Handout 7
CSCI/MATH 4690/6690

Notes, Homework 7, solutions to Test 1.

Reading
February 19: Sections 5.2 and 5.3
February 21: Sections 5.4 and 5.6
February 26: Sections 5.7 and 5.8
February 28: Section 6.1

Homework #7. due Thurs, 2/28/2013: Chapter 5.
Hand in exercises 5.14, 5.16, 5.21, 5.32, 5.35(a).
Graduate exercises 5.35(b)*, 5.35(c).
Note
* 5.35(b) In the last line of part (b), the condition on k should read
“... is strict for all k in the range 1 ≤ k ≤ n − 1 ...”.

Sixth week summary

Tue 2/12. We continued our Test 1 review.

Thu 2/14. Test 1, solutions:

Part 1, Multiple Choice.

1. b  6. d  11. a  16. a
2. b  7. b  12. a  17. c
3. d  8. d  13. e  18. b
4. c  9. c  14. c  19. a
5. a  10. c  15. b  20. c

Part 2, Short Answer.

1. 

\[
\begin{array}{c}
  8 \\
  2 \\
  4 \\
  3 \\
  1 \\
  7 \\
  5 \\
  6
\end{array}
\]
2. (a) There are 120 correct answers!

(b) Typical correct answers: “left graph has a degree 2 vertex whose neighbors are both degree 3; but right graph has no such”; “right graph has two adjacent vertices of degree 2, but left graph has no such”; “look at the two subgraphs induced by the vertices of degree 3; one of them is a 4-cycle, the other is not”; “on the left, each vertex of degree 3 is attached to two vertices of degree 2, and one of degree 3; while on the right each vertex of degree 3 is attached to two vertices of degree 3, and one of degree 3”.

Typical incorrect answers: “On the right there are two adjacent vertices of degree 3, but not on the left”; trying to use “THE center”; “no adjacent vertices in $G_1$ have degree 3”; “you cannot create bijective functions ...”;

Many incorrect responses assumed that the side-by-side nature of the pictures was the isomorphism in question, and simply proved that that particular mapping is not an isomorphism. But, we must rule out other possibilities, too.

3. (a) $n^{n-2}$
   
   (b) ![Diagram](image)
   
   (c) 60, 60, 5.

4. (Grad Only) $\tau(H) = \tau(G_1) \cdot \tau(G_2)$. 