

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering
Bachelor of Science Honours in Engineering - Level 5
Bachelor of Software Engineering Honours - Level 5



074

EEX/EEI 5270 - Information Security
Final Examination - 2022/2023

Date: 02nd February 2024

Time: 9.30 – 12.30hrs

Read the following instructions before answering the paper.

1. This question paper contains four (04) questions. All four (4) questions are compulsory.
 2. Answer all questions.
 3. Answers should be in clear handwriting.
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Question 1

- A. Provide a comprehensive explanation of the CIA Triad in the context of Information Security. Discuss the importance of these principles in safeguarding digital assets and ensuring a secure computing environment. (8 Marks)
 - B. Discuss the risks of not ensuring the CIA properties in an E-Commerce platform (Online Marketplace) and its infrastructure. Highlight potential consequences and vulnerabilities in the context of an online retail environment. (8 Marks)
 - C. Propose mitigation techniques for each CIA property to enhance the security and reliability of the E-Commerce platform. (9 Marks)
- [25 Marks]

Question 2

- A. Explain the fundamental concept of encryption. Define what encryption is and how it is utilized in information security. (6 Marks)
 - B. Differentiate between symmetric and asymmetric encryption. Provide examples of scenarios where each type is commonly employed. (6 Marks)
 - C. Explain the role of encryption in securing data stored on various devices. (6 Marks)
 - D. Discuss the challenges associated with key management in encryption. Explain how effective key management contributes to the overall security of encrypted data. (7 Marks)
- [25 Marks]

Question 3

- A. Describe the following three types of cyber-attacks. Provide a brief explanation of how each type operates and its potential impact on individuals or organizations. **(15 Marks)**
- a. Malware
 - b. Phishing
 - c. DDoS attacks
- B. Explain why user awareness is considered a critical factor in defending against cyber-attacks. **(5 Marks)**
- C. Both Cross-site scripting (XSS) and SQL injection attacks are considered to be web-based attacks. Provide a concise overview of how **one** of those attacks operates and its potential impact on web applications and users. **(5 Marks)**
- [25 Marks]**

Question 4

- A. Briefly highlight why the risk assessments are considered a fundamental practice in cybersecurity. **(3 Marks)**
- B. Multi-factor authentication (MFA) plays a significant role in strengthening security. Provide examples of different factors that can be utilized in MFA and discuss how combining these factors enhances authentication robustness. **(7 Marks)**
- C. Define the three primary phases in the basic methodology of cyber forensics known as the "Three As." **(6 Marks)**
- D. Discuss the importance of integrating secure code reviews into the development processes. Highlight how early identification and mitigation of security vulnerabilities through code reviews contribute to cost-effective and robust security measures. **(9 Marks)**
- [25 Marks]**

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