University of Nevada, Las Vegas Computer Science 456/656 Spring 2015

Assignment 10: Due April 14, 2015

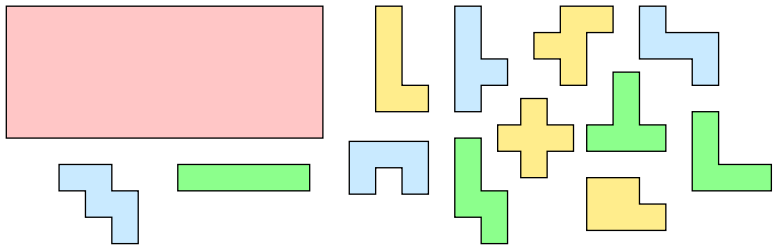
Name:_____

You are permitted to work in groups, get help from others, read books, and use the internet. But the handwriting on this document must be your own. You may attach extra sheets, using a stapler. Be sure to write your name on each extra sheet, just in case.

3. Determine whether the following Boolean expression is satisfiable. If it is, give a satisfying assignment.

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(a+b+c)*(c+d+e)*(!a+!b+!e)*(!a+c+!d)*(b+!c+!e)*(a+!b+!c)
```

4. The game *Pentominoes* can be bought in most toy stores. The goal is to fit the twelve small polygons shown, called "pentominoes," into a rectangle.



More generally, suppose you are given n polygons of various shapes, as well as a rectangle. The problem is, can the polygons be fitted together to exactly fill the rectangle? Prove that that problem is in the class $\mathcal{NP}$.