

University of Ruhuna- Faculty of Technology
Bachelor of Information Communication Technology Honours Degree
Level 3 (Semester II) Examination, October 2022
Academic year 2020/2021

Course Unit: ICT 3243 Network, Computer & Application Security (Written)
Duration: 2 hours

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- Answer all **four (04)** questions.
- All questions carries 100 marks.

1)

- a) You are an Intern security officer at Tech_X organization. The organization asked you to develop a summarized explanation on following terms.
 - i) Prevention
 - ii) Detection
 - iii) Reaction
 - iv) Recovery
- b) You are an intern security officer at Tech_X organization. The computer system of the organization was affected by a ransomware attack.
 - i) Write the possible threat source for the above attack.
 - ii) Provide two (02) proactive actions to avoid these kinds of attacks.
- c) Write a short note on the CIA Triad in security.
- d) Show how the AAA is securing the information.
- e) Determine four (04) types of cyber attackers and explain two (02) of them.

2)

- a) Provide a brief explanation on four (04) types of Rootkits with relevant examples.
- b) Write a short note on three (03) access control structures.
- c) Discover at least three (03) ways that Role Based Access Control benefited an organization over other Access control methods.
- d) Compare and contrast three (03) control functions with relevant examples.
- e) Develop (04) guidelines on creating a strong password.

3)

- a) Interpret the term “security policies” in an IT organization.
- b) As the IT policy planner of the “TecICT” organization, you are required to design an IT policy for the organization. Write brief explanations on five (05) types of policies that you can utilize to create the IT policy with relevant examples.
- c) “One single vulnerability is all an attacker needs”
 - i) Prepare a definition on the term “vulnerability auditing”
 - ii) Explain the importance of vulnerability auditing for an IT organization.
- d) Illustrate and explain the process of “Vulnerability Testing”.
- e) Sandboxing plays a vital role in the security field. Define the term “sandboxing” and show how sandboxing is important to IT organizations.

4)

- a) Prepare a brief note on following attacks on cryptography.
 - i) Ciphertext only attacks
 - ii) Dictionary attack
 - iii) Brute force attack
- b) Discuss four (04) components of a Cryptosystem.
- c) Assume that you are working as the chief security officer in British Monarchy. How you use symmetric and asymmetric key encryptions in confidential letters related Princesses of Wales.
- d) You are the security officer of the TECH_X organization, and you know that using the Hash function is beneficial to the organization. Explain two (02) properties of the Hash function.
- e) Determine the differences between “Public Key” and “Private Key”.

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