

# CS 528: Quantum Computation

## Problem Set 3

MW: 2:00 - 3:15 pm

Out: 03/13/2019 Due: 03/27/2019

### **Instructions:**

I leave plenty of space on each page for your computation. If you need more sheet, please attach your work right behind the corresponding problem. Please directly hit the point when solving a problem. Cumbersome description might receive fewer credits, even it is correct. If your answer is incorrect but your logic is on the right track, then partial credits will be given. Please staple your solution and use the space wisely.

**First Names:**

**Group ID:**

**Score:**        /50

**Problem 1 Spatial Search : 50 pts**

We talked about Grover and some coin based 1D quantum walker in the class. However, it remains open to see how optimal QW can be for 1D and 2D search. Please summarize the work “Space searches with a quantum robot”<sup>1</sup>. Please summarize this work and identify any arguments that might seem weak.

---

<sup>1</sup><http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.251.6968>

