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UVa userid:

CS 3710: ICS Final Exam, summer 2022

*In theory, there is no difference between theory and practice. But, in practice, there is.* 

## Page 2: Exam 1 material

1. [6 points] List and *briefly*, describe the levels in the *OSI* networking model. Note that this is (slightly) different than the TCP/IP model!

2. [3 points] List and *briefly*, describe the four ethical frameworks.

3. [3 points] Briefly, what properties of RSA make it hard to crack?

## Page 3: Modern topics

4. [3 points] Briefly, describe two changes you would make to Tor to speed it up.

5. [3 points] *Briefly*, list two "things" in a computer that need to be hidden to hide the presence of a rootkit. For example, one is the presence of files on the filesystem. List two others.

6. [3 points] List and *briefly* describe the four levels of virtual machines.

7. [3 points] *Briefly*, how is cryptography used in cryptocurrency? For example, it is not used to send and receive messages; so what then is it used for?

## Page 4: Binary exploits

8. [3 points] *Briefly,* describe the difference between polymorphic, oligomorphic, and metamorphic viruses.

9. [3 points] *Briefly*, list three defenses against stack-based buffer overflow attacks.

10. [3 points] Briefly, how can a printf format string attack avoid a stack canary?

11. [3 points] Briefly, describe how the "tricky jump" technique works.

## Page 5: Forensics & Reflection

12. [3 points] *Briefly,* when is the government allowed to force you to reveal the password for your encrypted hard drive?

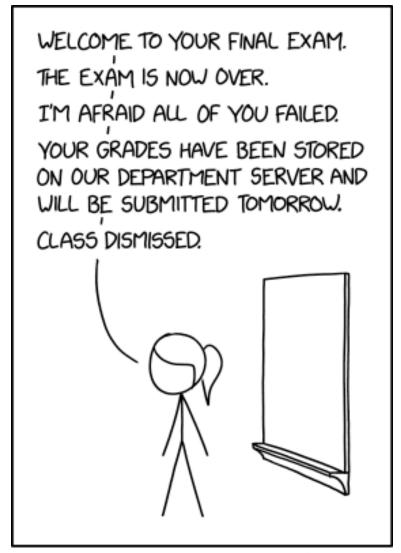
13. [3 points] *Briefly,* what was the key issue in the FBI-Apple encryption dispute that the media (generally) didn't report correctly?

14. [3 points] Briefly, describe what a CVE (Common Vulnerabilities and Exposures) entry is.

15. [3 points] How likely are you to take a follow-on course? Which one? I'm looking for an honest answer here, not a sycophantic one. You'll get full credit as long as you answer honestly.

Page 6: No questions here

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CYBERSECURITY FINAL EXAMS

xkcd #2385

I really wish I could have done that...