

PRACTICE EXAM 1

- Solve all 5 problems. You are allowed to use algorithms and results we established in class; no proofs are required for any problems.
- You are allowed to use your textbook and notes to help with the exam, but nothing else (this includes the Internet, other people, etc).
- Good luck!

1 Academic Integrity Pledge

Please sign the following statement to get credit for this exam. You can just type your name if you like.

“On my honor, I have neither given nor received any unauthorized aid on this exam.”

2 Problem 2

Sample problem: You are given an *undirected* graph $G = (V, E)$. Give a linear-time algorithm to compute the minimum number of edges you would need to add to this graph in order to make it connected. **[10 points]**

3 Problem 3

Sample problem: You are given a *directed* graph $G = (V, E)$. Give a linear-time algorithm to find a pair of nodes u and v so that u has a path to v , but v does *not* have a path to u . If no such pair exists, your algorithm should return that it does not exist. **[10 points]**