

University of Nevada, Las Vegas Computer Science 456/656 Fall 2024  
Assignment 5: Due Saturday October 19, 2024, 11:59 PM

Name: \_\_\_\_\_

You are permitted to work in groups, get help from others, read books, and use the internet.

1. Give a  $\mathcal{P}$ -TIME reduction of the Subset Sum problem to Partition.

2. Give a  $\mathcal{P}$ -TIME reduction of 3-SAT to the Independent Set problem.

- Use the pumping lemma to prove that  $L = \{a^n b^n : n \geq 0\}$  is not regular.

4. Prove that any language accepted by a DFA with  $p$  live (not dead) states has pumping length  $p$ .