**CIS-481: Introduction to Information Security**

**Module 4 - Risk Management**

**Exercise #4**

**Team: 4**

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**Logistics**

1. Get together with other students on your assigned **Team** in person and/or virtually.
2. Discuss and complete this assignment in a collaborative manner. Don’t just assign different problems to each teammate as that defeats the purpose of team-based learning and may impact your performance on assessments, especially with respect to the essay questions.
3. Choose a scribe to prepare a final document to submit via Blackboard for grading, changing the file name provided to denote the number of your assigned **Team**.

**Problem 1** *(8 points)*

Complete Exercise 1 from pages 172-173 of your text. Perform the Risk Determination (as shown on pages 147-148) for each asset’s vulnerabilities and determine in what order each of the vulnerabilities should be addressed based on the calculated risk ratings. Show your work (the math used). For the purposes of this problem, use the maximum risk in the calculated range (due to uncertainty) when deciding the order in which the vulnerabilities should be address (i.e., from highest risk to lowest risk vulnerabilities).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Likelihood\*Impact\*(1-contols) = without uncertain | | | | without uncertain \*(1-certainty) =range | | without uncertain - range =lower | without uncertain +range =upper |
|  | likely | Impact | Controls | Without Uncertain | Certainty | Range | Lower | Upper |
| L47failure | 0.2 | 90 | 0% | 18 | 75% | 4.5 | 13.5 | 22.5 |
| L47overflow | 0.1 | 90 | 0% | 9 | 75% | 2.25 | 6.75 | 11.25 |
| WebSrv6 | 0.1 | 100 | 75% | 2.5 | 80% | 0.5 | 2 | 3 |
| MGMT45 | 0.1 | 5 | 0% | 0.5 | 90% | 0.05 | 0.45 | 0.55 |

Complete formula for upper limits

(Likelihood \* Impact \* (1-Controls)) +(Likelihood \* Impact \* (1-Controls) \* (1-certainty))

Based on the maximum risk the company should start by working on the L47 switch. First by fixing the likelihood of failure and then by covering the overflow attack. After that has been mitigated based on upper range uncertainty values WebSrv6 should be worked on followed by MGMT45 console.

**Problem 2** *(7 points)*

Complete Exercise 3 from page 173 of your text. You should create a worksheet using Microsoft Excel to support your calculations, then paste an image of the table with column headings and rows below. Also attach the Excel workbook file when submitting your solution document for grading.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Threat Category** | **Cost Per Incident = SLE** | **Frequency of Occurrence** | **ARO** | **ALE** |
| Programmer Mistakes | $5,000 | 1 per week | 52 | $260,000 |
| Loss of Intellectual Property | $75,000 | 1 per year | 1 | $75,000 |
| Software Piracy | $500 | 1 per week | 52 | $26,000 |
| Theft of Information (Hacker) | $2,500 | 1 per quarter | 4 | $10,000 |
| Theft of Information (employee) | $5,000 | 1 per 6 months | 2 | $10,000 |
| Web Defacement | $500 | 1 per month | 12 | $6,000 |
| Theft of Equipment | $5,000 | 1 per year | 1 | $5,000 |
| Viruses, Worms, Trojan Horses | $1,500 | 1 per week | 52 | $78,000 |
| Denial-of-Service attack | $2,500 | 1 per quarter | 4 | $10,000 |
| Earthquake | $250,000 | 1 per 20 years | 0.05 | $12,500 |
| Flood | $250,000 | 1 per 10 years | 0.1 | $25,000 |
| Fire | $500,000 | 1 per 10 years | 0.1 | $50,000 |

**Problem 3** *(10 points)*

Complete Exercise 5 from pages 173-174 of your text. You should create a worksheet using Microsoft Excel to support your calculations, then paste an image of the table with column headings and rows just below. Attach the Excel workbook when submitting this document file   
for grading. Don’t forget to address all of the questions posed at the end of Exercise 5 (repeated here for your convenience).

*Why have some values changed in the Cost per Incident and Frequency of Occurrence columns? How could a control affect one but not the other? Assume that the values in the Cost of Controls column are unique costs directly associated with protecting against the threat. In other words, don’t consider overlapping costs between controls. Calculate the CBA for the planned risk control approach in each threat category. For each threat category, determine whether the proposed control is worth the costs.*

*Note**: All three of the requisite worksheets should be combined into a single Excel workbook and that file should be uploaded along with the completed document file into Blackboard for grading.*