



REFORMED CHURCH UNIVERSITY

FACULTY OF EDUCATION AND SOCIAL SCIENCES

BACHELOR OF SCIENCE HONOURS DEGREE IN INFORMATION
TECHNOLOGY

COMPUTER SECURITIES

HICT 406

Part 4 Semester 1 Examination

Total Marks [100]

Date: October 2024

Time: 3 Hours

INSTRUCTIONS

1. This paper has five (5) questions
2. Answer any three(3) questions
3. Each question carries 100 *marks*
4. Start each question on a new page

Question ONE

a) Explain the difference between the following terms:

- i) Firewall and Intrusion Detection System (IDS) (4 marks)
 - ii) Stream cipher and Block cipher (4 marks)
 - iii) Computer security and Network Security (4 marks)
 - IV) Cryptography and Steganography (4 marks)
 - v) Hot site facility and Cold site facility (4 marks)
- b) Describe any five Characteristics of a Good Security Policy (5 marks)

Question TWO

a) Explain the following concepts as used in computer security:

- i) Confidentiality (3 marks)
- ii) Availability (3 marks)
- iii) Integrity (3 marks)

b) Explain the difference between

- i) “security plan” and “security policy” (6 marks)
- ii) “Network based attacks” and “Application based attacks” (6 marks)

c) Using a two rail fence cipher encrypt the message: ”meet me after the toga party” (4 marks)

Question THREE

a) Explain the difference between “Cryptanalysis” and “Brute-force attack” (6 marks)

b) Using a well labelled diagram, describe the ingredients of asymmetric encryption (14 marks)

c) Using Caesar cipher (Key = +3), decrypt the message: PHHW PH DIWHU WKH WRJD SDUWB (5 marks)

Question FOUR

a) Using suitable examples describe the following attacks as identified in Risk Based Attack Taxonomy.

i) External information theft

ii) External abuse of resources

iii) External masquerading

iv) Pest programs

iv) Bypassing of internal controls (8 marks)

b) Describe any four Methods of Defense used in securing information assets (12 marks)

c) Define the terms:

i) Digital signature (2 marks)

ii) Digital signature scheme (3 Marks)

Question FIVE

a) Security management must manage risks in terms of causes, effects and costs of a security loss. The costs resulting from a security fault must be balanced with the costs resulting from enhanced security measures. This means that systematic security management allows counter-measures to be chosen in a planned and managed way, since too much security wastes money while too little security wastes Information System resources (IS) capability. Describe the four distinct stages of management of security (17 marks)

b) Explain the four properties of digital signatures (8 marks)

Question SIX

- (a) You are tasked with setting up a computer for a new employee. What steps would you take to configure the computer and ensure it is safe? (9 marks)
- (b) A user reports a problem with their computer's internet connection. Describe the steps you would take to troubleshoot and resolve the issue. (8 marks)
- (c) You need to transfer files between two computers. What methods would you use and why? (8 marks)

END OF PAPER