



COMSATS University Islamabad (CUI)

Department of Computer Science
Mid Term Examination spring -2024
BS-AI-7, BSSE, BSDS

Dated: April 23, 2024
Time Allowed: 90 Minutes

Course: CSC432-Information Security

Maximum Marks: 25

Instructors: Dr. AbdulRahman Al-Salehi, Ms. Sara Ali

- All questions are self-explanatory and require no further explanations during exam time.
- Return the question paper along with the answer sheet.
- Attempt all questions.

CLO-1

(Discuss the fundamental concepts, policies, standards, and ethical issues of information security.)

Question 1: Specify the following attacks as a violation of Confidentiality, Integrity, Availability, Authentication or Non-repudiation. Briefly explain the reason. [4 Marks]

1. Aliya is denying that she has made a transaction to Bilal.
2. CMS portal is currently not operational.
3. Key-logger installed on a system.
4. A file is corrupted by virus.

Question 2: Provide short answers to the following

[2+2+2=6 Marks]

- (a) Describe how the various types of firewalls interact with the network traffic at various levels of the OSI model.
- (b) Should a network administrator put a firewall in front of a honey pot? Why or why not?
- (c) How can the relationship between VPNs and spoofing be explained?

Question 3: Discuss in detail the risk management stages with the block diagram, and show how to mitigate these risks? [3 Marks]

CLO-2

(Investigate various counter measures and security controls to minimize risk and exposure)

Question 4: You own a jewelry store. In your neighborhood, there is a 15% chance of a store like yours being the victim of a robbery during the course of the year. On average, your store has Rs100,000 in cash and products on hand. You are considering two controls. The first option is to hire a full time guard at the cost of Rs5,000 per month. Based on experience in your industry, this should reduce your risk of robbery to 3% over a year. The second option is to hire an alarm/monitoring company. They will install cameras and have a staff at their offices reviewing the camera feeds. This will reduce the risk of a non-recoverable robbery to 0.8% and will cost Rs2,000 a month. [6 Marks]

1. What is your current annual loss expectancy (ALE) (you've implemented neither control)?
2. Compute the risk leverage for the first option (hiring a guard).
3. Compute the risk leverage for the second option (install cameras and employ the monitoring company).

4. Based on the risk leverage computation, which option should you go with?

Question 5: A small family-owned construction company made extensive use of online banking for payments. Employees logged in with both a company and user-specific ID and password. Two challenge questions had to be answered for transactions over \$1,000.

The owner was notified that transaction of \$10,000 was initiated by an unknown source. They contacted the bank and identified that in just one week cyber criminals had made six transfers from the company bank accounts, totaling \$550,000. Later on it was revealed that in recent past, one of their employees had used system of a materials supplier to access his account for corporate work.

[3+3 Marks]

1. Identify and discuss the attack.
2. How the attack could have been avoided.

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