



UTHM

Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION SEMESTER II SESSION 2022/2023

COURSE NAME : SYSTEM ANALYSIS AND DESIGN

COURSE CODE : BIC 21003

PROGRAMME CODE : BIS / BIP / BIW / BIM

EXAMINATION DATE : JULY / AUGUST 2023

DURATION : 3 HOURS

INSTRUCTION : 1. ANSWER ALL QUESTIONS

2. THIS TEST IS 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 FIVE (5) PAGES

Q1 (a) Answer Q1(a)(i) – Q1(a)(ii) based on Figure Q1.

AZ Sdn. Bhd. is an engineering company with 500 engineers of various specialities. All personnel, their talents, projects assigned to them, and the departments they work in are kept on file by the company. The personnel manager makes new hires based on information from an application form and feedback gathered from other managers who conduct interviews with prospective candidates. Applicants for employment are welcome at any time. When a vacancy available, engineering managers let the personnel manager know and provide a list of qualifications. The personnel manager compares the qualifications of the available pool of applicants with the characteristics of an open job and then schedules interviews between the manager in charge of the open position and the three best candidates from the pool. After receiving evaluations on each interview from the manager, the personnel manager makes the hiring decision based on the evaluations and applications of the candidates and the characteristics of the job and then notifies the interviewees and the manager about the decision. Application of rejected applicants is retained for one year, after which time the application is purged. When hired, a new engineer completes a nondisclosure agreement, which is filed with other information about the employee.

Figure Q1

- (i) Draw a Context Diagram. (10 marks)
 - (ii) Illustrate Level 0 Data Flow Diagram. (10 marks)
- (b) Identify **THREE (3)** potential rule violations in Figure Q1(b).

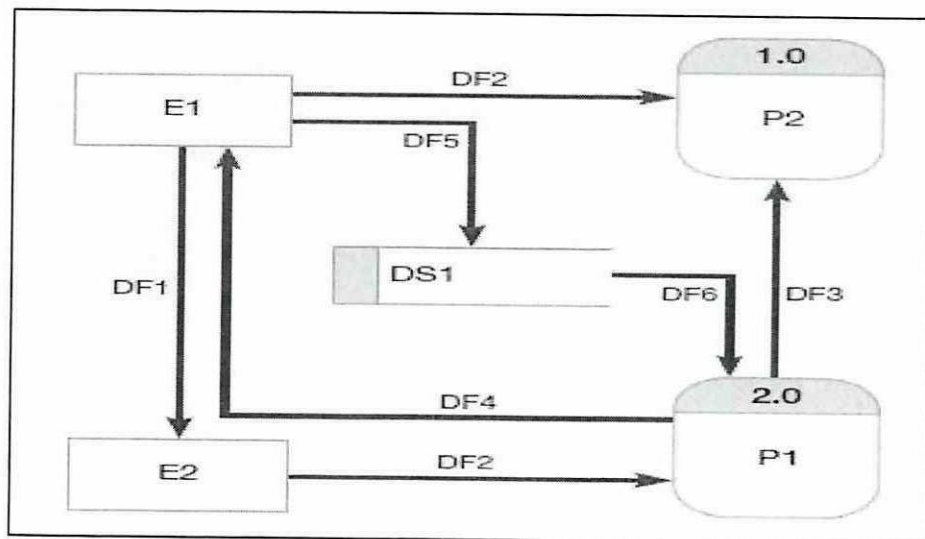


Figure Q1(b)

(3 marks)

- (c) Illustrate a Context Diagram based on **Figure Q1(c)**.

For its banking clients, King State Bank offers housing and car loans. A prospective borrower fills out a loan application and meets with a King lending officer to request a loan for a specific sum and term. The loan officer then decides the type of loan needed, the required interest rate, and the customer's credit standing. The loan officer can approve car loans for consumers with good credit, but a lending committee must approve housing loans.

Figure Q1(c)

(5 marks)

- Q2** (a) List **THREE (3)** types of relationships that can exist between entities.

(3 marks)

- (b) Answer **Q2b(i)** to **Q2b(ii)** based on the following scenario.

A gym has branches in three locations in a city. It has hired multiple trainers and maintains a daily schedule for them to adhere to. In addition, there is a schedule for the general staff responsible for administrative work. Customer details such as the programs they have opted for and their gym timings need to be recorded on a system. The system should be able to manage overdue payments and the entry and exit times of the customers. The gym equipment also needs to be maintained and the inventory managed.

- (i) Draw an Entity Relationship Diagram (ERD).

(12 marks)

- (ii) List any **THREE (3)** Primary keys that are needed to implement the gym management system in **Q2(b)(i)**.

(3 marks)

Q3

Assume that you and your two friends are starting a small business to paint houses. You need to have a software package that handles the financial transactions of the business. You are planning about outsourcing the job, but one your friend thinks that it is better to buy a packaged system, while the other friend thinks of having a custom development for the software. After conducting a series of meetings, you have finally decided to choose one acquisition strategy.

- (a) State **ONE (1)** acquisition strategy of your preference.

(1 mark)

- (b) State **FOUR (4)** factors of you selecting the strategy stated in **Q3(a)**. (4 marks)
- (c) Justify your answer in **Q3(b)**. Make assumptions whenever necessary. (12 marks)
- (d) Describe **THREE (3)** approaches that your team can use to gather additional information needed for the proposed software package. (6 marks)

Q4 Assume that the admissions office in Universiti Tun Hussein Onn Malaysia (UTHM) has a Web-based application so that students can apply for admission online. Recently, there has been a push to admit more international students into the university.

Based on cultural/political and operational requirements, suggest **TWO (2)** examples for each requirement that the application needs to include to ensure that it supports this global necessity.

(8 marks)

Q5 Answer **Q5(a) – Q5(c)** based on **Figure Q5**.

Cake Decoration Form

Event Type _____

Event Date & Time _____

Delivery Time _____

Location & Contact _____

Customer Name, Address & Phone(s) _____

Cake Design

Photo or sketch attached? *yes* *no* *Number of servings* _____

Cake Stand _____ *Cake Topper* _____ *Special display* _____

Number of Tiers _____ *Shape* _____ *Sizes* _____

Return Equipment _____

Cake: \$ _____

Filling: \$ _____

Flowers: \$ _____

Extras: \$ _____

Total: \$ _____

Deposit : \$ _____

Balance: \$ _____ *due*

*Equipment Deposit * (refundable):* \$ _____


Cake Flavor(s) _____

Filling(s) _____

Icing(s) _____

Fondant _____

Special Instructions:
(*decoration variations? setup? table display?*)



*Equipment must be returned within 7 days for deposit refund.

Order Approval Signature: _____ *Date:* _____

Figure Q5

- (a) Draw an Online Cake Decoration Form based on manual form in **Figure Q5**.
(12 marks)
- (b) Create **ONE (1)** user persona for your design in **Q5(a)**.
(5 marks)
- (c) Identify **FOUR (4)** entities to be included in the logical Entity Relationship Diagram (ERD).
(4 marks)
- (d) Based on your answers in **Q5(c)**, write a step to create the physical ERD.
(2 marks)

-END OF QUESTIONS-