

# **CIS 6373: Foundations of Software Security [Spring 2024]**

## **Test I**

**NAME:** \_\_\_\_\_

### **Instructions:**

- 1) This test is 7 pages in length.
- 2) You have 75 minutes to complete and turn in this test.
- 3) Short-answer and essay questions include guidelines for how much to write. Respond in complete English sentences. Responses will be graded as described on the syllabus. Respond at the level of detail discussed in class. Avoid using bullet points and enumerated lists.
- 4) This test is closed books, notes, papers, phones, smartwatches, laptops, friends, neighbors, etc.



6. [12 points] [Essay] Describe the countability argument in enforceability theory.

7. [12 points] [Essay] What are 2 example result-sanitization policies? Are your example policies properties, safety, and/or liveness, and why?

8. [5 points] [1-3 sentences]

Briefly explain the “grand unifying theory” discussed in class.

9. [5 points] [1-3 sentences]

What are problems with the CIA classification of policies, as discussed in class?

10. [10 points] [Essay] Describe, at the level of detail discussed in class, the two common techniques attackers use to mount DDoS attacks in practice.

11. [5 points] [2-3 sentences]

Which contributions of Stephen Cole Kleene were discussed in class?

12. [5 points] [2-3 sentences] Summarize the main contributions of the MRA paper.

13. [10 points] [Short essay] Briefly describe the debate about whether nonsafety properties can be precisely enforced.

14. [20 points] Formally state and prove the theorem that “trivial” is the only property that is both safety and liveness.