



UNIVERSITY OF COLOMBO, SRI LANKA

University of Colombo School of Computing

C3 MAR 2022 C EXAMINATIONS & REGISTRATION LESS NO. 11 P. 12 P. 12

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS

Second Year Examination – Semester II – 2020/2021

IS 2109 – Information Systems Security (Part A)

TWO (2) HOURS (for both parts A & B)

To be completed by the can	didate
Examination Index No:	

Important Instructions to candidates:

- 1. The medium of instruction and question is **English**.
- 2. Write your answers in English.
- 3. If a page or a part of this question paper is not printed, please inform the supervisor immediately.
- 4. Note that questions appear on both sides of the paper. If a page is not printed, please inform the supervisor immediately.
- 5. Write your index number on each and every page of the answer paper.
- 6. This paper has 2 questions in 06 pages.
- 7. Answer **ALL** questions. Question 01 carries **24 marks** and Question 02 carries **26 marks**.
- 8. This paper consists of two parts, Part A (Question No 1 and Question No 2) and Part B (Question No 3 and Question No 4) and submit separately.
- 9. Any electronic device capable of storing and retrieving text including electronic dictionaries and mobile phones are not allowed.
- 10. Non-Programmable calculators are allowed.

For Examiner's use Only	
Question No	Marks
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Part A

Question 1

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(ii)	Briefly explain risks in using an Automated Teller Machine (ATM) and	Au
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(b)	princ	fly explain how you are going to implement the following fundamental security design in the given context. You are also required to mention the advantages of implementing espected design principle.
	(i)	Implementing the principle of Complete Mediation in an Automated Teller Machine (ATM).
		[5 Marks]
NOTE OF THE OWNER OWNER OF THE OWNER		
	(ii)	Implementing the principle of Separation of Privilege in the public cloud platform. [5 Marks]
	(iii)	Implementing the principle of Economy of Mechanism in your group project. [5 Marks]

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Ques	stion 2	
(a)	Mathematical notations are used to represent a relationship between variables (For $\epsilon +$, <, >, =). Represent the following variables using mathematical notations.	example,
	Variables: 'Cost of security', 'Cost of failure', and 'Cost of recovery'.	
	An Information Manager identified a vulnerability in the information system of the organ When he requested resources for fixing the vulnerability, he was asked to evaluate when worth to invest that much of resources to fix the given vulnerability. Using the cost of fair cost of recovery, assist him to evaluate his decision. You can use the mathematical notation	ther it is lure and ns.
		Marks]

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(b)	List form (4)	
(0)	List four (4) countermeasures that could only reduce the consequences of a security breach [4]	Marks]
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(c)	Usi	ng a suitable example, briefly describe the following terms.	
	Tern	ns: 'Attack', 'Threat', and 'Vulnerability'.	TC Manda
	·		[6 Marks
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(d)	<i>(</i> ;)	Weigns the language and a supplied to the second state of the seco	
	(i)	Using the length and composition of a password, briefly explain the relationsh Ease of Use and Security .	
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(iii)	List and limitation of the same is a list of
(111)	List one limitation of the security mechanism mentioned and answer to 2 (d) (ii).
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(iv)	Identify possible measures or product to overcome the limitation mentioned answer to 2 (d) (iii)
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