

**FINAL  
ALTERNATIVE ASSESSMENT**

(COVER PAGE)

Session : April 2021

Programme : Diploma In Information Technology (DITN)

Course : ICT1106: System Analysis And Design

Date of Examination : 31 July, 2021 (Saturday)

Time : 8:00am – 10:30am Reading Time : Nil

Duration : 2 Hours 30 Minutes

**Note:** 30 minutes is added into the duration of the examination to factor in any connectivity matters and for you to scan and upload your scripts

**Special Instructions :**

**Section A:** This section consists of **FOUR (4)** questions. Answer **ALL** the questions

**Section B:** This section consists of **FOUR (4)** questions. Answer **ALL** the questions.

Materials permitted : Non-Programmable Calculator

Materials provided : Nil

Examiner(s) : Tang Yang Tze, Siti Syakirah and Dr Ting

Moderator : Nadharah bt Hadi

*This paper consists of 4 printed pages, including the cover page*

DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)  
ICT1106: SYSTEM ANALYSIS AND DESIGN  
FINAL ALTERNATIVE ASSESSMENT: APRIL 2021 SESSION

**SECTION A (40 marks)**

**Instructions:** This section consists of **FOUR (4)** questions. Answer **ALL** the questions in the answer booklet provided. All questions carry equal marks.

**Question 1**

Explain and compare the roles of system analyst and project manager in a system development project. State **FOUR (4)** important soft skills of a good system analyst.  
(10 marks)

**Question 2**

Discuss **FOUR (4)** types of system maintenance plans. You need to select **ONE (1)** system maintenance plan for a new information system. Justify your answer.  
(10 marks)

**Question 3**

Explain the functional requirements and non-functional requirements of an information system. For each, give **THREE (3)** examples.  
(10 marks)

**Question 4**

- (a) Distinguish between Transaction Processing System (TPS) and Management Information System (MIS).  
(4 marks)
- (b) System testing can be conducted in test environment and operational environment. Describe the **TWO (2)** system testing environments.  
(6 marks)

**SECTION B (60 Marks)**

**Instructions:** This section consists of **FOUR (4)** questions. Answer **ALL** the questions in the answer booklet provided. All questions carry equal marks.

**Question 1**

You are given the description of Trading Management System operated by a commodity trading company. Convert the description of this system into a Use Case diagram.

A new customer must register with the company to create an account before using the trading services. A trading agent will be assigned to the new customer after registration is accepted. Trading agent will execute the trading requests of assigned customer.

Customer can use the system to get information about the trading services, commodity products and commodity market. Customer can use the system to submit trading requests for buying or selling commodity products. If trading request is successful, system will process the payment and send the transaction details to the payment system.

Trading agent can check the trading records of the assigned customers. If a customer has pending requests, trading agent will notify the customer. Customer can cancel the request and submit new request. Or, continue to wait. All pending trading requests will be cleared automatically at the end of the day.

Every customer is given a quota for the trading request. If a customer wants to increase the quota, the trading agent must seek approval from the manager. Manager can use the system to manage customer information, trading agent information, and commodity product information.

(15 marks)

**Question 2**

You are given the description of a library management system. Convert the description into a Class diagram. You are required to use the UML notations to represent the classes, associations and cardinalities.

A member must have an active account to use the library services. All members have a unique ID. Inactive member must reactivate the membership. Otherwise, cannot use the services. The system maintains proper records for all the books in the library. All books have a unique reference code.

A member can request to borrow one or many books at a time. The system will check the member's borrowing records. Member is not allowed to borrow books exceeding the limit of five books at any time. The borrowing period is two weeks. So, member must return the books in two weeks. If member returns the books after two weeks, the system will impose penalty.

After borrowing books, member can renew the borrowing of books to extend for two more weeks. The renew procedure will update the related borrowing records. If the books are reserved by other members, the system will reject the renew request.

A member can make reservation of one or many books. If the reserved book is available, the system will notify member via email. Member can cancel the reservation of books.

A member is required to pay penalty for late returning of books, damage of books, or loss of books. Details of penalty and payment will be recorded. If a member failed to pay the penalty, membership will be deactivated.

(15 marks)

### Question 3

You are given the estimated costs and benefits of a system development project for the next five years. The new system is expected to be fully operational in the middle of this year.

Year	1	2	3	4	5
Cost (RM)	300,000	30,000	30,000	30,000	30,000
Benefits (RM)	50,000	100,000	100,000	100,000	100,000

- (a) Calculate the cumulative costs and cumulative benefits for all the five years. (5 marks)
- (b) Calculate the return on investment (ROI) for all the five years and indicate the payback period of this project. (7 marks)
- (c) Discuss the financial analysis of this project. (3 marks)

### Question 4

You are given the activity breakdown table of a system development project.

Activity	Duration (Weeks)	Predecessor
A	1	None
B	2	None
C	3	A
D	4	A
E	5	B
F	6	C
G	3	D, F
H	4	E

- (a) Draw a PERT/CPM diagram and indicate the Earliest Completion Time (ECT) and Latest Completion Time (LCT) for each node in the diagram. (11 marks)
- (b) List all the possible paths and indicate the critical path. Justify your answer. (4 marks)

~ The End ~

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