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

**Module 4 - Risk Management**

**Exercise #4**

**Team:**

**Participants:**

**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).

Switch L47 Hardware Failure --

(Likelihood x impact)(1-%uncertainty)

(0.2 \* 90)(1+.25)

18 +- 4.25

Max risk = 22.5

SNMP Buffer Attack --

* 1. \* 90)(1.25)

9 +- 2.25

Max risk = 11.25

WebSrv6 Server Attack --

* 1. \* (100\*0.25))(1.20)
  2. \* 25)(1.20)

2.5 +- 0.5

Max risk = 3

MGMT45 Misuse –

* 1. \* 5 )(1.1)

0.5 +- .05

Max risk = 0.55

With the calculations set, the order for deciding which vulnerabilities should be addressed should be the Switch L47 Hardware failure first since it has the highest risk number scoring at 22.5. The next should be the Switches SNMP Buffer attack which has a high risk score of 11.25. Following that is the WebSrv6 Server attack since its max risk is 3. Then in last place would be the MGMT45 Misuse since it only has a max risk score of 0.55.

**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 the table (or an image of it) with column headings and rows below. Also attach the Excel workbook file when submitting your solution document for grading.

A table with numbers and words

Description automatically generated

The total ALE is projected to be about $491k

**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 the table (or an image of it) 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?*

*Some values have changed in the cost per incident and frequency of occurrence because of the controls set in place. The controls reduce frequency and cost since they are put in place to minimize risk.*

*How could a control affect one but not the other?*

*Controls can effect only one factor in some cases since they can reduce the frequency of something happening but not the overall damage needed to repair something*

*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.*

*The only controls worth the costs is Programmer mistakes, Loss of Intellectual Property, Flood and fire. This is because the other incidents that aren’t listed cost more to implement the control then it is to pay the price of the extra frequencies.*

A table with numbers and letters

Description automatically generated

*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.*