

 **INTI** International
University & Colleges

FINAL
Examination Paper

(COVER PAGE)

Session : APRIL 2018

Programme : Diploma In Information And Communication Technology (DICTN)
Diploma In Information Technology (DITN)

Course : ICT1106: System Analysis And Design

Date of Examination : July 28, 2018 (Saturday)

Time : 2:00pm – 4:00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

This paper consists of **SIX (6)** questions. Answer any **FOUR (4)** questions in the answer booklet provided.

Materials permitted : Non-Programmable Calculator

Materials provided : Nil

Examiner(s) : Tan Kok Cheng and Neesha

Moderator : Professor Dr. Abdullah Gani

This paper consists of 5 printed pages, including the cover page

DIPLOMA IN INFORMATION AND COMMUNICATIONS TECHNOLOGY PROGRAMME
(DICTN)
DIPLOMA IN INFORMATION TECHNOLOGY PROGRAMME (DITN)
ICT1106: SYSTEM ANALYSIS AND DESIGN
FINAL EXAMINATION: APRIL 2018 SESSION

Instruction: This paper consists of **SIX (6)** questions. Answer any **FOUR (4)** questions in the answer booklet provided. All questions carry equal marks.

Question 1

- (a) Describe the **FIVE (5)** information systems (IS) components. (5 marks)
- (b) Explain the **FOUR (4)** layers of an organization structure. Match these identified layers with at least **ONE (1)** information systems they would most likely to use. (10 marks)
- (c) Discuss any **FIVE (5)** external factors that may affect system projects. (10 marks)

Question 2

- (a) Indicate any **FIVE (5)** skills a system analyst is expected to possess (5 marks)
- (b) Explain the term, *economic feasibility*. Give any **SIX (6)** areas a system analyst will consider when estimating the project costs. (10 marks)
- (c) The following is a system requirement for an Education Sales & Marketing system.
A Publisher has its own group of authors who will write the books. These books are later printed by their network of printers.
Interpret the above requirement statements by identifying at least **FOUR (4)** objects. Sketch these objects with at least 3 attributes and 1 method. (10 marks)

Question 3

- (a) Give **TWO (2)** examples of polymorphism. Illustrate your examples with suitable diagrams. (5 marks)
- (b) Explain the difference between aggregation and composition. Give **TWO (2)** examples with suitable diagrams. (10 marks)
- (c) Using the information described below, you are to sketch a class diagram. In this diagram, you are to identify the objects (only object names required) and indicate the nature of the relationship using the UML notation (cardinality).

A customer has opened a savings and a current account from a bank branch whose headquarters is based in Kuala Lumpur. Soon after, he makes many transactions from these accounts.

(10 marks)

Question 4

- (a) This is a business process description of a hypermarket called *Groceria* which is operated by Grace International Sdn. Bhd. You are to draw a suitable use case diagram to show how *Groceria* works.

On a given business day, a customer enters into the shop and looks through the shelves for items he/she intends to purchase. The customer selects the items and put them into his/her shopping basket. At the end of his/her shopping, the customer goes to the check-out counter and pays for his/her grocery either by cash or by credit card or by debit card. The customer then leaves the hypermarket with his groceries.

At the end of the business day, the manager will generate a sales report.

When the need arises, the manager will re-stock the hypermarket by buying more goods. The manager will pay for these purchases. The authorized hypermarket suppliers will supply the goods ordered. The suppliers will receive payment for the goods thirty days after the goods are delivered. The hypermarket inventory system will immediately update the stocks level when the goods are delivered.

(13 marks)

- (b) The following table describes the costs and benefits of developing and operating a new system for the next several years.

Year	0	1	2	3	4	5
Costs (RM)	90,000	9,000	8,000	10,000	10,000	20,000
Benefits (RM)	5,000	15,000	20,000	25,000	35,000	40,000

Using the information from above, you are required to answer the following:

- Construct a table to calculate the cumulative values of cost and of benefits.
- Explain why there is a RM5,000 benefit at Year 0?
- Determine when the payback will occur for this new system.
- Determine the Return of Investment (ROI) for this new system at Year 5.
- What can you conclude from these Payback period and ROI?

(12 marks)

Question 5

- Explain the term positive benefits. Give any **FOUR (4)** examples of this type of benefits.
(5 marks)
- Briefly explain the Gantt chart. Illustrate, using diagrams, the **THREE (3)** ways a Gantt chart can be used to monitor a software project.
(10 marks)
- Briefly discuss these changeover methods, *parallel operations* and *pilot operations*. Illustrate with the aid of a diagram how these two methods are located in the *risk vs cost* diagram.
(10 marks)

Question 6

- (a) Consider the following software development project with the following network of activities.

Activity Names	Immediate Activity Precedence	Best case time, B (Weeks)	Probable case time, P (Weeks)	Worst case time, W (Weeks)	Duration (Weeks)
a	-	2	3	4	?
b	-	1	2	3	?
c	a	3	4	5	?
d	b	5	6	7	?
e	b	2	2	2	?
f	d	1	3	5	?
g	c, e, f	4	5	6	?

You are to do as follows:

- i. Identify the formula you use to determine the duration of every activity indicated above and then calculate the value of the duration of these activities
- ii. Determine the critical path of this project. Give a reason for your selection.
- iii. Determine the Earliest and Latest Completion Times for each node.

(15 marks)

- (b) Explain briefly the **TWO (2)** main objectives of a quality assurance. Give any **FIVE (5)** causes that contribute to the poor quality of a new software. Express the software quality as defined by International Organization for Standards (ISO).

(10 marks)

~ The End ~
ICT1106 (F)/Apr18

