UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019

COURSE NAME	:	SYSTEM SECURITY
COURSE CODE	:	BIS 33503
PROGRAMME CODE	:	BIS
EXAMINATION DATE	:	JUNE / JULY 2019
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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Q1   (a)   Compare **THREE (3)** features between commercial databases with open source databases.

(6 marks)

(b)   List **TWO (2)** examples of commercial databases.

(2 marks)

(c)   Discuss **THREE (3)** requirements for database security?

(6 marks)

(d)   Explain **THREE (3)** types of attacks on databases.

(6 marks)

Q2   (a)   Explain why many companies are migrating from MySQL to other databases since 2008?

(2 marks)

(b)   List **FOUR (4)** types of Not Only SQL (NoSQL) database.

(4 marks)

(c)   Compare **TWO (2)** features between NoSQL database with relational database?

(4 marks)

(d)   Outline **TWO (2)** Hadoop components that handle big data in organization.

(4 marks)

(e)   Discuss **THREE (3)** mechanisms to ensure high availability, data protection, and disaster recovery for enterprise data in organization.

(6 marks)

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Q3   (a)   Identify **TWO (2)** security mechanisms for first attack in the Open Web Application Security (OWASP) Top 10 2017 list.

(4 marks)

(b)   Illustrate a database access security model using Bell La Padula model.

(4 marks)

(c)   Compare the usage of blockchain between digital coin and IoT implementation.

(6 marks)

(d)   Discuss the functionalities of Supervisory Control and Data Acquisition (SCADA) and Cyber-Physical System (CPS).

(6 marks)

Q4   Ultra Data Sdn Bhd (UDSB) is a multinational company specializing in design and produce electronic components. This company need to manage very big database on sales and customer information. As an information security officer in this company, you are required to implement the following tasks.

(a)   Explain **THREE (3)** requirements to create a secure database for UDSB data.

(6 marks)

(b)   Outline **THREE (3)** risk assessments of UDSB database.

(4 marks)

(c)   Suggest **TWO (2)** security solutions for the risk stated in **Q4(b)**.

(2 marks)

(d)   Explain **TWO (2)** OWASP Secure Coding checklist that suitable for UDSB database security.

(4 marks)

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Q5   Indah Technologies Sdn Bhd (ITSB) is a company specializing in providing design and solution for IoT. The company was awarded a contract to develop a smart city for Batu Pahat district. As an IT expert in this company, you are required to implement the following tasks.

(a)   Analyze **THREE (3)** appropriate IoT solutions to Batu Pahat district.

(6 marks)

(b)   Design a threat model for IoT using STRIDE for Batu Pahat smart city.

(10 marks)

(c)   Suggest **TWO (2)** security guidelines to protect IoT devices in Batu Pahat smart city.

(4 marks)

- END OF QUESTIONS -

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