



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION SEMESTER II SESSION 2021/2022

- COURSE NAME : SOFTWARE ENGINEERING SECURITY
- COURSE CODE : BIE 33003
- PROGRAMME CODE : BIP
- EXAMINATION DATE : JULY 2022
- DURATION : 3 HOURS
- INSTRUCTION :
1. ANSWER ALL QUESTIONS
 2. THIS FINAL EXAMINATION IS AN **ONLINE** ASSESSMENT AND CONDUCTED VIA **CLOSED BOOK**.
 3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

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

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Q1 Answer Q1 (a)-Q1(d) based on Figure Q1.

Alana Health System decided to integrate its electronic health record (EHR) system with IoT technology and devices to monitor patient health. Wireless scales and blood pressure cuffs monitor vitals and feed data directly into each patient's medical record using the patient's smartphone. From there, doctors, pharmacists and health coaches can remotely monitor patient status and track potential trends or problems.

Figure Q1

- (a) Propose a suitable software process model to develop a secure system. Justify your answer. (5 marks)
- (b) Based on the answer in **Q1 (a)**, determine **FIVE (5)** main risk management activities that can be applied. (5 marks)
- (c) Discuss **FIVE (5)** main issues that may exist. (10 marks)
- (d) Based on each issue answer in **Q1 (c)**, suggest **ONE (1)** security mechanism to remain secure. Justify your answer. (10 marks)
- (e) Design a protection architecture for the system. (10 marks)

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Q2 Answer Q2 (a)-Q2 (e) based on Figure Q2.

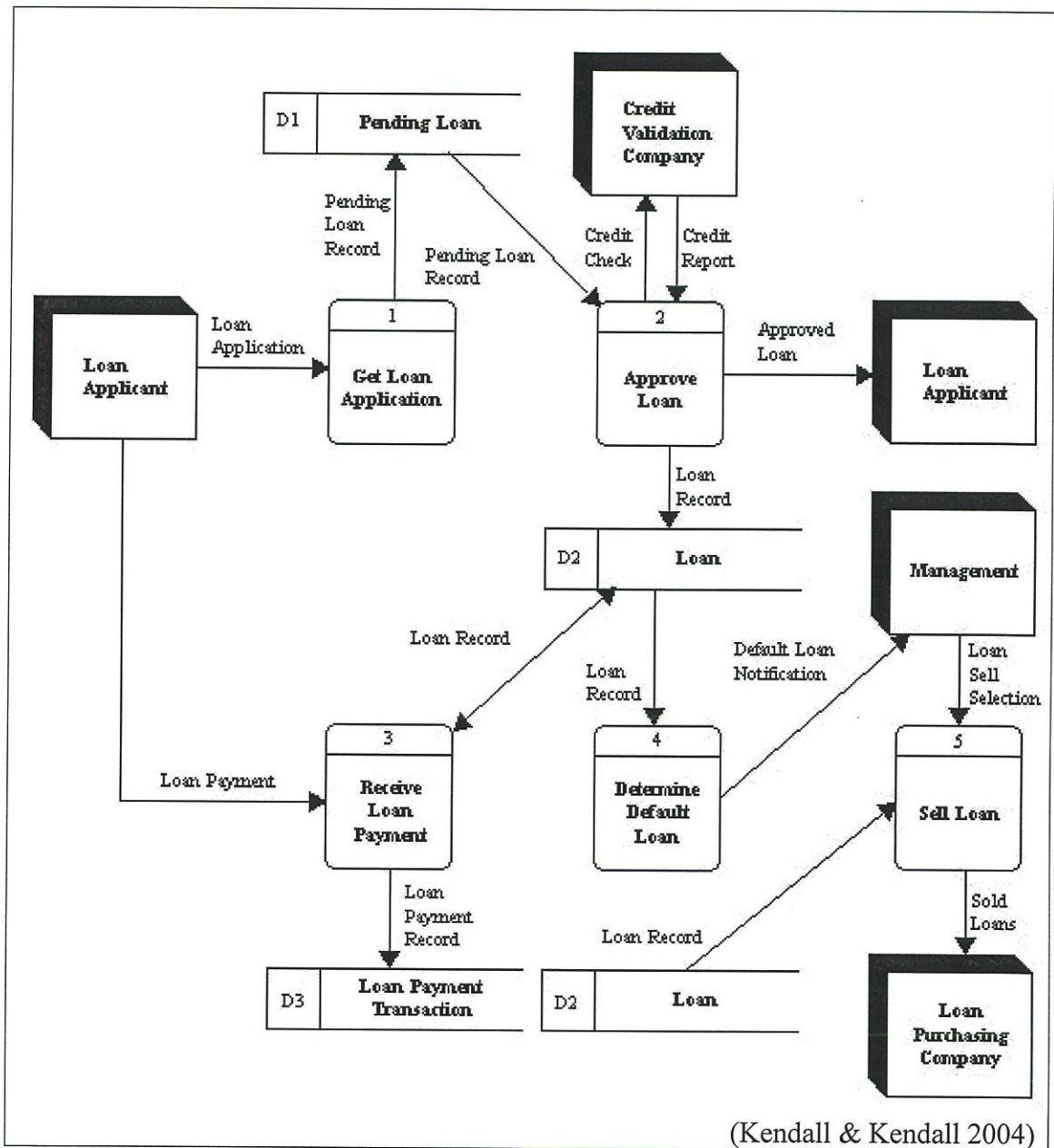


Figure Q2

- (a) Develop a secure relational database schema to manage the information. (10 marks)
- (b) Design an access control policy using Role-Based Access Control (RBAC). (10 marks)



- (c) Outline **FIVE (5)** critical assets (5 marks)

- (d) Determine **THREE (3)** main important security goals. (6 marks)

- (e) Based on the goals answered in **Q2(d)**,
 - (i) Model the threat to the system using misuse case diagram. (12 marks)

 - (ii) Asses the risk. (5 marks)

 - (iii) Specify the related security requirements. (12 marks)

- END OF QUESTIONS -

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