

## CS 3501: ICS Exam 1, fall 2018

**Name** \_\_\_\_\_

You **MUST** write your e-mail ID on **EACH** page and bubble in your userid at the bottom of this first page. And put your name on the top of this page, too.

If you are still writing when “pens down” is called, your exam will be ripped up and not graded – even if you are still writing to fill in the bubble form. So please do that first. Sorry to have to be strict on this!

Other than bubbling in your userid at the bottom of this page, please do not write in the footer section of this page.

There are 6 pages to this exam. Once the exam starts, please make sure you have all the pages. Questions are worth different amounts of points.

**If you do not bubble in this first page properly, you will not receive credit for the exam!**

**Answers for the short-answer questions should not exceed about 20 words; if your answer is too long (say, more than 30 words), you will get a zero for that question!**

This exam is **CLOSED** text book, closed-notes, closed-calculator, closed-cell phone, closed-computer, closed-neighbor, etc. Questions are worth different amounts, so be sure to look over all the questions and plan your time accordingly. Please sign the honor pledge below.

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*Three things are certain:  
Death, taxes, and lost data.  
Guess which has occurred.*

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**Page 3: Ethics**

5. [4 points] Provide a *brief* argument both for and against flipping the switch in the trolley problem.
6. [8 points] Name and *briefly* describe each of the four ethical frameworks discussed in class

**Page 4: Policy**

7. [4 points] Other than lack of technical knowledge, name four cybersecurity challenges faced today, as discussed in lecture. Please only give a *brief* explanation if it's not obvious from the name.
8. [4 points] Name two bad effects that would have resulted from SOPA and PIPA.
9. [4 points] Name, and *briefly* describe a presidential action taken on cybersecurity, as discussed in class.

**Page 5: Encryption**

10. [6 points] Consider a linear congruential generator (LCG) with  $a = 7$ ,  $c = 5$ , and  $m = 9$ . With an initial seed of 1, write the next four terms of the sequence. You must show your work for determining each successive term.

11. [3 points] What is a *collision resistant hash*?

12. [3 points] What is a code (not a cipher)? Give an example of one.

