

Name: _____

CIS 351 Sample FC1 Problem

03 January 2022

FC1: Functional Completeness

- (a) Consider a set of gates $S = \{X, Y\}$ where X , and Y are unknown gates. If we know that the set S is functionally complete, do we *know* that the set $\{X, OR\}$ is functionally complete? Why or why not? Explain your reasoning.

- (b) Write a formal proof that the set $\{NOT, AND\}$ is logically complete.