

**University of Nevada, Las Vegas Computer Science 456/656 Fall 2020**

**Assignment 3: Due Friday October 23, 2020**

**Name:**-----

You are permitted to work in groups, get help from others, read books, and use the internet. Your answers must be written in a pdf file and emailed to the graduate assistant, Shekhar Singh [shekhar.singh@unlv.edu](mailto:shekhar.singh@unlv.edu) by 23:59 October 22. Your file must not exceed 5 megabytes, and must print out to at most 4 pages.

1. Prove that the halting problem is undecidable.

2. Prove that the partition problem is  $\mathcal{NP}$ -complete by giving a polynomial time reduction of the subset sum problem to the partition problem.

3. Prove that integer addition is in Nick's Class. Hint: look at the Wikipedia page:  
[https://en.wikipedia.org/wiki/NC\\_%28complexity%29](https://en.wikipedia.org/wiki/NC_%28complexity%29)