; no formal proof required)
- **6.2:** 1, 2
- **6.3:** 1-4, 7, 8, 9
- **6.4:** 1, 2
- **6.5:** 1, 14
- **9.1:** 2, 4, 8, 28
- **9.2:** 3
- **9.3:** 3, 5, 8
- **13.1:** 2, 3

The last two problems apply to **Graduate / CptS 580 students only:** Exercises **6.5.16** and **9.3.18**