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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2015/2016**

COURSE NAME	:	CORPORATE SECURITY ENGINEERING
COURSE CODE	:	BIS 33103
PROGRAMME	:	3 BIS
EXAMINATION DATE	:	DECEMBER 2015 / JANUARY 2016
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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Q1 Answer Q1(a) – Q1(e) based on Figure Q1.

In December, 2013, FoxNews.com had reported 2 million Facebook, Google account compromise. Below are part of the reported news.

More than 2 million Facebook, Google and other accounts have been compromised, security experts warn, compromising countless accounts and leaving Internet and financial companies scrambling.

Some online networks responded by disabling the affected passwords, or requiring affected accounts to choose new passwords. But there are several things you can do to minimize further threats, even if your account isn't among the m

"The most important thing is to have a different password for every site that you are registered to," former chief security officer for MySpace.com Hemu Nigam told FoxNews.com.

Nigam, who founded the online security company SSP Blue, said that most people tend to use the same password for every site they visit. This leaves a person vulnerable to attacks, Nigam warned: Once a hacker accesses one of your accounts, they can access all of them.

"In the real world, we have a different key for your house, bank, gym locker and car so that if a thief breaks into one of those, they can't break into everything. The same should be true for the online world," he said.

Many of the companies involved, including Facebook and LinkedIn, rushed to address the breach.

Nigam said he suggests everyone change their passwords -- hackers may remain idle for months before beginning their mayhem.

"The other thing that everyone needs to worry about is sometimes hackers will obtain compromised account and then not do anything with them until 3 to 4 months later. So it's something to keep our guard up," he warned.

Figure Q1

- (a) What is the main cause of resulting the compromised of Facebook and Google accounts? (2 marks)
- (b) What are the consequences of the breach of these accounts? (4 marks)
- (c) Outline **TWO (2)** methods that enable the attacker to retrieve the user password. (10 marks)

- (d) Suggest pre-caution action for each method identified in **Q1(c)**.
(4 marks)
- (e) Recommend **FIVE (5)** security policies to Facebook and Google to prevent the account from being compromised in the future.
(5 marks)

Q2 Answer **Q2(a)** – **Q2(f)** based on **Figure Q2**.

In *Rock Records (M) Sdn. Bhd. vs Audio One Entertainment Sdn. Bhd.*, the plaintiff applied for summary judgment for copyright infringement by the defendant under the Copyright Act 1987. Rock Records claimed that Audio One Entertainment had infringed its copyright in sound recordings by Malaysian artistes by incorporating them into karaoke video CDs without permission.

The court held that a licence granted by a copyright owner to reproduce sound recordings in laser disc format does not extend to the right of reproduction of the sound recordings in karaoke video CD format.

Therefore, the reproduction of sound recordings in karaoke video CDs by Audio One Entertainment was a copyright infringement and the plaintiff was granted summary judgment. The court's decision in *Rock Records* is consistent with government efforts to enforce the Copyright Act 1987 effectively and stamp out piracy.

Figure Q2

- (a) What are the protections provided by Copyrights?
(5 marks)
- (b) Suggest actions that should be taken by Audio One Entertainment Sdn. Bhd. to comply with Copyright Act 1987.
(5 marks)
- (c) Watermarking provides copyright protection. Define watermarking.
(2 marks)
- (d) Choose the BEST watermarking technique to provide copyright protection for Rock Record (M) Sdn. Bhd.
(2 marks)
- (e) Justify your answer in **Q2(d)**?
(6 marks)

- (f) Describe **TWO (2)** important factors in watermarking audio. (5 marks)

Q3 Parit Raja Clinic wants to create a secure system to store the patient records. Confidentiality and integrity are two basic security requirements by the authority of Parit Raja Clinic. The password is encrypted using RC4. The integrity of the patient records are checked using SHA256. Maslan is the security software programmer who is assigned to design the secure system for Parit Raja Clinic. **Figure Q3(a)** shows the database design.

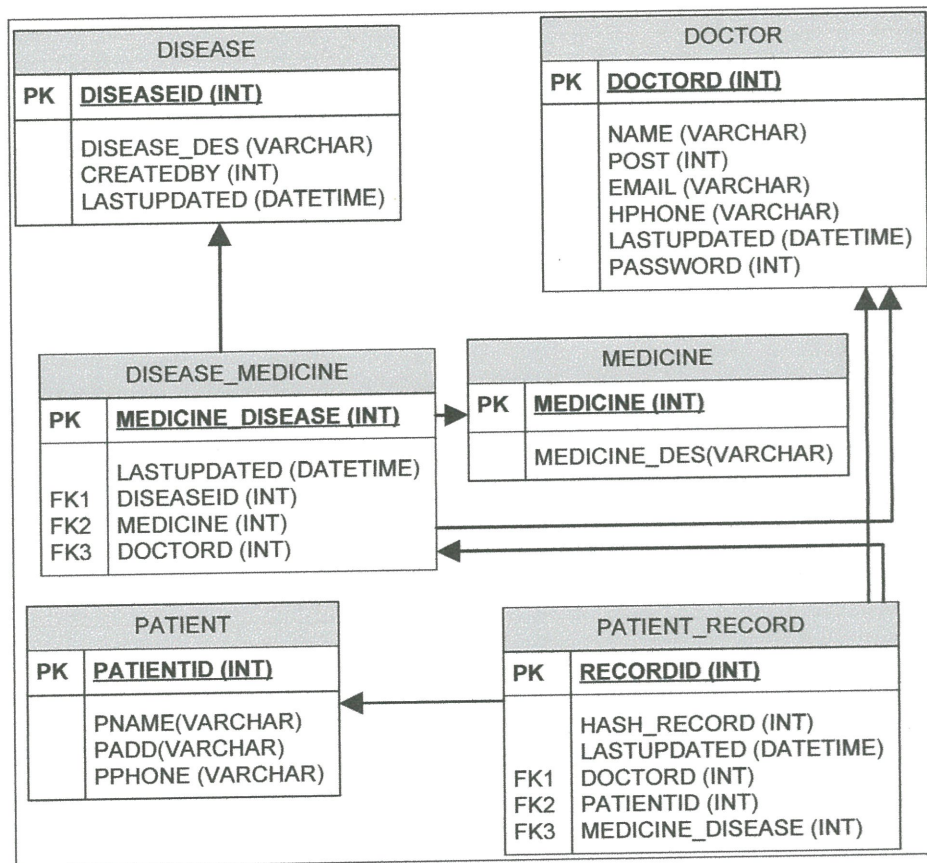


Figure Q3(a)

- (a) Discuss why the design cannot store the output of confidentiality and integrity respectively. (10 marks)
- (b) Recommend possible solutions to address the limitations discussed in Q3(a). (4 marks)

- (c) Suggest the possible attack that can compromise the confidentiality of the system. Provide a solution to encounter the attack. (5 marks)
- (d) Suggest **TWO (2)** hash functions that can provide better security compare to SHA256. (2 marks)
- (e) The database design is not able to provide the privacy of the patients. Discuss why the design cannot preserve the privacy of the patients. (3 marks)
- (f) Suggest a solution for **Q3(e)**. (1 mark)

- Q4** (a) Bank of Malaysia wish to enhance the security of accessing bank vault where valuables are stored. The bank manager had done some research about two types of access control namely fingerprint and iris. But, he wish to seek for expert opinions about these two types of access control.

Assume you are a security software engineer. Give some advice to the bank manager which access control is better suited Bank of Malaysia. Justify your answer.

(10 marks)

- (b) Bell-LaPadula Model is a state machine model used for enforcing access control in government and military applications. Bank of Malaysia wish to use the Bell-LaPadula Model to provides data confidentiality and controlled access to classified information.

Illustrate the process of Bell-LaPadula Model in accessing classified information.

(15 marks)

- END OF QUESTION -

