

# 14 Prove: Final Part I

Started: Dec 9 at 10:06pm

## Quiz Instructions

### Overview

- **Task:** Study Unit 0, 1, 2, and 3. Take the final exam.
- **Purpose:** Make sure we understand everything in the semester.
- **Time:** Three hours to study for the final, 90 minutes to take the test.

### Instructions

- [Details about the final](https://content.byui.edu/file/2390954c-eadb-4592-aa96-5a29275f9404/1/Ponder/470.14.Final1.html) [\(https://content.byui.edu/file/2390954c-eadb-4592-aa96-5a29275f9404/1/Ponder/470.14.Final1.html\)](https://content.byui.edu/file/2390954c-eadb-4592-aa96-5a29275f9404/1/Ponder/470.14.Final1.html)
- Closed book

#### Question 1

18 pts

List and define all of the social engineering attack vectors:

- Name it (1 pt each)
- Define it (2 pts each)

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**B** *I* U **A** ▾ **A** ▾ *I<sub>x</sub>*   
 12pt ▾ Paragraph

0 words

4 pts

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9 pts

- Name it (1 pt each)
- Define the data structure(s) in C++ (2 pts each)

Confidentiality		
Integrity		

Confidentiality  
& Integrity

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**B** *I* U **A** ▾ **A** ▾ *I*<sub>x</sub>  $x^2$   $x_2$   $\sqrt{x}$  12pt ▾ Paragraph

0 words

## Question 4

9 pts

List each of the three fundamental types of authentication. For each:

- Name the type or category (1 pt each)
- List the requirements (transferable, etc.) for each type or category (2 pts each)

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**B** *I* U **A** ▾ **A** ▾ *I*<sub>x</sub>  $x^2$   $x_2$   $\sqrt{x}$  12pt ▾ Paragraph




0 words


**Question 5****7 pts**

Write the equation to determine the bit-strength of a given textual password. Describe what each variable means:





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**B** *I* U A ▾ A ▾ *I*<sub>x</sub>

 $x^2$   $x_2$ 





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**Question 6****16 pts**

In the following encryption scenario, describe what is going on in each step. In other words, describe what the symbol means. 2 points each

The diagram illustrates a secure communication protocol involving three parties: Alice, Bob, and a Certificate Authority (CA). The protocol steps are as follows:

- Step 1:** Alice sends a request to the CA, labeled  $1$  and  $C-(K_c, K_-)$ .
- Step 2:** The CA sends a response to Alice, labeled  $2$  and  $K_+$ .
- Step 3:** The CA sends a response to Bob, labeled  $3$  and  $C+(K_{AES}, K_+)$ .
- Step 4:** Alice sends a message to Bob, labeled  $4$  and  $C+(M_P, K_{AES})$ .
- Step 5:** Bob sends a response to Alice, labeled  $4$  and  $C-(M_c, K_{AES})$ .

Intermediate labels  $K_c$  and  $M_c$  are shown between the CA and the communication lines between Alice and Bob.

The image shows the top toolbar of an HTML Editor. It contains various icons for text formatting (Bold, Italic, Underline, Text Color, Background Color, Text Style), alignment (Left, Center, Right, Justify), indentation (Decrease Indent, Increase Indent), lists (Bulleted List, Numbered List, Decrease Indent, Increase Indent), superscript/subscript, bulleted list with disc/circle, table, video, link, unlink, image, and formula. The font size is set to 12pt and the paragraph style is selected. The toolbar is located at the top of the editor window, which has a title bar that says "HTML Editor".

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**Question 7****12 pts**

List all four types of SQL injection vulnerabilities (which happen to be common to almost all command injection attack vectors). For each:

- Name it (1 pt each)
- Describe it (2 pts each)

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**Question 8****10 pts**

Match the symbol associated with each of the following components of a data flow diagram. Two points each.

Interactor

[ Choose ]

Flow

[ Choose ]

Processor

[ Choose ]

Storage

[ Choose ]

Trust boundary

[ Choose ]

**Question 9****15 pts**

For each of the following memory injection attacks, describe what is required for the vulnerability to exist in the code. Five points each.

- Stack Smash
- Heap Smash
- Array Index

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 ▾ ▾ 12pt ▾ Paragraph

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