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

**Assignment 11: Due April 30, 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.

1. Give a $\mathcal{P}$-time reduction of the knapsack problem to the partition problem. Your reduction should be accompanied by a discussion – not a formal proof of correctness, but a discussion that convinces the casual reader that the reduction is correct.

For any recursively enumerable language $L$, there is a general grammar which generates $L$. Let $L$ be the the language of all strings over the unary alphabet of positive square length. $L$ is recursive, hence clearly recursively enumerable. Give a general grammar which generates $L$. Include a discussion, not necessarily a formal proof, which convinces the reader that your grammar generates $L$.