

# Logic and Computation II, Spring 2023

## Homework No.13

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

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### Problem 1

Prove that  $L = \{u^\omega : u \in \{0, 1\}^+\}$  is not an  $\omega$ -regular language.

Solution:

### Problem 2

(1) Express the following predicates with S1S formulas.

- (a)  $X$  is the set of even numbers.
- (b)  $X$  is finite with even number of elements.

(2) Explain why “ $X$  and  $Y$  have the same cardinality” cannot be expressed by an S1S formula.

Solution: