

[All Rights Reserved]



SLIATE

SRI LANKA INSTITUTE OF ADVANCED TECHNOLOGICAL EDUCATION
(Established in the Ministry of Higher Education, vide in Act No. 29 of 1995)

Higher National Diploma in Information Technology
Second Year, First Semester Examination – 2020
HNDIT-2301 Operating System and Computer Security

Instructions for Candidates:

Answer Any Four (04) Questions only

All question carry equal marks

No of Questions : 05

No. of pages : 03

Time : 02 hours

Question 01

- I. Write three major concepts represented by CIA Tired. (03 Marks)
Confidentiality, Integrity, Availability.
 - II. Briefly explain the following terms with a suitable diagram.
plaintext, cipher text, encryption, decryption, and Key . (10 Marks)
original text, decrypted text, convert plain text to cypher text.
 - III. Define the term "Vulnerability"? (02 Marks)
weak point of the system
 - IV. Explain two ways of improving security of online credit or debit card transaction? (06 Marks)
protect system, virus attack, unauthorized parties in the system
 - V. Write two functions performed by Database Administrators (DBA) (04 Marks)
use two keys, protect system, don't get access
- [Total 25 marks]

Question 02

- I. Write three functions performed by a firewall. (06 Marks)
use two keys.
- II. Briefly explain the term "Asymmetric Key Encryption" with a suitable diagram. (07 Marks)
- III. Briefly explain the term "Authentication" and explain why authentication is important? (06 Marks)
use identify uniquely.
- IV. State three steps that can be used to stop incomplete mediation in program security. (06 Marks)

[Total 25 marks]

Question 03

- I. Define the term "Masquerade". *for mask (mask) send to attack server.* (02 Marks)
- II. Write three properties of a good password. *more than 8 characters, mixed symbols, numbers, English capital simple letter* (06 Marks)
- III. Compare and contrast active and passive attacks and provide one example for each type of attack. *Damage system - Learning Propose not damage system.* (06 Marks)
- IV. Briefly explain the following two terms. (06 Marks)
 - a. Brute forcing \cap .
 - b. Denial of service - *DOS - hack send to attack server.*
- V. Write three advantages of Learning Information Security as an HNDIT student? ** protect system virus attack.* (05 Marks)

[Total 25 marks]

Question 04

- I. Define the term "Bio metric Authentication" and write two examples. (05 Marks)
- II. Briefly explain the purposes of message hashing and give two examples for message hashing algorithms. *Digital signature, enter date, subject id, Algorithm id* (06 Marks)
- III. Write three information available in a security certificate. (06 Marks)
- IV. Secret message XYZ was encrypted by using Caesar encryption and the encrypted message is **QHZ SDVVZRUG**. (period symbol is not included for the encrypted message). The encryption algorithm is defined as $C=E(P) = (P+3) \text{ mod } 26$.
 - a. Write the decryption algorithm (02 Marks)
 - b. Find the original secret message (06 Marks)

[Total 25 marks]

Question 05

- I. Write five best practices to be considered when assigning password to social media application. (05 Marks)
- II. Briefly describe the term "Ransomware Attack". (05 Marks)
- III. Explain the purpose of Honey pots / Sugar canes over a network. (05 Marks)

- IV. "XYZ" is a reputed and popular YouTube channel which has a large amount of subscribers about two million. After the two million subscribers the channel was hacked. The channel administrator cannot access the google account.
- a. Mention two possible damages that can occur to the YouTube channel after the above attack?
b. (04 Marks)
 - c. Briefly explain how can these types of attacks happen?
(04 Marks)
 - d. It is possible to obtain the access to the channel. Justify your answer.
(02 Marks)

[Total 25 marks]