Computer Security 1

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Question 1.

A security scenario can be a file integrity check. File integrity means making sure that files stored in a system have not been changed, deleted, or replaced by attackers. One way to do this is by using hash functions. A hash value is created when the file is first saved, and later the same file can be checked again by comparing its new hash with the old one. If the hashes are the same, the file is safe. If the hashes are different, the file has been altered, which could mean corruption or an attack. File integrity checks are common in systems where sensitive data is stored, such as banks, hospitals, or government databases. This ensures data has not been tampered with and protects against malware or insider threats. The process is simple but very important in maintaining trust, security, and reliability of stored data.

Question 2.

Confidentiality is one of the main goals of security. It means keeping information private and making sure only authorized people can access it. For example, when sending a message, encryption can be used so that only the receiver can read it. Without confidentiality, sensitive data like passwords, health records, or bank details could be stolen or misused. It prevents hackers, attackers, or even unauthorized employees from seeing private information. Confidentiality is important because data leaks can cause financial loss, identity theft, or damage to trust. Overall, confidentiality protects personal and organizational data from being exposed.

Question 3.

Using Wireshark to simulate a security check helped me understand how network traffic works. I was able to capture packets and see details like IP addresses, protocols, and data being transferred. This showed me how attackers could intercept traffic if it is not encrypted. It also made me realize how important monitoring tools are for detecting suspicious activity. At first, the data looked confusing, but after some practice, I saw patterns and understood what normal traffic looks like compared to unusual activity. The reflection taught me that network security is not only about blocking attacks but also about visibility.

Question 4.

The CIA triad is a simple model that explains the three main goals of security: confidentiality, integrity, and availability. In my Canva sketch, I showed them as three connected parts of a triangle. Confidentiality means keeping data private, integrity means making sure data is correct and not changed, and availability means making sure systems are always accessible to

users. Together, these three goals work as the foundation of information security. If one part fails, the whole system is at risk. The sketch makes it clear that security is not just one thing, but a balance of all three.