



UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DCT2113
COURSE	: SYSTEM ANALYSIS AND DESIGN METHOD
SEMESTER/SESSION	: 2 - 2024/2025
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 5 questions. Answer **ALL** questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

- a) Define information technology. (2 marks)
- b) List **FIVE (5)** components of information system. (5 marks)
- c) Describe the **TWO (2)** advantages of agile development model over structure model. (4 marks)

QUESTION 2

- a) Explain the objectives of SWOT analysis as a strategy used in strategic planning. (2 marks)
- b) Explain the role of **FOUR (4)** feasibility studies in assessing the system requests. (8 marks)
- c) Explain the purpose of a system request in information systems projects and provide **TWO (2)** reasons why an organization might initiate a system request. (6 marks)
- d) A university library is considering implementing a new Library Management System (LMS) to streamline book borrowing and returning processes. Currently, the library faces challenges with overdue books, inaccurate stock updates, and delays in notifying students about book availability. As part of the initial steps, the library team needs to create a system request.
- i. State the problem that could be written in the system request document. (2 marks)
 - ii. State the objective for the system request. (2 marks)
 - iii. Provide **ONE (1)** reason why implementing this system could improve the library's efficiency (2 marks)

QUESTION 3

- a) One of the techniques in process description tools is using a modular design which is based on combinations of three logical structure. List **THREE (3)** logical structures. (3 marks)
- b) Figure 1 shows the Data Flow Diagram of Payroll System. Describe **FIVE (5)** mistakes in the diagram. (10 marks)

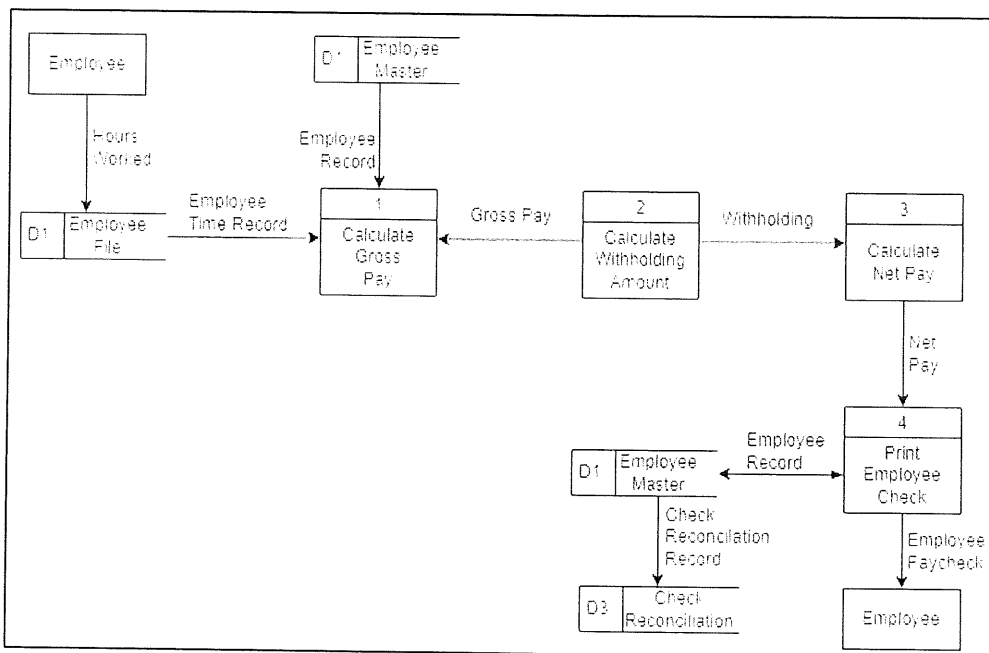


Figure 1: DFD Diagram 0

(10 marks)

- c) An online food delivery service wants to implement a system that determines whether a customer is eligible for a discount on their order. The eligibility for discounts depends on the following conditions:
1. Order Amount: If the order amount is over RM50, the customer is considered for a discount. If the order amount is RM50 or below, no discount applies.
 2. Membership Status: If the customer is a loyalty program member, they are eligible for an additional discount. Non-members do not receive this additional discount.
 3. Promotional Code: If the customer applies a valid promotional code, they

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are eligible for another discount, which can be combined with the previous discounts if applicable.

Based on these conditions, determine the discount eligibility for each order.

- i. Create a decision tree that shows the step-by-step logic for determining if the customer receives a discount. Each branch should clearly label the conditions and the final decision. (5 marks)
 - ii. Construct a decision table listing all possible combinations of the conditions (order amount, membership status, and promotional code) and the resulting discount eligibility. Ensure the table covers all scenarios. (5 marks)
- d) The *Pet Grooming Booking Information System (PGBIS)* is a comprehensive software platform designed to streamline the operations of pet grooming businesses by managing client appointments, service preferences, payment processing, and overall business administration. It is intended to address common operational inefficiencies in pet grooming businesses, such as manual appointment booking, scheduling conflicts, customer data management, and communication with clients.
- Draw a context diagram for the information system with at least **THREE (3)** entities and **TWO (2)** data flow for each entity (input and output). (10 marks)

QUESTION 4

- a) Explain the differences between traditional and web-based development strategies. (4 marks)
- b) Describe **TWO (2)** advantages of using web-based development compared to traditional development. (4 marks)
- c) Provide **TWO (2)** examples of a situation where a company might prefer to "buy" rather than "make" software. (4 marks)

QUESTION 5

- a) Describe **TWO (2)** advantages of database management system. (4 marks)
- b) Explain the objective of normalization in developing the database design. (2 marks)
- c) A university library has decided to implement a Library Management System (LMS) to handle book borrowing, returns, and fines. The system will store details about books, students, and librarians. Each book has attributes such as a unique Book ID, title, author, and genre. Students have a unique Student ID, name, and contact details. Librarians are responsible for managing the borrowing and returning process and have a unique Librarian ID, name, and position. For each borrowing transaction, the system should record the borrow date, return date, and any fines if a book is returned late. A student may borrow multiple books, but each borrowing transaction is managed by a specific librarian.

Draw a complete ERD for the LMS. Your ERD must contain at least **FIVE (5)** entities, possible attributes, primary keys, foreign keys, relationships, and cardinalities. Use standard notation and ensure that relationships are accurately represented based on the scenario. (16 marks)

-----End of question-----

